Chapter 10

U.S. Government Policies: Issues and Options

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SUMMARY

International competitiveness has domestic roots: the ability of an American firm in any industry to compete with foreign rivals depends on its costs of production, on the design of its products, on its marketing skills—in short, on its ability to provide customers with what they want, at a price they're willing to pay. No U.S. trade or foreign economic policy can in itself reverse the fortunes of an industrial sector that has lost, in a fundamental sense, the ability to compete internationally. Domestic policies of the U.S. Government might (or might not) be able to help such an industry rebuild its competitiveness. Trade policy might be able to equalize the terms of competition between U.S. and foreign firms. The same logic holds for an American industry at the top of the international competitive ranking: Federal policies cannot ensure that the sector will remain on top, although they can support the industry's own efforts. The implication: when it comes to international competitiveness, the first condition for effective policymaking is an appreciation of what government can expect to accomplish and what it cannot. The second condition is an appreciation for the ways (often subtle and indirect), and the time scales (often long), in which domestically directed policies—whether dealing with regulation of banking, with support for technology development, with education and training—affect the international competitive ability of American firms.

Such is the context for the discussion in this chapter of government policies that affect the competitiveness of the Nation's service industries. The chapter covers 33 policy alternatives. Much of the discussion reflects the "new issues" character of trade and competition in the services. Governments are just beginning to grapple with the implications for international trade and competition of economies heavily tilted toward the services. While the United States is further along than most, here too the process of articulating goals and implementing policies remains in its early stages. Efforts by business interests to get services trade onto the Nation's policy agenda began in earnest in the *1970s*. By *1982*, the U.S. Trade Representative (USTR) was seeking a place for services in a proposed new MTN round (multilateral trade negotiations, ch. *9).* Congress, in its *1984* trade bill, gave USTR responsibility for coordinating the development of trade policy for the services, and charged the Department of Commerce with devising a service industries development program. Meeting in Uruguay in September *1986*, members of the General Agreement on Tariffs and Trade (GATT) agreed to begin a new trade round including discussion of services.

The Uruguay Round negotiations promise to be lengthy and difficult. The concessions the United States can realistically ask of other nations, and those it can offer in return, will depend to considerable extent on domestic regulatory structures. But while trade negotiators must remain keenly aware of the constraints and opportunities presented by domestic policies, the linkage has been mostly one-way: considerations of international trade and competition have seldom had much influence on domestic policymaking. The policymaking apparatus stems from an era when trade and domestic policies could be kept separate and distinct. Even in the *1950s* and **1960s,** the impacts of Federal policies rarely extended beyond the domestic economy. This is no longer true, but policymaking processes seldom reflect the new realities—and far less for service industries than for manufacturing (because services trade is not only smaller but less visible). The central message of this chapter can then be summarized as follows:

- American service industries must compete in a world of increasingly potent rivals.
- Federal Government policies traditionally

viewed as domestic affect the ability of American firms to compete internationally.
- Policy makers—including those in regulatory agencies—need to consider, as a matter of course, the impacts of their decisions on international trade and competition.
- This new and broader view will be more vital for the services than for manufacturing because government policies have greater influence over competitiveness in the service industries, many of which are regulated,

If the needed changes come too late, U.S. international competitiveness in the services will probably slip. If competitiveness in the services slips as much as it has in manufacturing, the Nation's living standards will be further endangered,

Although the new competitive realities for American industry have been apparent since the *1970s,* Federal agencies by and large continue to slight the international impacts of domestic policies. Today, policy issues—be they matters of R&D support for industries like engineering and construction (E&C), the role of the Federal Communications Commission (FCC) as the telecommunications industry continues to restructure, or restrictions on interstate banking—must be seen in a new context. This context—one in which U.S. industries are immersed in a global economy, sometimes competing with foreign firms, sometimes cooperating with them—means that domestic and foreign economic policies can no longer be viewed independently, Because the changes are so fundamental, it *may be time for Congress to seriously consider equally fundamental shifts in the structure of the Nation policymaking apparatus.* While changes in structure (for instance, the establishment of a cabinet-level department of trade) are no substitute for good policy, they could give policy makers the tools needed to implement well-conceived policies—tools that, judging by results, they do not currently seem to have.

OVERVIEW OF POLICY OPTIONS

Beginning with trade issues, the discussion in this chapter turns to linkages between domestic policies and international competitiveness, to human resources, and to technology development, before returning to the policymaking process itself, This section outlines the main themes, with selective references to the policy options listed in table 55. This first table identifies the issues and options covered in the chapter, listing each by number. Tables *56, 57,* and *59-61,* which follow later, summarize the options. Appendix 10A, at the end of the chapter, outlines a few of the many ways in which tax policy can affect competitiveness in the services.

With major trade bills (H.R. 3 and S. 490) quickly introduced in both House and Senate, a new record current account deficit in *1986* (some $141 billion), and a new GATT round beginning, there is every reason to expect that trade will remain in the spotlight during the 100th Congress, The Administration, as well, may be ready to assign competitiveness a higher priority.[1] Two overriding concerns will continue to shape the debate: 1) how to manage the strains that rapid competitive shifts have forced on the U.S. economy; and 2) how to continue working toward a more open international economic system. These two broad objectives inevitably come into conflict.

A trade policy that the public understands and accepts must be based on a shared view of U.S. interests. The question policy makers constantly face from domestic constituents and interest groups is this: How, specifically, does the United States benefit from continued liberalization of the world trading system? Good answers depend on an understanding of the

[1] I President Reagan's competitiveness package is the proposed Trade, Employment, and Productivity Act of 1987, H.R. 1154 and S. 539.

Table 55.—Summary Guide to Policy Options[a]

Issue Area	Option	Relevant service sector
***I. The Services and U.S. Trade Policy (see** table 56, p. 336; for details)*		
A. NEGOTIATING OBJECTIVES		
—Congressional guidance	1	all
B. COORDINATION OF SERVICES POLICY		
—Oversight on coordination of trade negotiations	2	all
C. TRADE ANALYSIS AND DATA		
—Long-term analysis for trade policy and planning	3	all
—Oversight on collection of services trade data (also see Option 12)	4	all
—Improving the data on trade in services and on technical licensing	5	all; licensing
D. SUPPORT FOR THE NEGOTIATIONS PROCESS		
—Staff and budget for USTR and other agencies	6	all
–Service sector advisory committees (also see Option 16)	7	all
—Continuing evaluation of U.S. and foreign regulations that act as non-tariff barriers	8	all
E. OTHER TRADE-RELATED ISSUES (see table 57, p. 345)		
—Overseas promotion of exports	9	primarily E&C
—Tied aid and mixed credits	10	primarily E&C
—Trade and Development Program (TDP)	11	primarily E&C
II. ***Linkages between Domestic Policies and International Competitiveness** (table 59, p. 349)*		
A. EXAMPLES FROM BANKING AND FINANCIAL SERVICES		
—Data on international trade in banking	12	banking
—Office on international impacts of banking policies	13	banking
—International coordination of regulations	14	banking
B. EXAMPLES FROM TELECOMMUNICATIONS		
—Negotiating objectives	15	telecommunications;
—Advisory committee on telecommunications negotiations	16	telecommunications
—Institutional mechanisms for addressing impacts of domestic policies on competitiveness	17	telecommunicate ions
III. ***Human Resources** (table 60, p. 357)*		
A. EVALUATION		
—Fundamental reexamination of human resources policies as they affect competitiveness	18	all
B. ADULT EDUCATION AND TRAINING		
—Demonstration projects for training/retraining of the active work force	19	all
—Increasing the national commitment to education and training of active workers	20	all
—Postsecondary vocational/technical curricula	21	all
C. INSTRUCTIONAL TECHNOLOGY		
—Inventory of federally developed training materials	22	potentially all
—Transfer of federally developed training methods, procedures, and course materials	23	potentially all
—Funding for research, development, evaluation, and dissemination of instructional technologies	24	all
***IV. Technology Development** (table 61, p. 362)*		
A. R&D IN THE SERVICES		
—Improving Federal Government data	25	all
B. THE U.S. TECHNOLOGY BASE		
—Federal support for commercial R&D	26	all, E&C
—Technology diffusion to industry	27	all
—Implementation of Japanese Technical Literature Act	28	all
—International exchanges of technical personnel	29	all
—Equitable access to foreign technology	30	all
—Analysis of impacts of defense-related R&D on U.S. competitiveness	31	all
C. TECHNICAL STANDARDS		
—Federal testing and demonstration facility for ISDN	32	information and telecommunicate ions; indirectly all
—Preparation for upcoming meetings of the International Telecommunication Union	33	information and telecommunications; indirectly all

[a]This table appeared in ch 1 as table 2

SOURCE Off Ice of Technology Assessment, 1987

sector-specific strengths and weaknesses of the Nation's economy. This will be as true when it comes to liberalization of trade and investment in the services as it has been for goods trade. OTA's analysis in earlier chapters shows many U.S. service industries to be highly competitive internationally. It is the case that the E&C industry has been losing ground since the 1970s, while sectors like banking face strong competition. But considering the services as a whole, liberalization of trade and investment should help maintain U.S. advantages.

To get agreements in the services, however, the United States will probably have to make concessions elsewhere: discussion of services in the new round will not take place in a vacuum. With GATT discipline over trade in goods breaking down, crafting the U.S. position may prove tricky. Along with other industrialized nations, the United States has restricted imports of goods ranging from steel to textiles, automobiles to television sets. Some of these restrictions plainly meet GATT tests; others have evaded the spirit if not the letter of the rules. As pointed out in the preceding chapter, much of the opposition to services negotiations in the new round has arisen among developing nations that have found access for their exports of merchandise closing down. Despite the two-track nature of the Uruguay Round, the Third World will certainly ask that the industrial countries take more of their goods in return for liberalization in services.

On such questions concerning the place of the services in U.S. trade policy, OTA discusses eight policy options (table 55), beginning with negotiating strategy in the Uruguay Round. While Congress traditionally gives the executive branch considerable flexibility in conducting such negotiations, congressional guidance, formal or informal, will be needed if the Administration is to bring back a politically acceptable agreement (Option 1). Congress may also wish to assure, through oversight and legislative action where needed, that executive branch coordinating procedures are adequate to develop and maintain consistent U.S. positions in GATT and the other international forums where services will be discussed (Option 2).

With a growing number of countries active in world trade, and with trade negotiations on more fronts, better analytical support has become a critical need for U.S. trade policy (Options 3-5). As OTA has noted elsewhere, Federal agencies could with little difficulty substantially improve their data on trade in services.[2] Better data will not be of much value to decisionmakers, however, without the analytical expertise to place it in long-term policy perspective. The desire to strengthen processes for formulating and implementing policy lies behind many of the proposals to create a new department of trade, or otherwise reorganize executive branch trade functions. By itself, trade reorganization would not necessarily accomplish this; but Congress could create better support systems—available should policymakers choose to call on them.

Regulatory decisions influence U.S. competitiveness in many ways—some direct, some indirect—particularly in sectors like banking and telecommunications, overseen by numerous agencies having overlapping or complementary responsibilities. Yet potential impacts on U.S. competitiveness rarely have much of a role in agency decisions; when they do, the matter is usually viewed as exceptional. Sooner or later, this will have to change, with decisionmaking, regulatory and otherwise, routinely encompassing competitive impacts: OTA's analysis points to the need for a better-developed institutional framework for dealing with the linkages between domestic policies and international competitiveness. Here, examples from banking and telecommunications provide the primary context for examining alternatives (Options 12-17).

Previous OTA assessments have consistently pointed to human capital as the foundation for internationally competitive industries. Americans will need new skills as their employers restructure and adopt new technologies. People with poor skills are most likely to lose their jobs as a consequence of restructuring. But compared with other industrial nations, the

[2] *Trade in Services: Exports and Foreign Revenues* [Washington, DC: Office of Technology Assessment, September 1986].

U.S. Government provides little public support for adult education and training (Options 19-21). More emphasis on the development of instructional technologies also seems called for; computer systems pose fundamentally new opportunities at all levels of the educational system. Using them effectively will demand research and pilot projects (Options 22-24). Most generally, adapting an education and training system rooted in the 19th century to the needs of the 21st may well require a comprehensive overhaul of public policies. The first step is to reevaluate these needs and policies at the most fundamental level; the effort to reformulate human resources policies has hardly begun, despite the many studies of the U.S. educational system to appear over the past several years.

Throughout this report, OTA has stressed the interdependence of manufacturing and the services—with the competitive ability of U.S. firms in data processing and information services, for instance, depending on the competitiveness of U.S. computer and telecommunications equipment manufacturers, as well as software firms. Likewise, U.S. competitiveness in financial services stems in part from the excellence of the Nation's telecommunications infrastructure—and, more generally, from the ability of American companies to effectively utilize computer-based technologies of all kinds. As such examples suggest, the services depend on much the same technology / science base as manufacturing. Because the very idea of R&D in the services has been ill-defined and often unrecognized, the first step here is simply for Federal agencies to acknowledge the role of technology in service industries (for instance, by revising procedures for collecting data on R&D related to the services–Option 25).

But as the analysis in chapter 6 suggests, along with previous OTA reports, the Nation's technological problems go much deeper. In recent years, the political climate has been less than hospitable for Federal spending on applied research (except for defense) or commercial technology development; the Reagan Administration has been content to fund basic science, holding that this will suffice to rebuild the international competitiveness of American industries. Congress, in several pieces of legislation, has enacted a framework for a more comprehensive technology policy. As yet, the Administration has implemented only a few of the specifics in these laws. If Congress wishes to strengthen the Federal role in development and diffusion of commercial technologies, additional directives to the Administration maybe required (Options 26, 27, and 31).

Finally, the Nation's overall policymaking system may itself need redefinition. Structural change in the U.S. and world economies has helped bring the problems into focus, but real change—in the sense of better coordination and integration of trade and domestic policies (as these affect both the services and manufacturing)—has yet to follow, Redefinition need not imply self-conscious attempts at reorganizing or reapportioning responsibilities for either trade or domestic policies, although there is no reason to rule these out a priori,

THE SERVICES IN U.S. TRADE POLICY

U.S. Trade Policy: Overtaken by Events?

Although the United States has worked actively to promote a liberal international economic order since the 1940s, our leadership has been called into question in recent years. And, with other nations catching up economically, a series of Administrations has been criticized for lacking policies suited to the new problems of maintaining U.S. competitiveness in a world of increasingly able competitors.

OTA's previous assessments of international competitiveness have stressed two points concerning trade policies and trade negotiations:[3]

[3]See, in particular, *International Competitiveness in Electronics* (Washing tori, DC: office of Technology Assessment, November 1983), ch. 11.

- Structural change in the world economy has outstripped the response capability, not only of GATT, but of U.S. trade law. Driven in part by technological change and in part by international business practices, patterns of production and trade now take forms that were not anticipated when the GATT framework was devised. In effect, governments have greater difficulty in defining national interests in a highly integrated global economy—one in which a fifth of U.S. imports (and much more for some products) represent shipments from American-owned affiliates abroad.
- National industrial policies, adopted by governments around-the world, have also changed the rules of the game. Providing multiple forms of indirect support for domestic firms, industrial policies aggravate the problems posed by non-tariff barriers (NTBs) because many of the routine tools now used by governments can be viewed—i.e., by other nations—as trade restrictions or unfair forms of competition. The record remains mixed when it comes to the effectiveness of industrial policies, but it seems clear that many countries are learning to make steadily better use of them. Certainly, experience over the past two decades has taught foreign governments how to bargain more effectively with multinational corporations (MNCs), using the tools of industrial policy to shape economic development in accord with national goals (chs. 6 and 9).

Structural shifts and evolving practices in international business have affected trade and investment in the services fully as much as in goods-producing industries. So have national industrial policies, particularly in sectors like telecommunications.

Policymaking processes within the U.S. Government, as well as in bodies like GATT, have shown no more than modest capacity to adjust to the new realities. Whether in the steel industry or microelectronics, events now seem to move too quickly for the policy apparatus to respond. By the time trade complaints have moved through the system, and some resolution seems at hand—often a matter of years—the competitive landscape may have changed almost beyond recognition. Voluntary restraint agreements (VRAs) covering imports of machine tools, for example, came (at the end of 1986) a decade after the Nation's trade balance in these products turned negative, and more than 3 years after a request for relief by the National Machine Tool Builders' Association. More fundamentally, history offers little hope that, in an industry like this, VRAs will make much difference for competitive prospects.

The mounting U.S. trade deficit has resulted, on the one hand, in sector-specific trade restrictions like the machine tool VRAs. On the other hand, the United States has continued to advocate further liberalization of world trade—both rhetorically, and through concrete proposals in GATT and other international bodies. As events continue to unfold, it becomes more difficult for the government to reconcile the discrepancies between these two sets of actions. The enormous number of trade bills proposed in recent years—more than 700 introduced in the 99th Congress, 400 in the first five months of the 100th—shows the extent of concern. Congress enacted major trade laws in 1974, 1979, and again in 1984. Trade remained a prominent legislative concern during the 99th Congress—a concern that carried over into the 100th Congress.[4] In April of 1987, the House passed an omnibus trade bill (H.R. 3); in May, the Senate Finance Committee reported out its trade package (S. 490). (Other Senate committees were still at work on their contributions to comprehensive trade legislation.)

The Service Industries: New on the American Political Agenda

Trade in services has more visibility in policy circles than ever before, as reflected in actions taken by both Congress and the executive branch over the past dozen years. Since

[4] The House passed an omnibus trade bill in 1986 (H. R. 4800). While several major trade bills were proposed in the Senate during the 99th Congress, none was reported out of committee. See R.J. Ahearn, et al., "Trade Legislation: Comparative Analyses of H.R. 4800 and Selected Senate Trade Bills," Congressional Research Service report 86-740, June 10, 1986.

the early *1970s,* business interests have sought to focus attention on barriers to services trade, with prominent corporations arguing that they have been underrepresented in previous MTN rounds. Banking and finance, insurance, tourism, motion pictures, telecommunications, and transportation got much of the early attention. In *1982,* the first business organization concerned with the services as a whole emerged—the Coalition of Service Industries (CSI), with members ranging from banks to firms providing temporary help services. While the U.S. Chamber of Commerce includes a services group, and sectors like banking, insurance, and construction have had their own trade associations for years, CSI was the first organization formed to promote the interests of all services.

On the labor side, unions representing service industry employees—including the United Food and Commercial Workers, the Service Employees International Union, Communications Workers of America, and the American Federation of State, County and Municipal Employees—have been active much longer than CSI. In recent years, organized labor has placed a high priority on gaining members on the service side of the economy, where, in contrast to manufacturing, U.S. employment has been rising. Labor unions, however, have expressed deep reservations over bringing services into GATT; in part, this reflects a concern that the United States might need to give ground in manufacturing as the price of lower barriers to services trade,

In Congress, the most important initiative to this point has been passage of the International Trade and Investment Act, part of the Trade and Tariff Act of *1984* (Title III of Public Law *98-573).* The Act gives primary responsibility for developing services trade policy to USTR; specific duties for the Department of Commerce include developing policies to increase the competitiveness of U.S. service industries (in consultation with other agencies), collecting and analyzing data on the services, preparing a biennial report for Congress and the President, and providing staff support to USTR on services-related trade issues. On a day-to-day basis, the Office of Service Industries (part of the International Trade Administration, ITA) has responsibility for Commerce's service industries development program, While the 1984 law provides a legislative mandate for coordination among the dozens of Federal agencies involved in services policy, it is far from clear that the executive branch has managed to implement it effectively. Nor had the initial report on Commerce's services program been submitted when the 99th Congress adjourned.

Negotiating Strategies in the Uruguay Round

During the new GATT round, negotiators will deal with services and goods on separate tracks, Other new issues will share the stage with services, as discussed in the preceding chapter, with intellectual property rights and counterfeiting, as well as trade-related investment, on the goods side of the agenda. In addition, the Uruguay Round will take up agricultural trade—a subject GATT has been unable to come to grips with in the past. With the new round scheduled to last until the fall of **1990,** Congress will have ample opportunity to review progress and provide guidance to U.S. negotiators. An opportunity seems likely in 1987, as Congress looks at alternatives to renew fast-track approval processes for trade agreements. This or some other early occasion would give Congress the opportunity to take stock of U.S. negotiating strategies (Option 1, table *56),*

The Tokyo Round showed ongoing congressional involvement to be desirable and most likely essential if U.S. negotiators are to bring back a politically acceptable agreement.' Many channels, formal and informal, can serve this purpose. Members of Congress—five from each house–serve as official advisors to U.S. MTN delegations. In this capacity, they can attend negotiating sessions, and are to be kept informed of all developments. Congressional committees with jurisdiction over trade can seek the views of, and provide guidance to, U.S. negotiators in executive session. Congress also

[5]See R, R, Rivers, "The System CAN Work: The Trade Act of 1979, " and R.S. Strauss, "Commentary: On Trade, " *Making* Go v*ernment Work: From White House to Congress,* R.E, Hunter, \\'. I.. Berman, and J.F.Kennedy,eds. (Boulder, CO: West\ iew, 1986),pp. 8-30.

Table 56.—issue Area 1: The Services and U.S. Trade Policy

Issue	Options for Congress	Comments
A. NEGOTIATING OBJECTIVES		
While negotiators need flexibility, close continuing contact with Congress is essential if the Administration is to secure a trade agreement acceptable to the legislative branch	OPTION 1: While the Uruguay Round is in its early stages, Congress could provide specific guidance to the Administration on the outcomes it views as most critical to U.S. interests. This could take forms including: • informal congressional consultations with USTR; • requiring formal consultation and reporting at several junctures before the Administration seeks congressional approval of new GATT agreements; • legislative statements of U.S. negotiating objectives, possibly including objectives for specific service sectors, This could involve amending the relevant portions of the Trade Act of 1974 (e.g., Sec. 104A, added in 1984 to define broad goals dealing with services trade, foreign direct investment, and trade in high-technology goods).	The new GATT round raises fundamental questions concerning the U.S. role in the world trading system—matters going far beyond possible GATT coverage of the services: • In what ways would a stronger GATT serve U.S. interests? • Will U.S. initiatives in services trade and other new issues—and in agricultural trade—serve to strengthen GATT as an institution? Will some of them and not others? . Other nations will inevitably seek concessions in exchange for agreements that U.S. policy makers view as important. What sorts of trade-offs is the United States likely to face as we move into the Uruguay Round? • How will U.S. negotiators assign relative priorities to goods and to services when conflicts between the two arise during the discussions?
B. COORDINATION OF SERVICES POLICY		
Developing trade policies for services will require effective coordination among more than 30 Federal agencies (including numerous regulatory bodies) with responsibilities for services. U.S. negotiators will need to develop and present coherent positions at GATT and other multilateral forums, as well as in bilateral discussions.	OPTION 2: Also at an early point during the Uruguay Round, Congress could conduct oversight (and provide guidance and direction where needed) on executive branch coordination of services trade policy, under Title Ill of Public Law 98-573. In particular, Congress might use the oversight process to determine whether coordination is adequate for ensuring consistent U.S. positions in GATT and the other international forums where sector-specific and specialized issues (e. g., intellectual property protection) will be discussed.	Title Ill of Public Law 98-573 gave USTR responsibility for developing and coordinating services trade policy, using the interagency Trade Policy Committee (or its subcommittees). The law assigns Commerce the task of developing, in consultation with other agencies, policies to increase the competitiveness of U.S. service industries. Negotiations affecting trade in services may take place in other forums as supplements to or in parallel with GATT, Examples include OECD, the World Intellectual Property Organization, and the international Telecommunication Union. (See table 54 in ch. 9 for further examples.)
C. TRADE ANALYSIS AND DATA		
Better analytical support would make for better U.S. trade policy. Long-term policy planning is a particular need, given the protracted nature of negotiations in forums such as GATT, which often span two or more administrations and several Congresses, (Indeed, because the U.S. negotiating position may shift over time, other countries sometimes take a wait-and-see attitude before negotiating seriously.)	OPTION 3: Establish a new office for trade policy analysis, to provide continuing analytical support and institutional memory for executive branch decisionmaking. The office could focus on support for day-to-day decisions, on longer term policy development, or both,	The primary reason for creating a new trade policy analysis unit, rather than simply providing more resources to an existing office, would be to place the new group close to policy makers—and to staff and structure it accordingly.
The current database on trade in services is seriously deficient. Without better information, policy makers will have continuing difficulty devising negotiating strategies and weighing trade-offs among competing objectives.	OPTION 4: Conduct oversight on implementation of the International Investment and Trade in Services Survey Act (as amended in 1984) to determine whether some of the discretionary provisions for data collection should be made mandatory.	In Section 306 of Public Law 98-573, Congress amended prior law to give clear authorization to the President to collect data on trade in services, as well as to continue surveys on foreign investment. However, Congress left collection of services data discretionary; implementation of some surveys has been substantially delayed within the Administration (see Option 5).

Table 56.—issue Area 1: The Services and U.S. Trade Policy—Continued

Issue	Options for Congress	Comments
Many of the needed Improvements in services data would entail changes in procedures of the Bureau of Economic Analysis (BEA), the Commerce Department unit that compiles trade statistics The Administration has failed to approve some BEA proposals. Without a congressional directive, delays may continue	OPTION 5: Direct the Commerce Department to take specific action to improve data on trade in services. Possible steps Include: • surveying service transactions between unaffiliated firms (by proceeding with the BE-20 survey or a modified version), • expanding the Census of Service industries; • altering BEA procedures for presenting royalties and license fee data to distinguish technology from other categories of intangible property, and to provide data on numbers of license agreements by year, and on receipts and payments on new license agreements in a given year	OTA discusses further steps for Improving the database on services trade in its special report, *Trade in Services:* Exports and *Foreign Revenues.* Also see Opt Ion 12 in table 59 on financial services
D. SUPPORT FOR THE NEGOTIATIONS **PROCESS**		
Despite the growing number of issues on the Nation's trade agenda, budget and staff resources for negotiations remain modest To be effective in GATT and other forums, USTR and other agencies will need Increased support	OPTION 6: Expand USTR's budget and staff to meet not" only the heavy continuing workload expected over the course of the Uruguay Round. but also to carry on planning and preparations for subsequent negotiations, including those in other international forums.	As part of this process, Congress could direct the Administration to compile and annually update a statement listing the contributions of all Federal agencies to U.S. trade negotiations, and specifying measures taken by these agencies to maintain support at adequate levels
If discussions on services trade move beyond the umbrella stage to sector-specific topics —and for such talks elsewhere— U S negotiators will need more input from service industries and their employees, and from users of services	OPTION 7: Direct the Administration to establish several more Industry Sector Advisory Committees (ISACs) to speak for particular service industries, and several additional labor subcommittees to speak for their employees To prepare for sector specific talks—indeed, to help determine whether these would be desirable from the U.S. point of view—Congress could direct the Administration to establish and consult with the new advisory groups at an early date	The trade advisory committee system authorized by Sec. 135 of the Trade Act of 1974 provides a mechanism for private sector i n put into trade negotiations. While an overall Services Policy Advisory Committee exists, only one ISAC (or two, counting that for wholesaling and retailing) represents the services at the sectoral level, compared with 14 for goods (See Option 16 for discussion of telecommunication s.)
Regulatory policies lie behind many of the barriers to services trade and Investment, includlng regulations that serve Important public purposes Progress in reducing barriers will depend on willingness by countries to acknowledge and identify regulations that unnecessarily discriminate against foreign firms	OPTION 8: Direct USTR (in cooperation with other agencies) to give high priority to evaluating both U S and foreign regulations that act, Intentionally or Incidentally, as non-tariff barriers to trade and investment in the services By taking the initiative, the United States could encourage other major trading nations to examine their own regulatory barriers.	USTR reports annually to Congress on foreign trade barriers. The agency made a start on identifying U.S. regulations affecting trade in services when it prepared the U S. national study on services. submitted to GATT in 1983 To reach agreements on reducing barriers to services trade, nations will first have to decide what topics are appropriate for discussion.

SOURCE Off Ice of Technology Assessment, 1987

has the option of prescribing specific negotiating goals (e. g., as amendments to existing objectives in Sec. 104A of the Trade Act of 1974, as amended).

OTA's analysis suggests a number of specific issues that Congress could examine as it reviews prospects for the Uruguay Round:

- *How difficult will it be to take meaningful steps toward liberalization of trade and investment in services? The obstacles seem* real enough: 1) continuing resistance from developing countries and some industrialized nations, the latter mostly centering on sector-specific issues; 2) probable conflict within the U.S. Government over relative priorities for services and other concerns (i.e., agriculture, trade in manufactured goods); 3) resistance to liberalization of services trade on the part of some domestic interests.

The International Engineering and Construction Industries Council, for example, has cautioned that bringing services into

GATT could mean costs as well as benefits to the U.S. E&C sector.[6] As for labor, the AFL-CIO continues to express its concern that the price of liberalization in the services might be further concessions on goods, leading to more imports, further erosion of the U.S. manufacturing base, and job losses.

Under these circumstances, U.S. officials have been forced to advocate selective liberalization of services trade. Easing entry for foreign workers is a politically sensitive issue; so are some kinds of NTBs. While many U.S. service firms would like to see GATT guidelines that would let them move professional employees freely from country to country, such an agreement would be hard to achieve without opening the way for, say, foreigners to work on construction projects here. Among the more notable NTBs affecting services, restrictions on shipping, such as the Jones Act in the United States—which limits domestic shipping to vessels built here, crewed by Americans, and flying the U.S. flag– would be difficult to change. (Many other countries have similar laws.)

- *How useful would an umbrella agreement on services actually be?* USTR seeks a broad and general set of principles that would create **a** framework for continued discussions in later years (see ch. 9, p. 298). Later in the Uruguay Round, negotiations under that umbrella, dealing with narrower topics and with specific service sectors, might or might not take place. One of the primary umbrella objectives, for example, is for all GATT members to concur in honoring the principle of national treatment for foreign-based service firms—meaning that domestic and foreign companies would operate under the same rules. Such goals seem sensible if abstract, and not very ambitious. While an umbrella agreement would set the stage for sector-specific talks, there are real questions about the ability of GATT to resolve the sticky political problems that would follow.

For the United States, moving onto sector-specific subjects (bilaterally or multilaterally) would mean soliciting a good deal more input from individual service sectors and their employees. Lacking this, it is hard to see how U.S. negotiators could conduct an intricate series of bargaining sessions dealing with the particular problems of particular sectors.

Regardless of whether sector-specific discussions take place during the Uruguay Round, a U.S. policy of conducting bilateral negotiations while the GATT deliberations continue seems unavoidable—indeed desirable (ch. 9). Moreover, multilateral discussions will also be proceeding in other, more specialized, forums. The International Telecommunication Union (ITU) has an important series of talks scheduled for 1988 and 1989, while the GATT ministerial declaration states specifically that the Uruguay Round discussions on intellectual property rights are not to prejudice initiatives in the World Intellectual Property Organization (WIPO) or elsewhere.

- *Is it realistic to expect GATT to deal with questions of investment?* Continued opening of the international economic system implies greater integration of trade and investment regimes; it has become increasingly difficult to retain the rather artificial separation between the two. Because international business activity in many of the services requires foreign direct investment (FDI), any substantial reduction in barriers to services trade implies a loosening of restrictions on FDI. But many developing countries view control over inward investment as a vital tool for steering economic development; they will resist any move to reduce their leverage. Indeed, some less developed countries (LDCs) may fear that talks on services are little more than a stalking horse for an agreement on direct investment.

GATT itself has traditionally focused on trade, with investment issues a matter for bodies like the Organization for Economic Cooperation and Development (OECD) and

[6] "IECIC Paper on GATT-March 20, 1986, " International Engineering and Construction Industries Council, Washington, DC.

the International Monetary Fund. In the Uruguay Round, trade-related investment —basically, the question of performance requirements (such as rules permitting FDI only on condition that some fraction of production be exported) –will be on the goods side of the agenda.

- *With so many highly contentious issues up for discussion, does the Uruguay Round promise to strengthen GATT, and thus help move the world economy toward greater openness?* Dependent on consensus among its members, and lacking in enforcement procedures, GATT appears weaker today than ever. With its ability, as now structured, to maintain a minimal level of discipline over goods trade in some doubt, would an agreement on services help to strengthen GATT? Put another way, if the objective is a stronger GATT, would it make more sense to concentrate on existing and widely acknowledged problems before taking up new issues?

  Without teeth in GATT enforcement procedures, and without, for example, modifying the safeguards provisions—Article XIX, which permits governments wide latitude in negotiating "voluntary" restraint agreements or other import restrictions—there seems little prospect of reversing the incremental movement over the past decade toward a system of managed trade. If this movement continues, bilateral agreements and exceptions to GATT principles such as the Multi-Fiber Arrangement will eventually become the dominant reality.

  If the United States really seeks a stronger GATT, fundamental problems such as these deserve high priority. If, on the other hand, the United States would prefer to continue withdrawing as champion of an open international economy, then a strategy of pursuing incremental changes that serve U.S. interests, rather than seeking more basic reforms of GATT procedures, becomes appropriate. Congress may wish to delve into such matters before the Uruguay Round moves too far into matters of substance.

In any case, given a range of services-related issues to be addressed in a range of international forums, effective coordination among the various U.S. delegations will be necessary (Option 2, table 56). As noted above, the Trade and Tariff Act of 1984 assigns both USTR and Commerce statutory responsibilities for coordination and consultation with other agencies on policies related to the service industries. At this point, it is not clear how well the procedures are working, Congressional oversight could reinforce the importance of coordination; Congress could also explore the possible need for additional legislation.

Trade Analysis and Information

This and other OTA studies have stressed the need for good information and analysis in support of trade policy (and domestic policies as they affect trade)—an especially critical need today, with international trade relations far more complicated than when GATT was established. Not only have many more nations become active exporters and importers, but the multinational corporations that now play such a prominent role in trade and investment hardly existed 40 years ago. Congressional action to strengthen the analytical support system for trade decisions could lead to better policy. So could improvements in the data on trade in services.

U.S. trade policy has become increasingly reactive over the past 10 or 15 years, responding primarily to immediate pressures—surging imports of machine tools or semiconductors, the fluctuating strength of the dollar, Lobbying by business, labor, and other interest groups focuses on matters of short-term advantage or disadvantage, For their part, politicians often tend to view interest groups as tactical allies in the short run, rather than partners in an ongoing effort to develop a coherent policy. Under these circumstances, trade policy can easily devolve into *a string* of *contests over the* topical issues of the day. In the absence of longer term perspectives, changes in the world economy and shifts in international competi-

tiveness catch the United States unawares. Then the consequences—plant closings and layoffs, an enormous trade deficit, the Nation's new status as an international debtor—become the pressing realities, to be dealt with in a crisis atmosphere.

This process, in which long-festering problems percolate to the top of the policy agenda, to be dealt with (or dropped) so that Congress and the executive can go on to something else, contributes to the ad hoc decisions and eventual contradictions in U.S. trade policy touched on above. Domestically too, deregulation can be seen in part as a consequence of failure by government to find ways of coping with technological and structural change: pulling back may sometimes be the easy way out. (The positive side, of course, is that deregulation has helped many American industries to compete—e.g., in international banking.) Nonetheless, public recognition of the inter-relationships among international competitiveness, structural adjustment, and the Nation's standard of living has been growing. Policy makers seem more willing to acknowledge the links between foreign economic policy and domestic policy. The new GATT round could provide the opportunity for a major reassessment of the U.S. position in the world economy.

Analytical Support

The many proposals for reorganizing the trade responsibilities of the Federal Government reflect not only a sense of frustration, but a sense that new sets of institutional linkages between trade and domestic policy could lead to a more effective policymaking system. Some proposals would strengthen USTR, and give it more responsibility. Others would combine USTR with parts of the Commerce Department (and perhaps other agencies] to forma new department of trade, or department of trade and industry. Several proposals have called for a White House council on trade to replace or supplement the statutory (but largely inactive) Trade Policy Committee, As discussed in the section on "Organization and Effectiveness of Federal Policymaking" near the end of this chapter, most of these suggestions focus on the need to coordinate policy among executive branch agencies, with the heads of departments and agencies serving on the council.

Here, the fundamental point is that regardless of the structure of the policymaking system, better analytical capability would be an antidote to short-term thinking on the complex problems of trade and competitiveness (Option 3). The Uruguay Round is just beginning, and a new MTN agreement will probably not take effect until the mid-1990s. Action during the 100th Congress to provide better analytical support for U.S. trade policy could help the United States define objectives, weigh possible tradeoffs, and develop alternative negotiating positions as the new round unfolds.

At present, many agencies gather data and information on trade, but the data become useful to policy makers only to the extent that they can be placed in a meaningful framework. Should Congress create a department of trade, a small analytical unit, comprised of highly qualified professionals, would be a valuable addition to the agency. To help assemble the needed expertise, Congress could exempt the staff from normal civil service rules.[7] Such a step could also help preserve some of the vitality USTR has exhibited in the past. While it might be possible to achieve similar ends by building on an existing analytical group (e.g., one of those currently within ITA in the Commerce Department), the real need is for new approaches and unusually qualified people—placed close to the center of policymaking.

An alternative—e.g., if trade reorganization does not come to pass–would be to establish a separate analytical unit within USTR, or substantially expand USTR's small existing complement of analysts. Such a group would be in the right place—close to high-level executive branch decisionmakers. On the other hand, it

[7] As OTA has suggested previously —''Statement of John H. Gibbons, Director, Office of Technology Assessment, Before the Committee on Governmental Affairs, U.S. Senate, May 12, 1983, " *Trade Reorganization Act of 1983,* hearings, Committee on Governmental Affairs, United States Senate, Mar. 17, Apr. 26, May 11, 12, June 24, 29, Sept. 14 and 15, 1983 (Washington, DC: U.S. Government Printing Office), p. 264.

would probably be difficult to insulate from USTR's day-to-day staffing needs, particularly at a time of heavy ongoing workload because of the MTN process itself. If Congress takes this route, it could help avoid these dangers by ensuring that USTR (and the other agencies involved in the Uruguay Round) have the resources they will need during the GATT talks (as discussed below). Finally, if Congress establishes a trade council in the Executive Office of the President, it could encourage the hiring and retention of highly qualified professional staff for long-term policy planning and analysis.

By their nature, the centers of policymaking responsibility in the executive branch have little institutional memory, People come and go; those that set policy tend to be well-removed from the analytical groups that do exist. Given this, any step to improve the analytical support for policy runs two risks, The group may end up submerged in the swirl of day-to-day events. Or it may become irrelevant. The first risk is unavoidable—if the people are good, those in charge will want to put them to work on immediate problems. If the people aren't that good, they will quickly become irrelevant in any case. In addition to the quality of the staff, political independence will be necessary: unless institutional memory can be preserved across administrations, the analytical function will be at least a partial failure. And of course, no structural change can do more than make policy support available for decisionmakers who choose to use it.

Data on Trade in Services[a]

Analysis depends on data, but the U.S. database on services trade is a poor one. Better procedures for gathering data, and for turning it into useful information, would make for better policy. Indeed, the current database on services trade seems distinctly inadequate for supporting the complex negotiations that would follow should the Uruguay Round move on to sector-specific issues.

The statistics compiled by the Bureau of Economic Analysis (BEA, part of the Commerce Department) seriously underestimate both exports and imports of services. The data are not only inaccurate, they are incomplete and lacking in detail. When it comes to trade in goods, BEA compiles data in about 10,000 categories; the services data can be disaggregated into perhaps 40 categories. The government collects no information on some types of service transactions, In other cases, collection methods leave gaps or large uncertainties. Some of BEA's categories mingle factor income (dividends, interest) and non-factor income (revenues for value--added services)—a fundamental conceptual difficulty. The uncertainties impair the ability of policy makers to gage the importance of services trade—as a whole, on a sector-by-sector basis, or bilaterally—making it more difficult to devise negotiating strategies and weigh tradeoffs among objectives.

In 1984, Congress amended prior law, giving clear authorization to the President to collect data from American firms on their trade in services.[9] Congressional oversight on the Administration's progress in implementing the 1984 amendments may be appropriate; in particular, Congress might wish to ask whether some of the provisions for data collection should be made mandatory (Option 4).

OTA's special report, *Trade in Services: Exports and Foreign Revenues,* included 10 policy options for improving the services database. Two of the most important were (Option 5):

1. collect information on service transactions between unaffiliated firms (by implementing BEA's proposed BE-20 survey, or a modification);
2. expand coverage in the Census of Service Industries of overseas sales by U.S. service firms.

[a]This section reiterates a number of major points from OTA's special report *Trade in Services: Exports and Foreign Revenues,* op. cit. The special report, prepared as part of this assessment, estimates the impact of services trade on the [J. S, balance of payments, discusses current data collection procedures and their Imitations (also see the section on "Measuring Services Trade" in ch. 2 of this report), and analyzes policy options for improving the data (pp. 7-11 of the special report).

[9]See, 306 of Public Law 98-573 redesignated Public Law 94-472 the International Investment and Trade in Services Survey Act, and gave the executive branch clear but discretionary authority to collect services trade data,

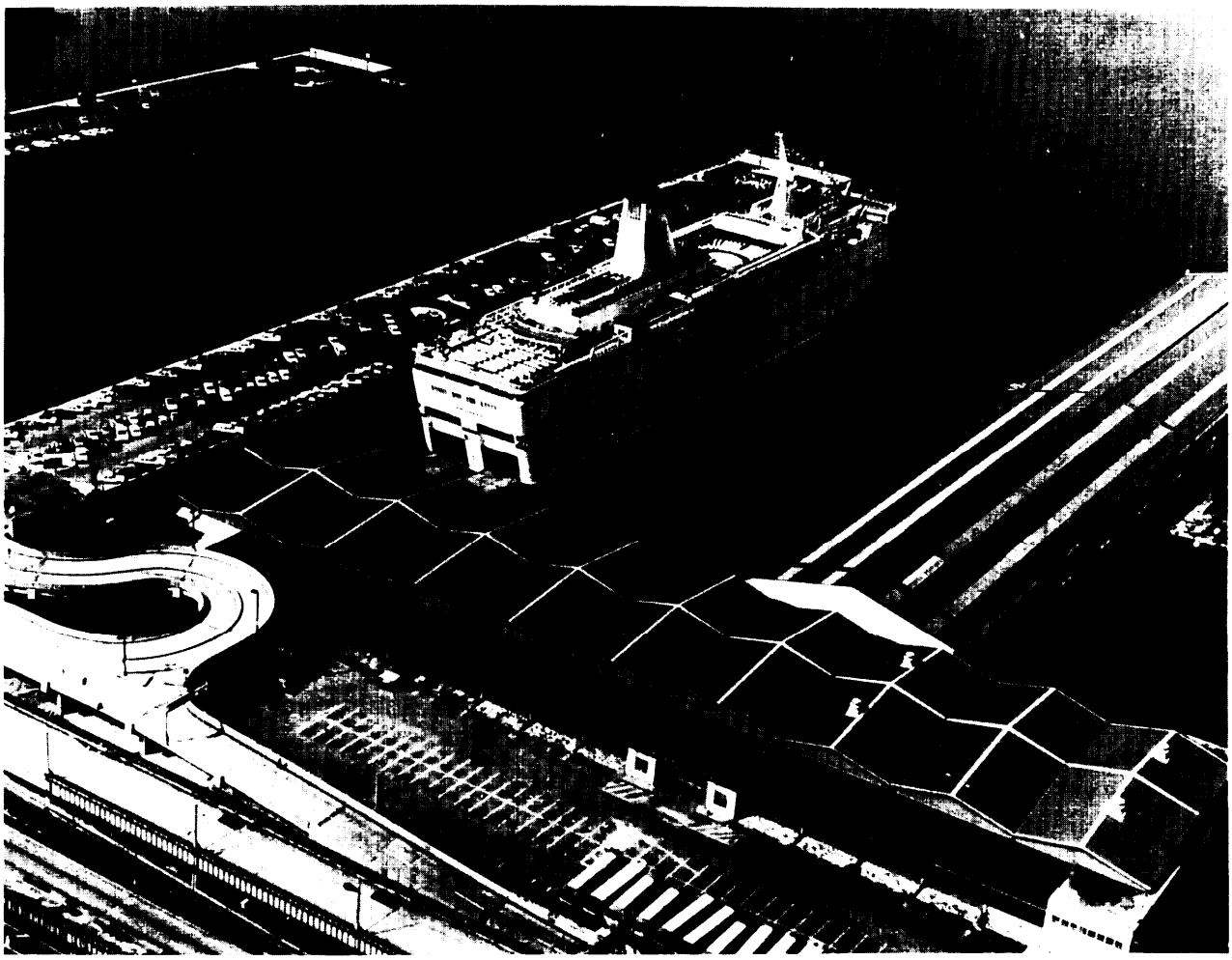


Photo credit: Port Authority of New York and New Jersey

Cruise ship docked in New York City

OTA discusses improvements in the data on international banking—likewise badly needed—in a later section of this chapter (see Option 12 in table 59),

Better information on international royalties and license fees would also help. For reasons explained in chapter 6, BEA's current procedures make it difficult to use the licensing data for examining questions of international technological competitiveness. For example, BEA lumps technical licensing payments with those for trademarks and copyrights on books and recordings, Nor does the agency separate figures on new licenses in a given year from ongoing payments under existing agreements.

Better data will do little good unless the government finds better ways to use it, But improving the database is a first step. The costs would be low, The benefits of better analytical understanding of trade and investment in the services, and the impacts elsewhere in the economy, should far outweigh any additional expense to the Federal Government or to industry.

Support for the Negotiations Process

USTR will need adequate resources—both budget and staff, and including people on loan from other agencies–to carry the burden of four years or more of GATT deliberations over

and above its customary responsibilities. Moreover, if the Uruguay Round goes on to sector-specific matters, existing mechanisms for funneling information, suggestions, and recommendations from business and labor to U.S. negotiators will probably need to be expanded.

Staff and Funding for USTR

USTR's 90 or so professionals get regular help from other agencies, primarily the Departments of Commerce and Treasury. Even so, available resources have not kept pace with the growing number of issues and industries on the Nation's trade agenda. Besides the new GATT round, a partial listing of USTR responsibilities includes trade-related multilateral negotiations within OECD and the United Nations Conference on Trade and Development, plus a wide range of bilateral discussions. The agency also has the job of coordinating trade policy within the executive branch, along with Section 301 unfair trade practice complaints and administration of the Generalized System of Preferences, USTR must accomplish all this with a budget and staff that are small compared to the resources other nations devote to trade matters. For example, in the bilateral talks with Canada that began in 1986, fewer than a dozen U.S. representatives faced more than 80 Canadians, many of them experts with years of substantive experience in the issues under discussion.[10]

To handle its MTN responsibilities, USTR will need more people and more money (Option 6). The agency is seeking a modest increase in permanent staff for fiscal year 1988—from 136 positions in 1986 to about 145, ITA, which provides most of the assistance from Commerce during trade negotiations, is seeking 54 new full-time-equivalent positions for GATT-related activities, and a $4.1 million increase in its appropriation, Even so, budgetary pressures in the executive branch could jeopardize the support USTR depends on—not only people detailed on a nonreimbursable basis (16 in fiscal year *1986*, with USTR reimbursing parent agencies for another 6), but the willingness of other parts of the government to detail highly qualified people under any circumstances.

USTR has other ongoing needs as well—outstanding among them, to continue its development of expertise and experience in negotiating with Japan. For the foreseeable future, bilateral talks with Japan will have a critical role in U.S. trade policy. USTR and Commerce have made real strides since the beginning of the decade in learning to deal with the Japanese. This capability needs to be maintained and strengthened.

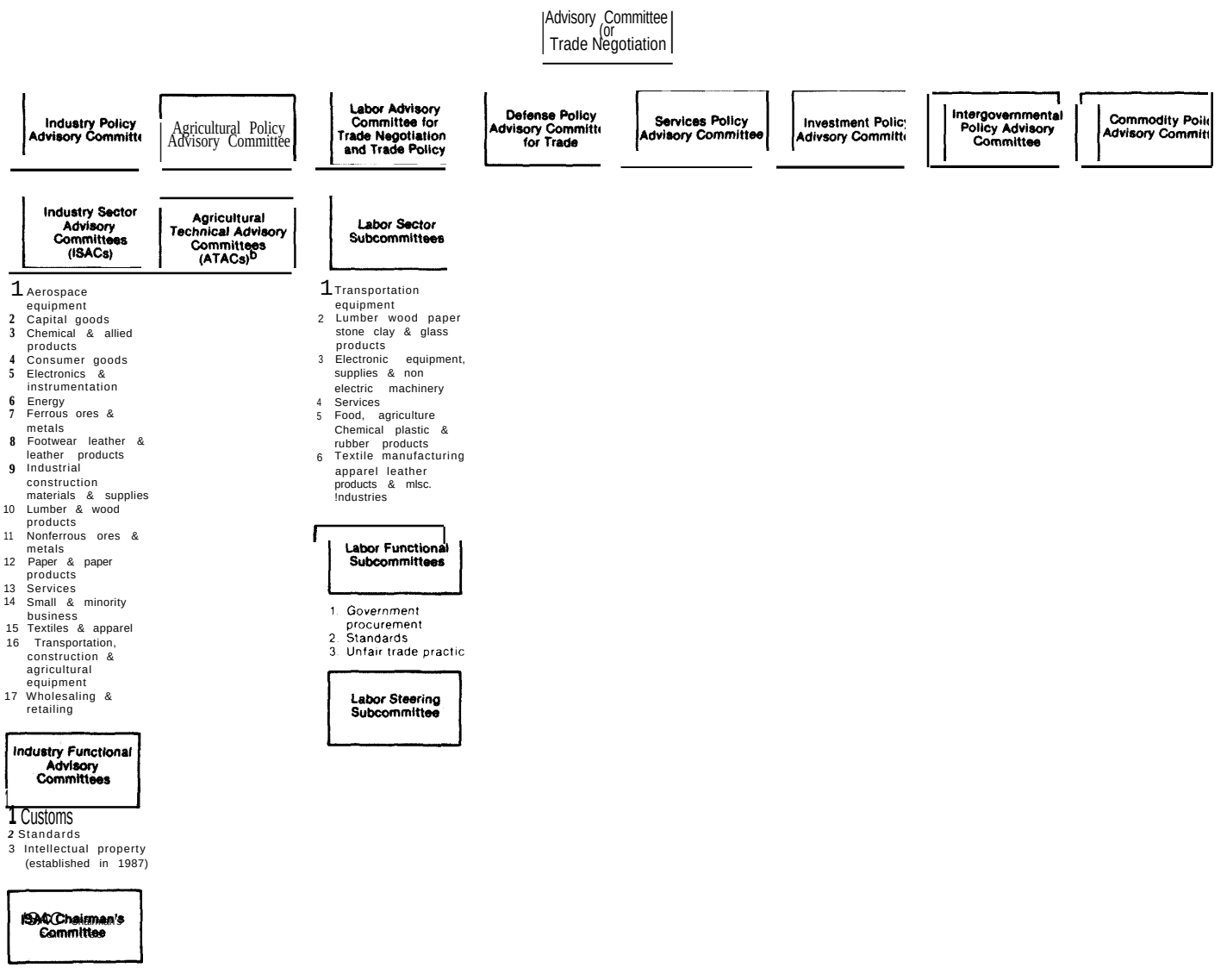
Service Sector Advisory Committees

Particularly if it becomes necessary to prepare for sector-specific discussions (as opposed to negotiations concerning an umbrella agreement on the services), U.S. officials will want information and input from a broader spectrum of interests, Congress could direct USTR and other agencies (e. g., Commerce, Labor) to increase the number of advisory groups with members drawn from service industries and their employees (Option 7—also see Option 16 in table 59, on the need for a special advisory committee concerned with telecommunications). In some cases, representation by users of services might be appropriate,

As figure **50** indicates, USTR's Services Policy Advisory Committee represents the service industries at the most general level—but the services are only lightly represented among the Industry Sector Advisory Committees (I SACS, which advise both USTR and Commerce), One ISAC speaks for the services (or two, including that for wholesaling and retailing), compared with 14 for goods-producing industries, The interests of service industry employees also seem under-represented compared with other sectors. The Labor Advisory Committee on Trade Negotiations and Trade Policy meets regularly with USTR and the Department of Labor, but the one subcommittee for services (compared with five for goods-producing industries) has met only occasionally,

[10]B. Stokes, "Feeling the Strain," *National Journal*, July 19, 1986, p. 1770.

Figure 50.—USTR Advisory Committees[a]



[a]Section 135 of the Trade Act of 1974, as amended, authorized the trade advisory system for the Off Ice of the U S. Trade Representative (USTR)
[b]Nine ATACs, not listed.

SOURCE *Annual Report of the President of the* United States on *the* Trade *Agreements* Program, 7984-1985 (Washington, DC Off Ice of the United States Trade Representative. February 1986, p 180

Non-Tariff Trade Barriers

Domestic regulations frequently act as NTBs, sheltering domestic firms from international competition (ch. 9). Many such regulations serve important purposes—public safety (licensing of physicians, building codes), protecting consumers against financial loss (supervision of banking, insurance, and brokerage firms). But they may be framed or implemented to discriminate against foreign firms. The United States—as the party that has pushed hardest to bring services into GATT–will probably need to take the lead in identifying and evaluating regulatory NTBs, including its own. USTR, with the help of other agencies, could begin by updating earlier work on U.S. regulations. Prompt action in identifying NTBs in the United States, as well as those in foreign countries, would be an example and prod to other governments (Options.

Other Trade-Related Issues

Among the narrower trade issues that surface when the subject is competitiveness, Congress has given particular attention to export promotion and export financing (table 57). The United States and Foreign Commercial Service (US&FCS)–lead agency for the Nation's overseas trade promotion efforts—seems distinctly understaffed and underbudgeted compared with its counterparts in other industrial countries. Policy issues in export financing have centered on foreign government subsidies and the

Table 57.—Other Trade-Related Issues

Issue	Options for Congress	Comments
Compared to many of its trading partners and competitors, the United States devotes only modest resources to export promotion abroad	OPTION 9: Increase support for the overseas activities of the United States and Foreign Commercial Service (US&FCS), which is responsible for most of the overseas export promotion undertaken by the Federal Government Raising the number of US&FCS officers overseas from current levels—about 200—to a complement of 300 or more would aid U.S. exporting in general. Congress could also direct the Service to provide training for its employees in the special needs and problems of the service industries,	Japan has about 5,000 overseas commercial officers; the United Kingdom and France each have 400 or more.
For years, the United States has sought to tighten a loophole in OECD guidelines on export credits that permits tied aid subsidies In 1986, Congress authorized a 2-year, $300 million tied-aid war chest as part of the Export-Import Bank Act Amendments (Public Law 99-472). Substantially tighter OECD guidelines followed in 1987	OPTION 10: Since other governments can always find ways to subsidize exports that they judge important for national interests, Congress could make plain U.S. resolve to keep such practices under control by continuing the authorization for the tied-aid war chest—and by funding it to match foreign subsidies, if this seems needed to get other OECD members to hold to the new agreement.	Greater budget outlays for export financing run counter to attempts to control Federal spending, As a result, some policy makers have sought to encourage private lending as an alternative to reliance on public funds. In 1986, Congress authorized a 2-year pilot program called l-Match as part of Public Law 99-472—a loan subsidy proposal put forward by the Administration. Under l-Match, private lenders will assume the lending risk, while the government subsidy—through Eximbank —reduces the Interest cost to the borrower. In addition to monitoring the new OECD agreement, congressional oversight of the l-Match program could determine whether extension of this program, or other forms of export aid, might be needed to respond to export financing initiatives by other OECD nations
The Trade and Development Program (TDP) finances feasibility studies and planning services by U S firms for projects in LDCs Some of these studies lead to further work for U S firms, or to exports of goods	OPTION 11: Increase TDP support from its current level of about $20 million annually—much smaller than similar programs in several other nations, Congress could also direct TDP to raise the number of feasibility studies conducted by U S. firms on a reimbursable or cost-sharing basis	TDP has particular relevance for the E&C industry. H.R. 3, as passed by the House in April 1987, proposed that a further $10 million be transferred to TOP during fiscal year 1988 for financing feasibility studies and for new responsibilities the program would be given.

SOURCE Off Ice of Technology Assessment 1987

ability of the United States to combat them or match them—matters that have been under discussion in the OECD since the middle 1970s. Potentially restrictive U.S. policies–notably the Export Administration Act and the Foreign Corrupt Practices Act–have also been widely debated. Chapter 6 gave brief mention to export controls and the uncertainties in their application. According to spokesmen for business, the Foreign Corrupt Practices Act, aimed at stopping bribery by American firms overseas, has also created uncertainty—in this case over what American companies can and cannot do in other parts of the world. There is little evidence, however, suggesting much impact on U.S. exporting or competitiveness.[11]

Overseas Promotion of U.S. Exports

The US&FCS maintains offices both in the United States and abroad, the latter mostly at embassies and consulates. The Service currently operates in over 60 countries, stationing nearly 200 commercial officers overseas and supplementing them with about 500 foreign nationals.[12] Officers in foreign countries supply marketing information to American firms and seek *to* promote U.S. exports. Among the service industries, engineering and construction probably stands to gain the most from the work of the US&FCS; commercial officers have also helped some American insurance companies win new business. Early involvement plays a crucial role in gaining new E&C contracts—personal contacts, knowledge of the local business environment, information on projects still in the planning stages.

Compared to other major trading nations, the United States devotes relatively few resources to overseas trade promotion. Table 58—which excludes State Department export promotion activities—shows that Japan has at least 20 times as many overseas officers as the United States; France and the United Kingdom have twice as many. Even including State Department personnel, only Italy, of the countries listed, stations fewer people abroad. Given current budgetary constraints, U.S. export promotion efforts could decline still further relative to our competitors without congressional action (Option 9).

Tied Aid and Export Financing

The Export-Import Bank of the United States (Eximbank) has primary responsibility for U.S. Government export financing programs, Eximbank extends loans to overseas purchasers of U.S. goods and services, provided the prospective U.S. exporter faces competitors supported by foreign governments. In 1983, Congress amended the Bank's charter, the Export-Import Bank Act of 1945, to specifically authorize loans for exports of services (Public Law 98-181). The Bank's Engineering Multiplier Program (EMP) —its major services-related activity—provides medium-term loans to foreign purchasers of U.S. architectural and engineering services.

Over the past few years, Eximbank's programs have been criticized by American firms as comparing unfavorably with loan packages available from other OECD governments, An OECD gentleman's agreement originating in 1976 (and modified several times since) covers subsidized export financing, but many member countries have taken advantage of a loophole exempting certain forms of tied aid (aid that requires purchases in the donating country); governments have been able to circumvent the agreement by increasing the grant portion of tied-aid financing packages. The French, who apparently originated this so-called mixed

[11] See *Technology Transfer to the Middle East* (Washington, DC: Office of Technology Assessment, September 1984), pp. 557-559. Among the services, complaints over the Foreign Corrupt Practices Act come most often from E&C firms.

[12] These countries account for some 90 percent of U.S. exports—"Information submitted by the Department of Commerce for the Hearing record," *Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations for 1987,* hearings before a Subcommittee of the House Committee on Appropriations, U.S. House of Representatives, Part 9 (Washington, DC: U.S. Government Printing Office, 1986), pp. 482-489. In some 77 nations without a US&FCS officer, State Department economic/commercial officers have responsibility y for export promotion, usually on a part-time basis. The State Department's Office of Business and Export Affairs estimates that its export promotion activities in these countries account for about 105 person-years annually—36 person-years on the part of foreign service officers, and 69 by foreign nationals.

Table 58.—Overseas Commercial Services Compared[a]

Country	Number of overseas officers	Total overseas personnel	Number of countries in which commercial representatives are stationed	Number of commercial posts	Overseas operating budget (millions of dollars)
United States[b]	192	723	64	125	$29
Japan	5,000	6,000	58	79	NA
United Kingdom	400	1,300	130	200	150
France	475	1,325	120	180	98
Italy	150	600	73	80	46
Federal Republic of Germany	241	NA	111	85	NA
Canada	262	460	78	102	30

NA = Not available.
[a]As of 1985
[b]Includes US&FCS only excludes US management overhead

SOURCE United States and Foreign Commercial Service Department of Commerce

credit mechanism (because it mixes development aid and export credits in the form of loans), have used it quite aggressively. Italy and Japan, among others, have also looked to mixed credits to support their E&C industries.

In response to concerns raised by U.S. exporters, Congress included in its 1983 amendments to Eximbank's charter a provision calling on the bank to be fully competitive with its foreign counterparts, and established tied-aid programs to be jointly administered by Eximbank and the Agency for International Development (AID, the Federal agency responsible for channeling development assistance to LDCs). In part because of the differing mandates of the two agencies, the programs proved ineffective.[13] Most recently, as part of the Export-Import Bank Act Amendments of 1986 (Public Law 99-472), Congress provided for a separate tied-aid credit program and fund. The $300 million war chest authorized for fiscal years 1986 and 1987—to be administered by Eximbank in accordance with recommendations from the Secretary of the Treasury (and thus bypassing AID)—has been viewed as a defensive weapon, intended to create a sufficiently credible matching capability to persuade other nations to limit their own use of tied aid and other export subsidies. Subsequently, in March 1987, the OECD membership accepted a new and much more restrictive agreement on tied aid. Even so, continuing progress will probably require that the United States maintain pressure on other OECD countries (Option 10).

While the failure to counter foreign financing packages has cost American E&C firms (and telecommunications equipment suppliers) some sales to developing countries, government financing has seldom been important for exports by other service industries. Even for the E&C industry, it is not clear that financing—as opposed to factors like labor costs and the decline in Middle East oil revenues—accounts for that much of the overall decline in foreign business. But the primary point is a simple one: controlling the use of export subsidies means first persuading other nations that the U.S. Government is willing to match their subsidized financing packages.

Trade and Development Program (TDP, Option 11)

The TDP program finances planning and feasibility studies conducted by U.S. firms for developing nations (with up to *20* percent subcontracting to firms in the host country). TDP priorities have shifted over time, reflecting LDC development objectives; in *1985-86,* much of

[13]The first Eximbank mixed credit package to be accepted came in May 1986, following 11 offers over the previous 7 months—"Eximbank Announces First Successful 'Mixed Credit' Deal, Clinching Contract in Gabon," *International Trade Reporter,* May 28, 1986, p. 709. In direct response to offers by the French and Japanese, the Bank agreed to provide $8.4 million at 2 percent interest, with an 8%-year grace period followed by a 20-year repayment schedule, coupled with a guarantee for a $12.8 million commercial loan. AID did not participate.

On the March 1987 OECD agreement, below, see "OECD Nations Ratify Agreement To Limit Use of Tied Aid in Subsidized official Credits," *International) Trade Reporter,* Mar. 18, 1987, p. 366.

the money went for studies on agribusiness, telecommunications, and hazardous waste management.[14] The program is intended to exploit linkages between feasibility studies and future exports in the design and construction phase of E&C projects (ch. 4), thereby stimulating U.S. exports. According to program officials, 166 feasibility studies over the period 1980 to 1983–which cost the government $29 million—had, by 1986, led to U.S. exports totaling $516 million.

[14] "Congressional Presentation, Fiscal Year 1987, United States Trade and Development Program, " *Hearings on Foreign Assistance and Related Programs Appropriations for 1987,* Committee on Appropriations, U.S. House of Representatives, Part 1, p. 1828. The 1987 TDP budget is about $20 million; program officials estimate that France and Japan fund similar efforts at levels over $100 million and more than $2oO million, respectively, H.R. 3, as passed by the House in April of 1987, would substantially expand TDP's role in export promotion and export financing for bilateral projects involving development aid.

Currently, about 30 U.S. companies are supplying services and another 47 are providing goods for projects that have followed from TDP-financed feasibility studies—"Testimony of Christian Holmes, Director, U.S. Trade and Development Program, FY 87 Appropriations Request," *Foreign Assistance and Related Appropriations for 1987,* hearings, Subcommittee on Foreign Operations and Related Agencies, Committee on Appropriations, U.S. House of Representatives, Part 4 (Washington, DC: U.S. Government Printing Office, 1986), p. 440.

DOMESTIC POLICY AND INTERNATIONAL COMPETITIVENESS

Many of the service industries, historically, have been heavily regulated. Because regulation serves public policy objectives widely regarded as legitimate and necessary, government policies will—despite the deregulation of recent years—continue to influence sectors like banking and telecommunications more heavily than typical manufacturing industries. Furthermore, the nature of the underlying policy objectives—e.g., consumer protection—almost guarantees that policy makers and regulators will pay more attention to the domestic than the international environment.

While government regulations—and deregulatory choices—influence the international competitiveness of American industry in many ways, policy makers seldom focus on these impacts, When they do, it is mostly in the direct and obvious cases—allocation of international air travel routes, telecommunications rates. But indirect impacts are pervasive as well. Banking regulations, by determining what American banks can and cannot do, constrain and mold the strategies of financial institutions. In the wake of the AT&T breakup, competition among U.S. telecommunications firms has become in part a contest to influence the newly emerging regulatory system, with each firm seeking advantages with respect to its domestic rivals, As the new regulatory system solidifies, telecommunications firms will turn more of their attention to marketplace competition.

This section examines banking and telecommunications more closely. Both illustrate issues that surface in many other service sectors (table 59).

The Example of Banking

Since the 1960s, international banking, driven by technological change and deregulation, has grown at an explosive rate (ch. 3). The business has changed much more rapidly than the regulatory and supervisory apparatus. While Congress has on occasion addressed questions of international competitiveness—notably in the 1978 International Banking Act (Public Law 95-369)—which extended national treatment to foreign banks operating in the United States, other issues have dominated ongoing debates over banking policy, Of several hundred banking-related bills introduced in the 99th Congress, most dealt with domestic financial services—or with such international issues as multilateral lending, the Third World debt crisis, and exchange rates, With very rapid international expansion by Japanese banks, policy makers here may begin giving competitiveness a higher priority.

As a first step, Congress could direct the Administration to improve the data on international banking compiled by Federal agencies. In its present form, the government's database does not even provide a clear indication that

Table 59.—issue Area II: Linkages Between Domestic Policies and International Competitiveness

Issue	Options for Congress	Comments
A. *EXAMPLES FROM BANKING AND FINANCIAL SERVICES*		
Current data collection procedures fail to provide a clear picture of banking exports and Imports. Relatively minor changes in existing surveys could appreciably improve the database at little cost to the Federal Government or to financial service firms.	OPTION 12: Direct the Commerce Department's Bureau of Economic Analysis to improve its database on international banking and financial services, in consultation with the Federal Financial Institutions Examination Council, and its member agencies (e. g., the Federal Reserve Board).	Specific possibilities: • modify Federal Reserve Board reporting requirements to collect data needed for calculating banking exports; • add questions on receipts for services to the quarterly surveys of the asset levels of foreign banks operating here, • include financial service firms i n BEA's benchmark and annual surveys of inbound and outbound direct Investment.
Decisions made by the many Federal and State agencies that supervise and regulate banking can affect International competitiveness, creating a need to build consideration of these impacts into policymaking processes	OPTION 13: Direct the Administration to provide an explicit mandate for an office of international competitiveness in banking to serve as a focal point for such issues, in particular the international ramifications of domestic policies.	The Treasury Department, which has already undertaken Interagency studies on national treatment, would be an appropriate place for such an office. Congress could direct the Administration to establish a new group, or to expand Treasury's exlsting Office of International Banking and Portfolio Investment
Domestic authorities, here and in other countries, have been hard pressed to keep up with rapid changes in international banking and financial services. Greater international coordination of bank supervision and regulation may be needed, along with an expansion to cover securities markets.	OPTION 14: Use oversight and reporting requirements to begin evaluating alternatives for greater international coordination of banking policies. One possibility would be to direct U.S. agencies that serve on the Basel Committee to explore ways of expanding the Committee's present activities.	Congress could also direct Federal agencies to examine and report on the desirability of creating a new international body for addressing issues of International coordination and harmonization of regulatory and supervisory policies.
B. *EXAMPLES FROM TELECOMMUNICATIONS*		
Restrictions on trade in both telecommunications equipment and services have hindered or halted the efforts of U.S. firms seeking to enter foreign markets.	OPTION 15: Congress could establish formal U.S. negotiating objectives for GATT and other forums dealing with telecommunications services and equipment.	Examples of possible objectives Include that U.S. firms be allowed to compete on an equal basis with host-country firms where foreign governments permit competition in telecommunications services: that, as users of foreign telecommunications services, U.S.-based firms not be subject to discriminatory terms, rates. and conditions.
To prepare for sector-specific negotiations on telecommunications, policy makers will need input from the full range of stakeholders While telecommunications firms already have representation on some advisory committees, USTR currently has no separate advisory committee on telecommunications trade	OPTION 16: Direct USTR and Commerce (in cooperation with other Federal agencies involved in telecommunications policy) to establish an Industry Sector Advisory Committee on telecommunications. The ISAC should include representation for users of telecommunications services and employees of telecommunications firms, as well as service providers and equipment manufacturers.	Because the interests of equipment producers, suppliers of services, and users often diverge, it might be desirable to create three subcommittees reporting to a telecommunications ISAC (A separate private sector advisory process already exists to help the Department of State in preparing US. positions at the ITU—see Option 33 in table 61),
Because telecommunications is a vital portion of the infrastructure for the world economy, government policies have competitive impacts not only for equipment manufacturers and service providers, but also for users (including U.S.-based manufacturing companies, banks, and other service firms).	OPTION 17: Direct all Federal agencies with responsibilities for telecommunications to take into account in their regulatory and other decisions the interests of U.S. firms which are users of international telecommunications services, as well as suppliers of equipment and services. If Congress restructures the Nation's regulatory apparatus (e.g., by returning more authority to the FCC), it could take that opportunity to provide such directions.	It will be up to Congress, in the end. to redefine the roles of Federal agencies in telecommunications policy. Whatever the choices, it will be critical that the new structure give questions of international competitiveness high priority Congress, for example, might give particular attention to the prospective role of the FCC. as an independent agency, in dealing with foreign governments and international bodies concerned with telecommunications,

SOURCE Off Ice of Technology Assessment, 1987

liberalization of trade in financial services would benefit the United States. Congress could also consider giving the executive branch a stronger mandate for addressing issues of competitiveness on a continuing basis, Finally, it seems time to seek greater coordination of bank supervision and regulatory policies among nations, building on the groundwork laid by major banking nations at such forums as the Basel Committee. (Ch. 3 discusses a number of other policy issues related to the competitiveness of U.S. banks, including such questions as whether to relax or maintain the current separation between commercial and investment banking.)

Data on International Banking

While Federal agencies collect a great deal of information from banks, they do not collect it so that trade in international financial services can be measured and compared on the same basis as for other industries.[15] The result? It is impossible to assemble a clear picture of U.S. exports and imports of financial services—by value or by type of product.

Improving the database would not require large expenditures by government, nor much additional paperwork on the part of banks. Several Federal agencies, including BEA, the Federal Reserve Board (FRB), and the Treasury Department already collect much of the needed information. Expanding the FRB's quarterly monitoring of the U.S. branches of foreign-based banks to include receipts would greatly improve the data on imports of financial services. As another example, it would take only minor modifications in FRB reporting requirements to begin collecting information on services provided within the United States by the foreign branches of American banks (relative to their functions as overseas sales outlets). Because BEA compiles most trade data, Congress may wish to direct the Bureau, in cooperation with the FRB and other banking agencies, to improve its database on international financial services (Option 12, table 59).

[15] *Trade in Services: Exports and Foreign Revenues*, op. *cit.*, pp. 8-9, 53-58, and 77-79.

Raising Priorities for International Competitiveness

Few of the agencies that exercise regulatory or supervisory authority over financial services institutions pay much attention to competitive impacts. In addition to the FRB, these agencies include the Office of the Comptroller of the Currency and the Federal Deposit Insurance Corporation (FDIC); the Securities and Exchange Commission, the Department of Justice, and State regulatory bodies also have some measure of responsibility for financial services. Enhancing the international competitiveness of the U.S. industry has never been the primary objective of any of these agencies, nor should it necessarily be. Yet as discussed in chapter 3, regulatory decisions can affect costs quite directly, while in other cases regulatory agencies provide services to banks; the FRB's clearing and settlement functions help make the U.S. banking infrastructure the best in the world. These and other examples suggest that banking agencies need to be concerned with the impacts of a broader range of international competitiveness issues than, say, the question of whether U.S. banks operating abroad get the same degree of national treatment and competitive equality as extended to foreign banks here under the International Banking Act.

Perhaps the most direct approach for fostering this broader perspective would be for Congress to charter a special office in the executive branch to serve as a focal point for integrating competitive impacts into policymaking and for coordination among agencies (Option 13). The function would, for example, fit logically into the Office of International Banking and Portfolio Investment in the Treasury Department. Treasury has coordinated past congressionally mandated analyses of foreign government policies as they affect U.S. financial services firms—the national treatment studies first called for by the International Banking Act.[16] If assigned this broader task, the of-

[16] See "National Treatment Study: Report to Congress on Foreign Government Treatment of U.S. Commercial Banking and Securities Organizations, 1986 Update," Department of the Treasury, Washington, DC, December 1986 (like earlier studies in 1979 and 1984, prepared in conjunction with the Department of State, the Federal Reserve Board, the Comptroller of the Currency, and the Federal Deposit Insurance Corporation). The 1986 report includes, for the first time, coverage of the securities industry,

Photo credit: Chicago Board of Trade

Futures trading

fice could continue monitoring restrictions imposed by other countries, as well as analyzing the international competitive position of the American industry and the effects of U.S. banking policy on competitiveness.

International Coordination

Rapid expansion and new financial products —particularly in lightly regulated offshore markets—create possible new sources of instability in the international banking system, as discussed in chapter 3. With world financial markets more tightly coupled, it will be increasingly difficult for any one country to maintain an independent banking policy. The implication? Greater international coordination of supervisory and regulatory policies may benefit all countries. Even more, harmonization of such policies may be necessary for ensuring the stability of the system.

In other sectors where interdependence has been a fact of life, international organizations have evolved where nations can meet to discuss rules and resolve disputes. GATT provides these functions for trade in goods. For more than a hundred years, the ITU has done so in communications. Bodies like the International Maritime Organization and WIPO are well-established fixtures on the world scene. In contrast, the international regime for financial services seems undeveloped, GATT has more than 90 members, the ITU 160, but the so-called Basel Committee—the most influential of the analogs to such organizations for banking—consists of central bank representatives *and su*pervisory authorities from only 11 countries. (The proper name of this group, which meets at the Bank for International Settlements, is the Committee on Banking Regulations and Supervisory Practices.) Formed in 1974, the Committee's meetings are confidential, with little in-

formation available to the public. The OECD does address related issues, including securities. Its Committee on Financial Markets established an Expert Group on Banking in 1980 to examine changes in banking practices and regulations. Several regional groupings of bank supervisors also exist—e.g., within the European Community (EC).

Much of the work of the Basel Committee has concerned supervision and regulation of foreign banking offices .17 Operating by consensus, with recommendations having no legal force in member countries, the Committee has nonetheless been able to make progress in some areas—for example, by establishing the principle that all foreign bank offices should be subject to supervision, and agreeing on the division of supervisory responsibilities between parent and host countries.

Strengthening and expanding the Basel Committee, or otherwise developing a framework for international coordination of banking policies, promises to be a long-term endeavor. The special relationships between governments and financial institutions–which stem in part from the role of banks in implementing monetary policy—lead to sensitivities not found in other sectors, Furthermore, many governments have used their banking systems as instruments of industrial or social policies—e.g., to steer resources to favored sectors of their economies. These governments might fear, quite naturally, that a more open system would threaten their ability to achieve national goals. Because of such sensitivities, the Basel Committee has gone to some lengths to stress that it is simply an organization of central banks (or supervisory authorities), not of governments.

OTA's analysis of recent trends in international financial markets and the implications for stability points to a need for better international coordination. Congress, on occasion, has called on U.S. banking agencies to work toward such coordination.[18] As a next step, Congress could request a study of the effectiveness of possible mechanisms for harmonizing banking regulations among countries (Option 14). It could, for example, ask whether a new international institution might be desirable, or whether the Basel Committee (or perhaps the OECD) could provide a suitable venue. Congress might direct Treasury or other Federal agencies to report on these questions, and to discuss alternatives with foreign countries (while recognizing the reasons for the confidential nature of the Basel Committee's proceedings, and the secrecy with which some governments conduct banking policy). International coordination of regulations that affect the securities industry should be part of this process. Although the analysis in chapter 3 suggests that it maybe desirable to move toward supranational regulation and supervision of financial services, greater coordination of current practices is the necessary first step.

The Case of Telecommunications

With the AT&T breakup, the United States opened its markets to foreign equipment suppliers without seeking reciprocal actions by other countries. Meanwhile, deregulation helped stimulate the emergence of new U, S.-based suppliers of telecommunications services (e.g., value-added networks, or VANS, ch. 5). Many of these companies are interested in selling abroad, contributing to pressures for greater access by U.S. companies to foreign telecommunications markets for both services and equipment.

But a focus simply on suppliers of equipment and services would undervalue the significance of telecommunications to U.S. firms. With telecommunications becoming a central element in corporate operations and strategy, the regulatory practices of foreign governments have implications for competitiveness in many industries. In most parts of the world, PTTs—government post, telegraph, and telephone authorities—not only monopolize domestic markets for basic telecommunications, but also

[17] *International Banking—International Coordination of Bank Supervision: the Record to Date,* GAO/NSIAD-86-40 (Washington, DC: U.S. General Accounting Office, February 1986).

[18] For example, in the International Lending Supervision Act of 1983 (Public Law 98-181), Congress emphasized the importance of assuring consistent supervisory policies for international lending, directing Federal banking agencies to consult with other countries on measures for achieving this.

limit and/or regulate entrants seeking to provide enhanced services like VANS. Sometimes PTTs make it difficult or expensive for MNCs to operate dedicated international networks.

From the perspective of competitiveness, primary U.S. interests include:

1. access for American firms to public switched networks on reasonable and nondiscriminatory terms (e.g., rates roughly reflecting actual costs, freedom to connect advanced equipment to public networks);
2. minimal transborder data flow (TBDF) restrictions, such as requirements for local storage or processing of data;
3. freedom for users to resell or share leased lines, or otherwise bypass portions of the public infrastructure (particularly important for smaller companies that otherwise might find wide-area networks prohibitively expensive);
4. openness to foreign investments by U. S,-based service suppliers; and
5. reductions in barriers to trade in telecommunications equipment (including restrictions on the equipment MNCs can install to support dedicated applications and internal networks).

These issues have the potential to affect a wide array of users, including host-country firms. Some of the latter could prove helpful allies in efforts to loosen foreign government restrictions.

Numerous bills dealing with trade in telecommunications have been proposed in recent Congresses. Many deal with equipment, others address services, some cover both, H.R. 3, as passed by the House in the spring of 1987, included a separate title on telecommunications hardware and services. The bill would direct USTR to identify countries with barriers to U.S. telecommunications exports and enter into negotiations with their governments. Failure to reach agreement could lead to countermeasures by the United States.

At this point, however, the U.S. Government does not appear very well organized to pursue such issues. Predictably enough, no one Federal agency has authority for international telecommunications policy. A half-dozen or more bureaus and offices within the FCC have some degree of international responsibility; in 1981, a new position—Assistant to the Chairman for International Affairs—was created to oversee their activities, along with an International Telecommunications Coordinating Committee, Even so, most of the FCC's responsibilities remain focused on the domestic scene, where regulations remain in flux in the wake of the AT&T breakup.

An array of other government agencies share in representing U.S. interests internationally, USTR has the lead role in GATT. The State Department represents the United States in the ITU and its Consultative Committee for International Telephone and Telegraph (CC ITT). Within the Commerce Department, ITA and the National Telecommunications and Information Administration have responsibilities, respectively, for analysis of the telecommunications industry and for advising the President on policy. The Administration has also set up an interagency group for telecommunications policy that meets on an ad hoc basis. Finally, bodies like the Cabinet-level Economic Policy Council (E PC) have an occasional say in matters related to telecommunications trade. Domestically, Judge Harold Greene's court continues as primary overseer of the AT&T settlement agreement—which itself has international ramifications, in part simply because of the many uncertainties that remain concerning the future direction of regulatory policy in the world's biggest market.

Again, the primary needs seem to be, first, providing sound analysis in support of policy, and second, ensuring adequate coordination among Federal agencies. Both are prerequisites for taking prompt advantage of opportunities as they emerge internationally. For example, the primary thrust of past U.S. trade policies, as related to telecommunications, has been to seek open markets for U.S. equipment, While desirable, and consistent with the overall thrust of U.S. trade policy, it would seem appropriate to raise the priorities for telecommunications services at least as high. With many for-

eign governments determined to continue protecting their equipment markets—and quite able to do so for years, if they wish—greater progress may be possible on the services side.

A legislative statement of negotiating objectives could lead to a clearer sense of priorities within the government, as well as emphasizing U.S. resolve to other countries (Option 15, table 59). Because the interests of equipment manufacturers, service providers, and users frequently diverge, it also seems appropriate to broaden the advisory process for telecommunications trade: Congress could direct USTR and Commerce to establish an I SAC solely for telecommunications, with representation from the full range of interested parties, including users and labor (Option 16). Such a step would become especially important if sector-specific negotiations on telecommunications begin during the current GATT round; it could also help lay groundwork for deliberations in other forums.

Resolution of the currently unsettled regulatory environment in the United States could have major impacts on competitiveness. Since the AT&T antitrust agreement, domestic regulatory authority has been shared by the FCC and Judge Greene's court, together with the Justice Department. At some point, new legislation will necessarily replace these makeshift arrangements. An Administration-supported bill proposed but not enacted in the 99th Congress (S. 2565) would have redefined FCC authority in light of past legal decisions, reestablishing the Commission's primacy with respect to domestic telecommunications. With the stakes for contending U.S. firms so high, any new legislation promises to be highly controversial; it may take years to resolve such matters, Here the point is simply that domestic telecommunications regulations do affect international competition, but that at present the impacts probably get too little attention (Option 17).

A final set of questions stems from the possibility that telecommunications carriers (both in the United States and abroad) may move toward different technical standards for Integrated Services Digital Networks (ISDN, chs. 5 and 9). Incompatible standards could raise costs and substantially reduce benefits to users. Prior to the AT&T breakup, most of these technical matters could be left to the deliberations of standard-setting bodies, Now, with competing companies here and abroad seeking to shape standards to give them an edge over their rivals, technical questions once viewed as arcane by the policy community have entered the wider political arena. As discussed in a later section of this chapter on "Technical Standards, " policy makers will need to monitor the evolution of ISDN both here and abroad on a continuing basis (see Option 30 in table 61).

HUMAN RESOURCES POLICIES

The international competitiveness of American industry depends ultimately on human capital, and thus on human resources policies. Beyond this, rapid economic change, placing new demands on firms and their employees, brings new needs for education and training. Rapid structural change also brings new questions: In what proportions should companies and workers share in retraining costs? Will educational technologies like computer simulations and interactive videodiscs lead to improvements in the quality of training/retraining programs? To greater productivity and lower costs? How can reform of public education contribute to flexibility, and to the ability of people to continue learning during their working lives? What would broader based postsecondary vocational curricula, suited to the evolving needs of the service industries, look like?

Rapid and often wrenching change has become a hallmark of the U.S. economy, American companies, more exposed to international competition than in the past, must adapt in order to survive. As these firms restructure and automate, some workers lose their jobs, Others find themselves asked to move into fundamentally different kinds of work. Flexibility for the employer may bring uncertainty if not instability for the employee, illustrated by the many cases in which U.S.-based firms have responded to competitive pressures by hiring greater numbers of part-time and temporary workers (ch. 7), or by moving production offshore, Policymakers, here and in other industrialized countries, find themselves seeking to balance conflicts between job security and a flexible and efficient labor market.

When it comes to education, training, and skill development, the questions look much the same inside the service sector or outside it. Broadly similar patterns of computer utilization exist in the services and in manufacturing; problem-solving and learning skills will be much the same (ch. 8), As more firms reorganize work and incorporate computer-based systems, more Americans will be faced with worklife adjustments and transitions—in a word, with the need for retraining.

Demographic shifts promise to make some of the coming adjustments more problematic. The aging of the baby boom generation will be felt for years to come: by the year 2000, half the Nation's labor force will be middle-aged (35 to 54), compared to about one-third today, In the past, some companies have been reluctant to retrain middle-aged employees. Meanwhile, many older Americans have been reluctant to seek out adult education and (restraining on their own. Companies confronting a shrinking pool of recent graduates with the latest specialized training may be forced to strengthen their internal training and retraining programs.

Reevaluation of Human Resources Policies

Adapting the American education and training system—primary and secondary schools, community colleges and universities, continuing education, retraining for displaced workers—to emerging needs may pose real difficulties. Over the past few years, more than a dozen commissions and study groups have called for educational reform. No consensus has emerged on what needs to be done. Indeed, it is hard to see the outlines of a meaningful debate through the slogans. Distasteful as it may be to suggest more studies, this seems necessary: OTA's analysis indicates that a more fundamental reexamination and debate than yet seen—one focusing on specific changes in human resource policies that might best serve the U.S. economy in years to come—would serve decision-makers well (those in the private sector, as well as in Federal, State, and local government).

To be useful, such a reexamination will have to address a broad range of issues—education and training in their deep as well as obvious senses:

- What should be the nature of a liberal education in the 21st century? If the need for work declines, can we educate people in ways that help them find satisfaction in other ways?
- What is the character of the skill base on which industrial competitiveness depends? Even "unskilled" workers must possess a wide range of abilities: social and communications skills; some kinds of problem-solving capabilities. More highly skilled workers rely on broader and deeper stores of tacit know-how (anticipating problems, troubleshooting). How do formalized programs of education and training contribute to the skills people actually use in the workplace?
- In terms of industrial competitiveness, what kinds of skills will be most vital in the future? How will postindustrial skills differ from those of the past? Can a postindustrial economy have a true oversupply of technically skilled people?
- To what extent can improving the skills *of* the U.S. labor force, or changing the mix of skills in the labor pool, help drive economic growth, thus mitigating structural unemployment and underemployment?

- Will the invisible hand provide for future skill needs? Will the existing U.S. education /training system respond quickly enough to shifting needs? Will gaps between those with skills and those without become more difficult to bridge?

Beyond such questions, the debate needs to include labor law and employee benefit policies.

Congress could launch such a reevaluation if it wishes (Option 18, table 60). One approach would be to assign the task to an existing body within the executive branch. Alternatively, Congress might create an independent forum (e.g., a council or institute, with a mandate to report and make periodic policy recommendations to Congress and the President). If Congress establishes an industrial competitiveness council or similar advisory organization (as has frequently been proposed), it could explicitly direct the council to include human resources and human capital among the policy issues addressed.

Adult Education and Training[19]

Already large, the U.S. system for adult education and training continues to grow. But despite its breadth and scope, the system does a poor job of meeting the training and retraining needs of those with non-professional and non-supervisory jobs. This is true in both the services and for blue-collar workers in manufacturing.

In many respects, the system helps those who need it least. Managers, administrators, and professionals have many opportunities to maintain and improve their skills; so do some skilled workers and paraprofessionals, Companies are much less likely to provide training for those having low skills to begin with, while few of these adults look to vocational institutions—whether profit-seeking trade schools for barbers and computer programmers, or community and junior colleges—for help in adapting to changing job conditions or in making career shifts,

Congress has been aware of this problem, and in several recent laws has authorized programs to broaden opportunities for work-related adult education and training:

- In 1982, Congress created a major new program for displaced workers under Title III of the Job Training Partnership Act (JPTA, Public Law 97-300). Title III provides funds to States for projects that offer displaced workers reemployment services, including vocational skills training and remedial education.[20] Although the broadest Federal program for displaced workers, Title III reaches fewer than 5 percent of those eligible. Most of the State programs seek to place people in new jobs as quickly as possible, rather than providing training. Remedial education gets little attention, even though perhaps 20 percent of JTPA participants have trouble with reading, writing, and arithmetic. [21]
- The Carl D. Perkins Vocational Education Act of *1984* (Public Law 98-524) allows States to spend part of their basic Federal grant for vocational education on adult training for those who are currently employed, as well as those who are seeking jobs (or are threatened with displacement). The Act also authorizes special grants (as yet unfunded) to States for adult training and industry-education partnerships for training in high-technology occupations.

Despite such initiatives, the U.S. Government provides less support for adult education and training than other industrialized countries such as Canada and France. In its previous work, OTA has examined policy alternatives for adult training, retraining, and education in detail—an analysis suggesting a more active and

[19]See, *i,* general, *Technology and Structural Unemployment: Reemploying Displaced Adults* (Washington, DC: Office of Technology Assessment, February 1986), pp. 274-289.

[20]*Technology and Structural Unemployment: Reemploying Displaced Adults,* op. cit., pp. 163-165. The Administration, as part of President Reagan's competitiveness package (the Trade, Employment and Productivity Act of 1987, H.R. 1155 and S. 539), has proposed a Worker Readjustment Assistance Program to replace JTPA Title III (and other programs).

[21]A recent survey found most Americans aged 21 to 25 to be literate, but only a relatively small proportion were proficient at literacy tasks of any complexity—a finding with discouraging implications for the future of knowledge-based service industries. See 1.S, Kirsch and A. Jungeblut, *Literacy: Profiles of America Young Adults* (Princeton, NJ: National Assessment of Educational Progress, 1986).

Table 60.—Issue Area III: Human Resources

Issue	Options for Congress	Comments
A. EVALUATION		
Despite numerous commissions and task force reports, no consensus has emerged on adapting education, training, and other human resources policies to the new circumstances resulting from U.S. immersion in the international economy.	OPTION 18: Call for a fundamental reexamination of human resources policies, and an evaluation of specific steps to enhance the ability of Americans to adjust to shifts in labor market and workplace conditions resulting from international competition.	Congress could charter an Independent council or institute to report and make specific policy recommendations. Or it could ensure that human capital issues get a prominent place in the mandate of any council or other body established by Congress to examine and make policy recommendations on international competitiveness,
B. ADULT EDUCATION **AND TRAINING**		
A work force with good skills is essential for maintaining U.S. competitiveness While some companies provide broad based education and training for their employees, others do little or nothing.	OPTION 19: Direct the Administration to undertake pilot and demonstration projects, in cooperation with business and industry, on new approaches to training and retraining of active workers, Involvement by organized labor would also be desirable, Such programs would not require new authorization	In its 1986 amendments to JTPA (Public Law 99-496), Congress authorized the Secretary of Labor to fund pilot projects for training people "threatened with loss of their jobs due to technological changes, Internation. al economic policy, or general economic conditions. " As an alternative, the Carl D *Perkins* Vocational Education Act of 1984 (Public Law 98-524) provides for a special State grant program for adult education and retraining —including training designed cooperatively with employers— which has never been funded Congress could fund this program, and specify that part of the appropriation be used for broad-based training of employed adults
Demonstration projects alone will not lead to major Increases in training for employed adults Cost-sharing with business. es (either directly or indirectly) might Increase training opportunities, but — in the absence of alternative funding mechanisms—would run counter to deficit-reduction objectives.	OPTION 20: Consider alternatives to increase the national commitment for training and retraining of the adult work force, including Incentives for employer-provided education and training and new sources of funding	Proposed alternative funding mechanisms have Included: increased direct Federal expenditures for cost-sharing; tax credits for firms that provide certain kinds of training; a payroll-based tax to fund retraining services for workers; and a small uniform tariff, imposed on all imports (after seek. ing GATT acceptance) to fund worker adjustment programs.
Many service jobs, including those for which a high school degree once sufficed, now require specialized vocational-technical training Beyond job- or occupation - specific courses, general vocational curricula that would provide a foundation for continuing (re)training could help people in the knowledge-based industries adapt to future workplace changes	OPTION 21: Direct the Department of Education, in cooperation with the Department of Labor, to fund demonstration projects for broad-based vocational curricula, focusing on generic skill development for the knowledge-based services. Grants could be made available to both public vocational-technical schools and proprietary (trade) schools	Business and industry should be actively involved in any such experimental and demonstration projects The Carl D Perkins Vocational Education Act of 1984 provides a suitable vehicle—through the authorization for cooperative demonstration programs, or for special State grant programs for industry-education partnerships. Congress would need to earmark funding if it proceeds with this option
C. INSTRUCTIONAL TECHNOLOGY		
The Federal Government, especially the military, has developed a great deal of technology and Instructional material for training. Some of this could be useful to the private sector and the schools, but only limited information has been easily available to educators and private sector trainers.	OPTION 22: Direct the Administration to give priority to timely completion of the feasibility study for an Inventory of federally funded training software called for by the Federal Technology Transfer Act of 1986. Should it seem appropriate once the feasibility study has been completed, direct the Administration to proceed with the Inventory.	Congress called for the feasibility study in the Federal Technology Transfer Act (Public Law 99-502), which amended the Stevenson-Wydler Technology Innovation Act of 1980 (Public Law 98-480) If the feasibility study—due in October 1987—Is done well, it should help Congress determine whether to direct the Administration to proceed with the inventory Itself.
Transfer of training technology from the government to schools and to the private sector may involve several agencies, as well as requiring modifications to course materials	OPTION 23: Instruct Federal agencies to place more emphasis on transfer of training technology and course materials to public institutions and corporations, initially through technology transfer mechanisms as authorized in Public Law 96-480 Congress could follow with oversight to determine whether new mechanisms should be created specifically for diffusion of training technologies.	Examples of executive branch efforts to transfer training technology Include a computer-assisted reading program developed by the Navy and transferred to some libraries. On a larger scale, the Departments of Defense and Education have been cooperating on methods of transferring the Army's computer-based basic education program

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Table 60.— Issue Area III: Human Resources—Continued

Issue	Options for Congress	Comments
Realizing the long-term potential of instructional technology will require continuing research on teaching and learning. Beyond R&D and the development of new teaching and training materials, dissemination of new methods—including computer-based training—will require ongoing Federal support,	OPTION 24: Increase funding for research, development, evaluation, and dissemination of instructional technologies—including adult education and training. One approach would be to direct the Department of Education to establish and provide partial funding for a research center concerned specifically with adult learning, and including R&D on instructional technologies,	Federal funding for such a program—which might be the responsibility of the Department of Education's Office of Educational Research and Improvement—could be kept modest by requiring matching grants from foundations and the private sector, which stands to benefit substantially. Congress, in the Higher Education Amendments of 1988 (Public Law 99-498), called for a national program of research on adult learning—without, however, authorizing funding.

SOURCE Office of Technology Assessment, 1987

more positive Federal role that might entail steps such as:[22]

- Greater funding for outreach and delivery of services under the Adult Education Act, as amended in 1984 (Public Law 98-511). This is the largest Federal program that supports State and local adult basic and secondary education; with more funding, a wider array of basic skills programs geared to workplace needs, and involving companies and labor unions, could be offered without reducing services to those not at present in the labor force.
- More effective outreach programs at the community level on postsecondary educational opportunities for adults.
- Targeted Federal assistance for retraining workers with jobs in contracting or vulnerable industries, aimed at avoiding some displacement problems to begin with (i.e., by increasing both lateral and vertical mobility within the Nation's labor market).
- Making it easier for people with jobs to qualify-for Federal financial assistance to continue their education on a part-time basis.

Any and all of these steps would help, but perhaps the single most pressing need is to find ways of stimulating company-run education and training programs for lower-level employees. As outlined in chapter 7, many American companies have sought to adjust to new competition by relying more heavily on a contingent workforce—e.g., temporary and part-time employees—rather than seeking to improve the skills and flexibility of existing employees. When companies do provide training for lower-level workers, the programs tend to be narrowly focused (e.g., instruction in the use of new equipment). This not only keeps costs down, but reduces the chances that employees will take a job with another firm, perhaps a competitor. Companies safeguard their investment —at least in the short term—by concentrating on job-specific and firm-specific know-how, rather than transportable skills. But society as a whole might reap greater gains from a broader and deeper approach.

How can Federal policies address these disincentives, and encourage more comprehensive company programs for continuing education and training? Demonstration projects for experiments with new ways of integrating work and learning offer one approach (Option 19), Far more comprehensive proposals have also emerged. Title V of H.R. 3 (as passed by the House) would enact the Education and Training for American Competitiveness Act of 1987, with provisions ranging from grants for literacy improvement to programs for teacher training and graduate education. S. 406, as introduced in January 1987, would authorize $100 million for special State grants under the Perkins Act, Other bills propose tax credits for

[22] *Technology and* structural *Unemployment: Reemploying Displaced Adults,* op. cit., ch. 2.

In addition to programs like those outlined above, the Federal Government has permitted employees to deduct expenses for education directly related to their current job, and to omit from taxable income qualifying educational benefits provided by their employer. The 1986 Tax Reform Act (Public Law 99-514) retains the second of these provisions only through 1987; it will need to be reauthorized if it is to apply in later years.

company-run programs that go beyond training the employer would provide anyway. As Option 20 suggests, the prerequisite for more extensive adult education and training seems to be money, not ideas.

Vocational and Paraprofessional Education and Training

For many jobs where a high school degree once sufficed, companies now seek entry-level people with specialized training (chs. 7 and 8). But where technical change is rapid, as it is in many of the knowledge-based service industries, training can quickly become obsolete. Absent shifts in public policy that would encourage companies to provide more training or pay a greater share of the costs, heavy burdens will continue to fall on individuals and on community colleges and vocational-technical schools.

Occupational titles for the knowledge-based services—customer service representative, data gatekeeper, para-legal or para-tax accountant (table 43, ch. 8)–suggest the kinds of generic skills needed:

- generalized troubleshooting and problem-solving;
- planning under conditions of limited resources and uncertainty;
- the interpersonal process in sales;
- negotiation and complaint encounters;
- retrieving, formatting, and analyzing data.

Programs including such training might or might not entail an extra span of coursework. It should be possible to do without some more-specialized courses, keeping programs to current lengths, if generalized approaches to skill development prove successful, and if employers could be encouraged to take care of narrower training needs themselves. Graduates of 2-year colleges and technical schools that offer broadly-based vocational curricula imparting the kinds of skills listed above should be better prepared to avoid obsolescence.

Much as for adult education and training, pilot and demonstration projects could help explore the merits of new and more general vocational curricula, Such projects should include, not only curriculum development, but evaluation and dissemination of results. Demonstration grants, with the active involvement of both the Departments of Education and Labor, should probably be contingent on participation by business and industry. Participation by organized labor would also be desirable. Congress could direct the Administration to proceed with this alternative as a cooperative demonstration program under one of the special grant provisions of the perkins Act (Option 21).

Instructional Technology

Productivity in teaching and training has changed little over the years, Educational technologies hold great potential—as yet mostly unrealized—for improving both the effectiveness and the productivity of instruction, of nearly all kinds and at nearly all levels, 23 This section focuses on two specific issues: 1) transfer of training technologies developed with government support; and 2) the Federal role in development and dissemination of new instructional technologies.

Transfer of Training Technologies

Federal agencies, notably the Department of Defense (DoD), fund the development of a wide range of instructional materials and technologies. Because military systems have grown so complex—and because repair and maintenance personnel turn over relatively quickly-DoD has sought to develop computer-based teaching methods, The Army, for example, plans to spend $27 million over the period 1984-1990 on interactive videodisc training materials (and another $100 million on hardware). Other agencies, especially the Department of Education and the National Science Foundation (NSF), also support R&D on instructional technologies.

[23] *Information Technology and Its Impact on American Education* (Washington, DC: Office of Technology Assessment, November 1982) examines instructional technologies in primary and secondary schooling. *Technology and Structural Unemployment: Reemploying Displaced Adults*. op. cit,, covers adult education and training. The discussion below draws on pp. 96-IO 1 and pp. 299-302 of the latter report, updating its findings. OTA is presently conducting an assessment entitled "Educational Technology: An Assessment of Practice and Potential."

While some of the training materials developed by DoD to meet its own needs might be quite useful to the public education system, or to private industry, mechanisms for evaluating and transferring these materials have proven less than adequate. Federal agencies seldom address such questions as: Which course materials are relevant to education and training outside the government? What modification would be needed? Nor have Federal agencies made the **instructional materials** themselves easily available for others to try out.

Congress has called for a first step, in the Federal Technology Transfer Act of *1986* (Public Law *99-502),* which directed the Secretary of Commerce to submit a report on legal barriers to transferring Federally-funded computer software, and on the feasibility and costs of compiling a comprehensive inventory of Federally-funded training software (Option 22), (Public Law *99-502,* one of two bills enacted in the 99th Congress which amended the Stevenson-Wydler Technology Innovation Act of *1980,* gets further discussion in the section below on technology policy.)

A more ambitious approach, in Title V of the House-passed version of H.R. 3 (sections entitled "Transfer of Education and Training Software"), would create an office in the Department of Education to transfer course materials to State and local agencies, and to the private sector, Another proposal in the 100th Congress, S. 406, would (as introduced) place a training technology transfer office in the Department of Commerce. Alternatively, it would be possible to rely on existing technology transfer mechanisms, rather than setting up a new office; Congress could, for example, direct Federal agencies that have established offices of research and technology application—charged under the Stevenson-Wydler Act with technology transfer—to devote part of their effort to training technologies and materials (Option **23).**

Research, Development, Evaluation, and Dissemination

Over the longer term, realizing the potential of new instructional technologies will require continuing research on learning, as well as the development of better instructional techniques and teaching materials. Teachers will themselves have to be retrained, as recently stressed by the National Task Force on Educational Technology.[24] Although the task force focused on the public schools, a number of its recommendations are equally appropriate for adult education:

- develop a long-term Federal Government R&D agenda for instructional technologies, in collaboration with school officials and the information industry;
- designate a highly visible and widely respected Federal agency to support peer-reviewed R&D on the application of information technologies to education;
- support State centers for evaluating and implementing computer-based instructional technologies.

Computer-based systems create opportunities for radically different approaches to education at all levels—opportunities that have been anticipated for years, and that may finally be nearing fruition, Taking full advantage will require Federal R&D support—including evaluations of the effectiveness of new methods, and programs for disseminating results and training teachers in the use of new instructional techniques and teaching materials. Federal research funds appear particularly critical for adult education, which has received little attention in the past.

Congress, in Title I of the Higher Education Amendments of 1986 (Public Law 99-498) called for establishment of a national program of research on adult learning. However, it stipulated that no money be appropriated during fiscal years 1987-91. Meanwhile, funding for educational laboratories and centers administered by the Department of Education's Office of Educational Research and Improvement (OERI) has remained at the $30 million level since fiscal year 1974, The Department also supports research through other programs, but OERI (for-

[24] *Transforming American Education: Reducing the Risk to the Nation,* A Report to the Secretary of Education by the National Task Force on Educational Technology (Washington, DC: office of Educational Research and Improvement, Department of Education, April 1986), p. 24.

merly the National Institute of Education) is the largest. Given that R&D on instructional technologies must compete with other needs, many of them well-established, adequate exploration of new approaches to teaching and training based on new technologies will probably require a substantial boost in support (Option **24),**

INDUSTRIAL AND TECHNOLOGY POLICIES

Competitiveness depends on technological innovation, among other things, and innovation depends on R&D and the technology/science base (again, among other things). Certainly true for manufacturing industries, does this causal chain hold for the services? From the evidence presented in the sector chapters, the answer is yes. Not only do the service industries depend on much the same technology/science base as manufacturing, but services and manufacturing depend on one another in many ways; technology policy should be seen from a vantage point encompassing both.

As discussed in chapter 9, governments encourage R&D and technology development both directly and indirectly. Some place more emphasis on commercial technologies than does the United States. In a few countries—notably Japan–government appears to have a deeper appreciation of the ways in which the knowledge-based services, in particular, can stimulate economic growth. This section begins with the need for better understanding of R&D in the service industries, and goes on to the U.S. environment for technological innovation and diffusion of commercial technologies–a subject that OTA treats quite broadly, in part because the analysis of technical licensing patterns in chapter **6** reveals cause for concern in the Nation's technology infrastructure as a whole.

R&D in the Services

As pointed out in box FF in the preceding chapter, Federal Government statistics greatly understate the contribution of services to total U.S. R&D spending. *Science Indicators,* the principal government compilation of R&D data, suggests that nonmanufacturing industries account for a bit over $2 billion in annual spending—less than 3 percent of all U.S. industrial R&D. This is far below the alternative estimate for services-related R&D in table **48** (ch. 9)–about *$26* billion, one-quarter of U.S. industrial R&D. Such a figure—while a rough approximation—demonstrates that R&D in the services has been much more important than commonly appreciated. Services-related expenditures have been under-reported for largely historical reasons (including definitions oriented toward manufacturing); but with technology development by U.S. service suppliers exceeding the total R&D budgets of most countries—and with some of the money coming from Federal sources —policymakers plainly deserve better information (Option *25,* table 61).

Research, Development, and Diffusion of Commercial Technologies

This and other OTA assessments have pointed to the need for more systematic attention to commercial technologies in the United States—to the technology base itself, and also to mechanisms for diffusing existing knowledge to firms that need it. Few companies have the resources—people as well as dollars—to learn everything they need to know on their own. By helping companies move from research to commercial production more quickly, greater Federal support for pre-competitive technology development could strengthen U.S. competitiveness in emerging fields such as information services and biotechnology; in mature industries, it could help improve productivity and manufacturing efficiency. Because the technology and science base for service industries overlaps that for manufacturing, Federal policies aimed at reversing the decline in U.S. technological advantage would help the services quite directly.

Beyond mission-oriented R&D directed at needs such as national defense and health care, the Federal Government funds basic research—

Table 61 .—Issue Area IV: Technology Development

Issue	Options for Congress	Comments
A. R&D IN THE SERVICES		
OTA finds U.S. R&D related to services to be much greater than reported in the usual Federal Government data series. Better information would make for better R&D policy choices.	OPTION 25: Direct Federal agencies—specifically, the National Science Foundation—to develop new criteria for identifying and collecting information on R&D and technology development related to the services.	Technology development in the services seldom fits very comfortably into traditional views of R&D, Services R&D has been underreported for reasons similar to those for the underreporting of services trade in the U.S. current account—outdated and unexamined procedures, many of which simply omit service activities.
B. THE U.S. TECHNOLOGY BASE		
The services depend on much the same technology base as manufacturing. Leaving aside national defense, the Federal Government provides relatively little funding for technology development.	OPTION 26: Increase Federal R&D support for commercial (i.e., non-defense) technologies by expanding initiatives such as NSF's Engineering Research Centers, and ensuring continued funding for existing programs such as the Center for Building Technology at the National Bureau of Standards.	In addition to the 11 existing ERCs, NSF has funded two new centers starting in fiscal year 1987; one more is under consideration for this year.
Congress has called for more emphasis on diffusion of technology to American industry through such laws as the Stevenson-Wydler Act (Public Law 98-480). The Administration, however, has only implemented parts of the legislation.	OPTION 27: Alternatively or in addition to the steps in Option 26, Congress could, under the 1986 Federal Technology Transfer Act (the 1986 amendments to Public Law 96-480), authorize, provide funding for, and direct the Administration to offer grants for Centers for Cooperative Research. For greatest effectiveness, these centers should be charged with technology diffusion as well as development.	Should Congress choose to create an Advanced Civilian Technology Agency or National Technology Foundation—as has been proposed in a number of bills introduced in recent years (e.g., S. 1233 in the 100th Congress) —cooperative technology centers would fit naturally into its role and function. Technology diffusion programs could be cost-shared between the States and the Federal Government.
The United States, no longer the unquestioned leader in technical knowledge, will need to do a better job of learning from foreign technology in years to come. This may entail devoting more resources to locating, evaluating, and translating foreign technical literature, encouraging more U.S. participation in overseas R&D, and seeking reductions in barriers that impede access to foreign technologies.	OPTION 28: Emphasize congressional commitment to implementation of the Japanese Technical Literature Act of 1986 (Public Law 99-382) through early oversight and full funding. If Congress wishes to place more emphasis on screening and evaluation, or to direct the Administration to fund translations of interest to university-based researchers, it could direct the Commerce Department to share responsibility with agencies having more experience in technology and science—e.g., the National Science Foundation.	The Commerce Department, which is already spending $1,8 million on related tasks, plans to implement the law by reprogramming $300,000 from its existing budget.
	OPTION 29: Increase support for exchanges of U.S. technical personnel with those of other nations. Congress could fund fellowships that would send graduate students in engineering to countries like Japan, as well as considering programs that would provide partial support, in conjunction with employers, for industrial engineers and scientists working abroad temporarily (in industry or in universities).	Sending more engineers and scientists to work temporarily abroad could help change corporate attitudes in the United States, and would give American industry more rapid access to foreign technologies as they emerge. To maximize the value of such programs, those awarded fellowships should get language training—e.g., in Japanese—before going overseas.
	OPTION 30: Make equitable access to foreign technology a formal U.S. negotiating objective, and call for reductions in restrictions on access for U.S. citizens to publicly-supported R&D projects in other countries.	Pursuit of this objective (included in H.R. 3 as passed by the House in May 1987) would need to be consistent with U.S. policies on foreign access to results from government-supported R&D projects here.
Policy adjustments may be needed to capitalize on the potential of defense spending for enhancing the competitiveness of commercial industries. While such issues have been raised in the past, not enough is known to guide policy development,	OPTION 31: Investigate and evaluate policies for maximizing the positive impacts of defense-related R&D and procurement on the international competitiveness of American industries.	Analysis of the linkages between the military and civilian sides of the economy might also lead to policy changes making it easier to adapt commercial technologies to military systems.

Table 61 .—Issue Area IV: Technology Development—Continued

Issue	Options for Congress	Comments
C. TECHNICAL STANDARDS		
Before the AT&T breakup, a single company dominated the process of setting technical standards. Today, the process Involves many firms in competition with one another. Because implementation of ISDN (Integrated Services Digital Networks) will involve multiple actors, finding ways to minimize Incompatibilities among different systems—and the associated costs to users—takes on new significance.	OPTION 32: Direct the National Bureau of Standards (in cooperation with the National Telecommunications and Information Administration) to set up an ISDN testing and demonstration laboratory to help government agencies make purchasing decisions and take advantage of emerging technical capabilities, and to help pave the way for a smooth transition to ISDN in the United States.	NBS's Institute for Computer Sciences and Technology already has related work underway on OSI (Open Systems Interconnection). An ISDN laboratory could provide independent assessments to support Federal procurement decisions, and also disseminate information to private sector users of telecommunications services. If industry were willing to donate equipment, Federal funding for the laboratory could be kept modest.
Developing U.S. positions at the ITU has become far more complex since the AT&T breakup Future ITU deliberations may well define a global framework for ISDN, with Impacts on equipment sales as well as services U.S. positions at the ITU and at other forums (e. g., GATT) will need to be carefully worked out and coordinated.	OPTION 33: Congress could anticipate the possibility that incompatible standards for ISDN will be proposed both internationally and within the United States, and begin to take preparatory steps to address such issues. Specific actions might include: • oversight to review U.S. preparations and negotiating positions for upcoming ITU meetings (e. g., WATTC-88), and the implications for U.S. positions at GATT and in other trade negotiations dealing with telecommunications; • request of a comprehensive study to review prospective ISDN standards and implementation, with a view to laying groundwork for future policy decisions (e.g., if it appears that U.S. telecommunications carriers might adopt dissimilar approaches that would be costly for users),	The State Department coordinates and presents U.S. positions at the ITU The Department relies heavily on the private sector, through committees, for advice on U.S. recommendations concerned with standards. The State Department is also at work on the U.S. position for the 1988 World Administrate Telephone and Telegraph Conference—the first WATTC since the AT&T breakup—and the plenipotentiary ITU meeting scheduled for 1989,

SOURCE Office of Technology Assessment, 1987

much of it through NSF, and mostly in universities. But government agencies have preferred to stay out of technology development related to commercial products and processes. Civilian applications do follow quite directly from some Federal spending, Defense-related R&D and procurement stimulated the early growth of the U.S. computer and semiconductor industries. Basic research funded by the National Institutes of Health helped fuel the take-off of the biotechnology industry. But these are the exceptions.

The Reagan Administration has held that support for basic research should suffice to rebuild the Nation's technological competitiveness. OTA's analysis indicates that judicious support for generic or pre-competitive technologies—those that can be applied by all companies in a given industry (or making use of a given field of knowledge) —would also pay off, Where the benefits to any one firm tend to be indirect and elusive, companies have little incentive to invest. But much as for basic research, the social benefits can be considerable. The analysis in chapter 4, for example, indicated that Federal R&D funding for construction technologies—where companies traditionally have conducted little R&D on their own—would have benefits both domestically and internationally. A second example: R&D aimed at improving productivity in the design and development of computer software (ch. 5). Progress here would help not only the software industry, but computer hardware manufacturers, companies that embed machine intelligence in their products, and, indeed, software users throughout the Nation's economy. But at present, only a few large companies conduct much research on software productivity.

In recent years, Congress has taken steps to stimulate R&D and technology development both indirectly and directly. R&D tax credits have been the primary indirect instrument. Unfortunately, for reasons explored in box HH, tax credits are seldom very effective in encouraging firms to undertake R&D they would

Box HH.—The R&D Tax Credit

Prior to 1981, the major U.S. tax incentive for research, Section 174 of the tax code, permitted firms to deduct qualifying R&D expenditures as current expenses. With the inclusion of a Research and Experimentation Tax Credit as part of the Economic Recovery Tax Act of 1981, companies could take a credit equal to 25 percent of the incremental amount of qualifying expenditures over and above their average R&D spending for the three previous years. The intent was to raise incentives for R&D, stimulating innovation and strengthening U.S. competitiveness. The 1986 Tax Reform Act (Public Law 99-514, Subtitle D of Title III) extended the R&D tax credit through 1988 at the reduced level of 20 percent.

How effective has the credit been? While many nations provide such tax incentives, here as elsewhere most of the evidence indicates that they have relatively minor effects on levels of industrial R&D spending.[1] Industry strongly supports the credit—which has cut corporate tax bills by about $1.5 billion annually—but most of the empirical studies have found that the financial benefits of the tax credit have not been great enough to influence corporate decisions on R&D very much. Reducing the tax credit from 25 to 20 percent has weakened incentives further.

Over the longer term, R&D tax credits at either 20 or 25 percent may contribute to somewhat greater spending by U.S. industry, services included. But the fundamental question is whether this is an efficient way to stimulate industrial R&D. According to OTA's analysis, it probably is not. Past OTA assessments have consistently indicated that gaps in R&D exist, and that they contribute to competitive difficulties. But the problem is as much one of allocations of R&D dollars as of the overall level of spending. There is no reason to expect R&D tax credits to have much effect in raising priorities for projects that would help fill these gaps. At the same time, an R&D credit that attempted to target particular research needs would be difficult to administer.

While the 1986 tax act temporarily extends the credit, many service firms get little benefit because their R&D projects are viewed as too close to marketing (the 1986 bill does make many development expenditures for computer software eligible for the first time). If Congress decides to retain the R&D tax credit, it might direct the Treasury Department, in cooperation with other agencies, to draft new rules that would accommodate a broader range of the technology development projects found in the services. So long as the credit remains in effect, there is no reason not to treat service firms comparably to those in manufacturing.

[1] *Research and Experimentation Tax Credit*, hearings, Subcommittee on Oversight, Committee on Ways and Means, U.S. House of Representatives, Aug. 2-3, 1984 (Washington, DC: U.S. Government Printing Office) (especially the testimony of E. Mansfield, p. 142). Alan. E. Mansfield, "The R&D Tax Credit and Other Technology Policy Issues," *AEA Papers and Proceedings*, vol. 76, May 1986, p. 190; "The Research Credit is a Limp Stimulant to Corporate Spending," *Wall Street Journal*, Jan. 8, 1986, p. 1.

not otherwise pursue" [illegible] perhaps its most important direct measure. Congress authorized a more active Federal role in supporting commercial technologies when it passed the Stevenson-Wydler Technology Innovation Act of 1980 (Public Law 96-480)—a law executive branch has implemented only [illegible]. In 1983, the Reagan Administration revoked the rules [illegible] authorized by the Commerce Department Act, substituting a [illegible] initiative which supplies information intended to inspire firms to band together in R&D joint ventures.[25] Although current antitrust policy also favors joint ventures for [illegible] with few tive R&D (ch. 6), industry respon[illegible]

[25] *Federal Register*, vol. 48, No. 223, Nov. 17, 1983, p. 52289. In 1986, with the passage of the Federal Technology Transfer Act of 1986 (Public Law 99-502), Congress amended the Stevenson-Wydler Act to encourage cooperation between Federal laboratories and the private sector. The Commerce Department's authority to provide grants for industrial technology centers has lapsed, but even so the 1986 amendments changed the name to cooperative research centers. Congress could, of course, reauthorize such grants at a later date.

The Reagan Administration has also proposed to eliminate, consolidate, or scale back existing programs that conduct generic R&D and technology development, such as the Center for Building Technology at the National Bureau of Standards (ch. 4).

exceptions, has been tepid. The reasons seem plain enough: on their own, companies that normally compete will cooperate only on quite visible, indeed obvious, research problems—those they can agree on and hope to solve relatively quickly. The centers envisioned in the Stevenson-Wydler Act would have addressed this quite predictable feature of the technological landscape through government-industry-university partnerships, with the expectation that much of the leadership would emerge from the university research community. Perhaps the greatest shortcoming of the Act as originally passed was that it called for the centers to eventually become self-supporting. Past analysis by OTA suggests that continued cost-sharing by the Federal Government would not only provide stability, but extend the R&D time horizons beyond those of the private sector. [26]

Recently, the Administration has also created a program of Engineering Research Centers (ERCs), with funding from NSF, along with a DoD undertaking entitled University Research Initiatives (URI), The first two years of the ERC program saw 11 university centers established. Through fiscal year 1992, NSF proposes a $160 million commitment to the program (private sector sources also provide support); current plans call for a total of 25 centers by 1989. While the objectives include strengthened linkages between universities and industry, the ERCs are properly seen as centered on the universities. Nor is it likely that DoD's URI program will provide much immediate help on the civilian side of the economy; the program is still in its early stages, but it seems plain—and quite natural—that most of the support will go for technologies that DoD research managers view as necessary for meeting future mission requirements. [27]

NSF's ERC program plainly represents a step in the right direction. To encourage R&D that would strengthen the technology base for American industries, Congress could ensure continuing support for the ERCs, as well as existing programs for generic technology development (e. g., those at the National Bureau of Standards, NBS) (Options 26 and 27). Directing the Administration to fund centers as envisioned in the Stevenson-Wydler Act would help move university research agendas closer to the needs of industry. Support for programs that transferred R&D results to the private sector would enable American companies in many industries to compete more effectively. (As noted in ch. 4, more effective technology transfer mechanisms would help the E&C industry benefit from technologies developed through DoD funding for construction-related R&D, which totals about $270 million per year.)

Access to Foreign Technology

Given rough technological parity in many fields, American companies now have a good deal to learn from overseas. This will take new attitudes by corporate managers, but Federal policies can also contribute. In part because the United States has been ahead for so many years, both the public and the private sector have neglected mechanisms for locating, evaluating, and translating information on foreign scientific and technical developments. Congress has made a start on this problem, most recently with the passage of the Japanese Technical Literature Act of 1986 (Public Law 99-382, like the Federal Technology Transfer Act of 1986, an amendment to the Stevenson-Wydler Act). Among other things, this law directs the Commerce Department, through the National Technical Information Service, to monitor technical developments in Japan and consult with users on their needs for information concerning Japanese engineering and technology, Commerce is to translate Japanese publications (on a cost reimbursable basis) and prepare annual reports on scientific and technical developments in Japan.

Although a significant step, the new legislation goes only part way in meeting U.S. needs

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[26] "d'' Development and Diffusion of Commercial Technologies: Should the Federal Government Redefine Its Role?" staff memorandum, C) ffic e of Technology Assessment, Washington, DC, March 1984.

The short-term orientation of U .S. industrial R&D has been one cause of technology gaps. Industry' cooperatives generally have time horizons somewhat longer than those of individual firms, but still relatively short—a problem the Commerce Department's information program does not address.

[27] Se c. f. r exa mple, the l ist of research topics in "rhe De Pa rtrnen t of Defense FY 1986 U n iversity Research I n itiative Program Overview," December 1985.

for foreign technical information (Options 28-30). Given the costs of translation, and the limited budgets of the Nation's universities, it seems logical that the Federal Government pay for translations covering the results of basic research—which will generally be of more interest to university than to corporate engineers and scientists. Beyond this, some foreign developments are much more significant than others: given huge quantities of information on foreign technology and science, it would be logical to develop screening procedures for identifying and evaluating the more important foreign work. Screening could benefit the government directly—e.g., through locating foreign technologies with potential applications in public works projects or military systems.

Personnel exchanges provide notably effective mechanisms for technology transfer, while also helping lay groundwork for long-term working relationships among researchers in different parts of the world. Many foreigners visit U.S. R&D installations, and many foreign nationals study at U.S. universities, but few Americans go abroad to conduct research. Among those who do, the language barrier means that only a tiny number go to Japan. This situation has begun to change, with new university programs that send American graduate students in engineering and science to work in Japanese laboratories. The U.S.-Israel Binational Industrial R&D Foundation also deserves mention, along with AID's Program for the Advancement of Commercial Technology. Federal support for the university programs could be particularly useful.

Finally, Congress could direct the Administration to seek increased access to foreign technology through the trade negotiations process. For example, H.R. 3, as passed by the House, would establish equitable access to foreign technology as a formal negotiating objective. In earlier years, barriers in foreign countries such as restrictions on technical licensing were of little concern, but now that other countries have strengthened their technological capabilities, it stands to reason that they be as open as the United States was in the past.

Military R&D; Federal Government Procurement

The U.S. Government played a crucial role in the rise of the information industries through research funding and purchases. Federal procurement and contracting policies have aided developments in software through standards for computer languages, Government purchases of services (and goods) can guarantee markets, reduce uncertainty, and stimulate growth. (See box II on the E&C industry.)

When it comes to more recent programs—e.g., DoD's Strategic Defense Initiative (SDI), and its Strategic Computing effort—Congress could seek to identify and implement policies aimed at maximizing favorable impacts on the civilian economy. Despite a great deal of rhetoric concerning the spinoffs from military spending (and space), remarkably little is known about the interactions and possible trade-offs between defense R&D (and procurement) and international competitiveness. Thus policy guidance would seem to demand, as a first step, a reopening of a fundamental set of questions in technology policy (Option 31)—questions that include:

- *How* do procurement and R&D expenditures by DoD (and the National Aeronautics and Space Administration) affect the development of civilian, commercial technologies—not only through the products and processes that emerge, but through contributions to technical knowledge and engineering design/analysis procedures?
- How has Federal spending benefited commercial industries (e.g., information services) in *recent* years? What, specifically, are the probable spinoffs from SDI? Will the most important of these be engineering methods or products/processes themselves?
- What is the *balance of benefits and costs* from technology development aimed at defense and space? Do military and space programs claim the best and the brightest among American engineers and scientists, weakening civilian industries?

Box U.-Federal Procurement of Engineering Construction Services

Buy-American preferences and set-asides ensure a good deal of overseas work for U.S. E&C firms. In 1983, Congress amended the Foreign **Service Buildings Act (Public Law 98-164, Sec. 136)** to give a 10 percent bidding preference **to** American **companies—and also to foreign firms** whose governments extend reciprocal preferences **to U.S. contractors. The measure, intended to open up bidding processes in other countries as much as to aid American E&C firms, applies to projects costing $5 million or more. Similarly, Section 116 of the Military Construction Appropriation Act, 1986 (Public Law 99-173), required that all contracts for military construction in NATO countries and Japan valued at greater than $1 million go to American companies.[1] The Omnibus Diplomatic Security and Antiterrorism Act of 1986 (Public Law 9%399), which authorizes $2.5 billion through fiscal year 1990 to improve security abroad, could prove a substantial boon for U.S. firms. The embassy security program restricts contracts of more than $5 million to American contractors, or majority joint ventures. The law also provides for small-business set-asides. .**

Although Congress could further expand preferences and set-asides on U. S*-funded construction projects in foreign countries, such steps—while providing assistance to an American industry experiencing competitive difficulties—would generally mean higher costs for the taxpayer (leaving aside cases like that of the new Moscow embassy). Moreover, diplomatic considerations and existing agreements will often limit such preferences. Both the embassy security program and the Foreign Service Buildings Act exempt projects in countries where current policies bar U.S. contractors, while the Foreign Service Buildings Act gives the Secretary of State latitude "in the interest of bilateral relations." But the most significant drawback to such policies is simply that bidding preferences fail to address the fundamental competitive weaknesses of U.S.-based E&C firms. They would do little to improve competitiveness beyond providing financial support, unless coupled with other steps that helped the industry improve its competitive position—i.e., programs for technology development.

As chapter 4 points out, innovation in the U.S. construction industry has bean slow. Federal procurement policies that worked to encourage innovation could contribute to strengthening the industry's international competitiveness. Congress might dir@ Federal agencies to experiment with performance-based contracting procedures, rather than rigid specifications that discourage use of new construction methods.

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[1]**Joint** ventures with host nation firms are permitted. The **appropriations** act for fiscal year 1987 (Public Law 99-591) lowered the threshold to $500,000, while also giving American contractors a 20 percent coat preference for military construction projects on **Kwajalein** Island, in U.S. territories such as Guam, **and** for military dredging operation **in** the **Indian Ocean.**

Congress **has also looked to the Defense Department for** indirect support of **U.S. E&C** exports. **In** 1964, **Congress** instructed DoD to designate an ombudsman to **help** U.S. firma get **contracts** for NATO-funded **projects** in Europe, end **to** require that **all** NATO-approved projects over $5 million be advertised in the ***Commerce Business Daily*—House** Conference Report **98-1159, to** accompany **H.J. Res.** 648 (Public Law 98-473), Continuing Appropriations for **fiscal** year **1985.** Language in **House** Report **99-648, to** accompany **H.R.** 5052, Military Construction Appropriations **Bill,** 1987, **increases** the threshold to $15 million. While about **50** U.S. **firms** have been certified **to compete** for NATO Projects, the first 16 months of the program sew only one bid, **and** that **unsuccessful—"**U.S. Contractor **Participation** in Overseas NATO Construction," fact sheet prepared by **W.L.** Harper, Office of the Assistant Secretary of **Defense/Acquisition and Logistics,** Department of Defense, 1986.

Although some in **the E&C** industry have argued that the government should routinely reserve construction paid for by the United States in non-NATO **countries** for American contractors, other policy considerations work against **this.** Many **military basing** agreements, for example, require that contracts go to host country firms.

- Given that the United States will continue to spend large sums on defense-related technologies, how can the positive impacts on the civilian economy be maximized? How can the United States speed the transfer and adaptation of military technologies to commercial industries?

Technical Standards

Standards sometimes become non-tariff barriers (ch. 9). On the other hand, they can also contribute to stable and predictable market conditions, and thus to the spread of new technologies, As mentioned earlier in this chapter, in

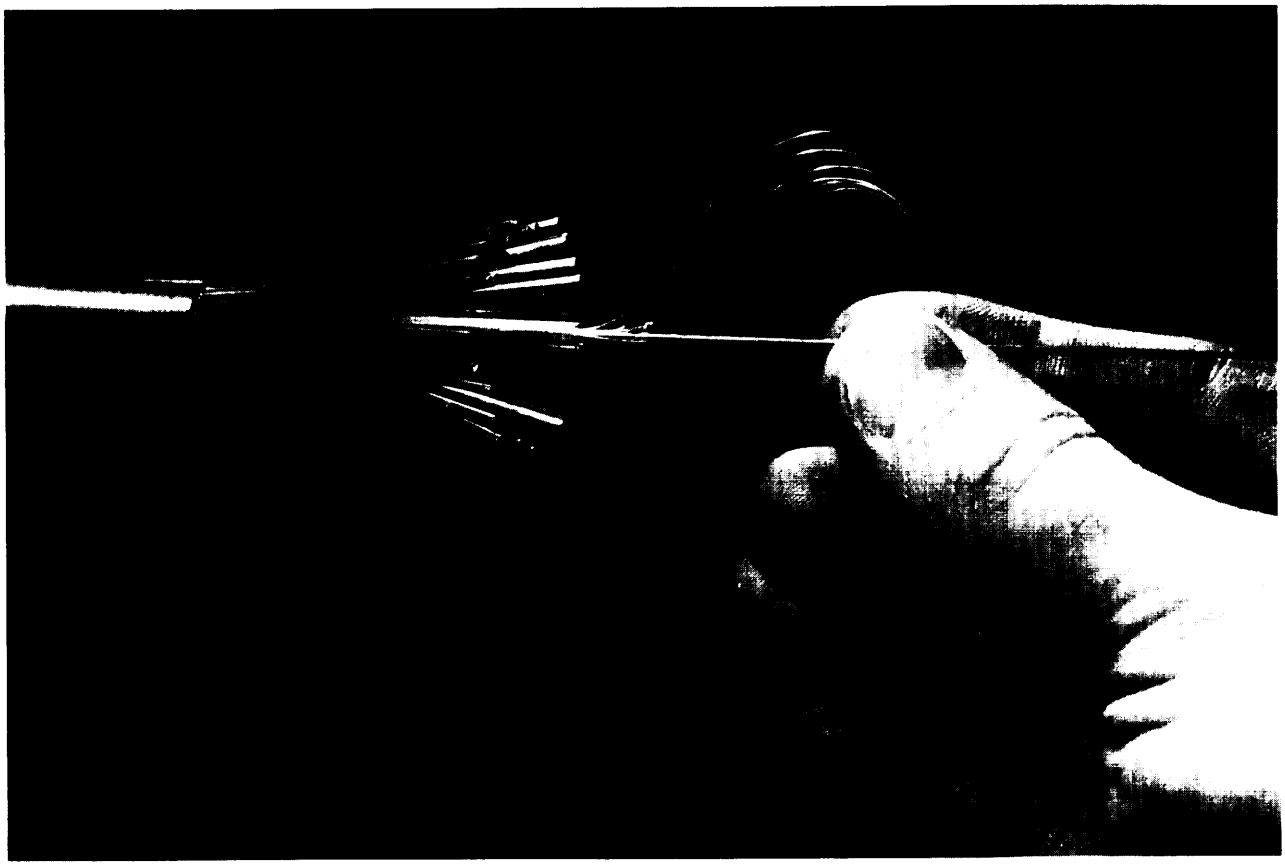

Photo credit: AT&T Bell Laboratories

Optical fibers for telecommunications

the section on telecommunications, an important set of questions revolves around future standards for ISDN. Open Systems Interconnection (OSI) standards for computers—a related matter—have also surfaced in international discussions.

In terms of domestic U.S. policies, the primary concern—partly one of standards, partly regulatory—lies in the implications of the AT&T breakup for compatibility in the Nation's telecommunications infrastructure. In the newly competitive environment, technical standards might easily become a weapon for companies seeking an advantage over their rivals, Is it possible that the regional holding companies (RHCs) will seek to introduce differing and incompatible ISDN standards as a shield against external competition? If so, the costs to users of services provided over the telecommunications infrastructure could be high. Questions of technical standards also remain for videotext/teletext services. While the United States has national videotex standards in place, these may need revision as computer-based videotex systems supplant services supplied through television broadcasting. Again, it seems desirable to ensure that the RHCs do not implement incompatible standards—especially since they may eventually be allowed to expand their role in delivering such services.

Regardless of outcomes in the United States, setting international ISDN standards promises to be contentious. A complex institutional structure exists to define and recommend international telecommunications standards, centering on the ITU (more specifically, the CC ITT).

The EC, which evidently plans to seek early CC ITT agreement on ISDN standards favored by Community members, set forth a working program at the end of 1986, Intended as a step toward Community-wide standards, the eventual aim is no doubt to establish competitive advantages for European telecommunications firms as equipment markets emerge.

In the United States, standards-setting processes have become more complex with the end of the unified Bell System, USTR has recently established an expert group on ISDN in conjunction with the EC. Two private organizations, the American National Standards Institute (ANSI) and the Exchange Carriers Standards Association (ECSA, created in 1983 to develop common technical standards for U.S. telephone companies) have also turned their attention to ISDN, In preparations for meetings of the ITU and the World Administrative Telephone and Telegraph Conference scheduled for 1988 and 1989 (WATTC, ch. 9), the State Department and other Federal agencies will rely heavily on ANSI and ESCA.

The U.S. Government-the world's largest consumer of telecommunications, computer, and data processing services—has a direct stake in the evolution of ISDN. Procurement decisions by DoD and the General Services Administration (GSA), the two major government purchasers of telecommunications and related services, will help shape ISDN standards. Both agencies are currently evaluating their needs, and examining possible evolutionary paths to ISDN. GSA plans to replace the government's private intercity telephone network (called FTS) with commercial services under its FTS 2000 proposal.[28] Meanwhile, the Defense Communications Agency is seeking to determine whether ISDN standards driven by civilian needs would also satisfy military requirements.

Given the many actors already on the scene—and bearing in mind that the RHCs may eventually be permitted to engage in equipment manufacturing—there seem good reasons for a strong Federal role in steering ISDN choices so as to minimize incompatibilities. As one alternative, Congress could appropriate funds for an ISDN demonstration laboratory and testing facility, perhaps at NBS (Option 32). In any case, Congress may want to stay abreast of the evolution of ISDN, both internationally and in the United States—e.g., by directing appropriate Federal agencies to monitor and analyze ongoing technical developments here and abroad. With total expenditures on ISDN expected to run to many billions of dollars, policy conflicts are bound to arise. These could range from trade friction involving sales of equipment to a possible renewal of concern over TBDF restrictions. As stressed in chapter 9, technical matters that once could be left to specialists have now become important policy matters—for the United States and for our trading partners (Option 33),

[28] "FTS 2000 Services: A Request for Proposals To Replace the Federal Telecommunications System," second draft—October 1986, GSA DC-8911 700203, General Services Administration, Washington, DC. GSA expects to let a 10-year FTS-2000 contract in 1988, with the new services—to include voice, data, and video— migrating to ISDN and conforming with national and international standards as they develop.

ORGANIZATION AND EFFECTIVENESS OF FEDERAL POLICYMAKING

USTR has set the stage for negotiations on services in GATT, Getting results, in the Uruguay Round and bilaterally, will require that other agencies be brought fully into the process, along with parties whose interests will be affected by the outcomes. Priorities will have to be set, and the inevitable trade-offs managed. It seems clear that mechanisms for drawing in representatives of both labor and business will need to be strengthened. As the experiences of the Kennedy and Tokyo Rounds demonstrate, a politically acceptable agreement depends on a domestic political consensus built and maintained during the negotiations process; attempts to put such a consensus together later risk failure, as the Kennedy Round showed.

Recognition of the many links between domestic industrial (and technology) policies and trade has come relatively slowly in the United States. The policymaking process is still adjusting, as reflected in the hundreds of bills introduced in Congress over the past few years concerned in some way with problems of competitiveness, trade, and structural adjustment. Some of the proposals have dealt with a perceived need for greater coordination and integration in the Nation's policymaking system—institutions and mechanisms better attuned to the realities of international competition and the changing U.S. place in the world economy. But if recognition of the need has been growing, agreement on specifics seems only a little closer. This is evident in the diverse approaches proposed in the 99th Congress (and thus far in the 100th)-proposals that included, among others, bills to strengthen USTR, to create a White House council on trade, to establish an independent council on industrial competitiveness, to reorganize agencies with trade-related functions into a new department of trade. There have also been proposals for a department of science and technology.

Policy outcomes always depend to some extent on organizational forms; in exceptional cases, the structure of government will determine the course of policy debates because of the way information is channeled and decision-making authority distributed. But in the United States, the built-in dispersion of authority guarantees conflicts and ambiguity—as well as access for interested parties. The structure lets debate sprawl, rather than channeling it. More than 30 government bodies—ranging from Cabinet councils to line and regulatory agencies to special commissions—have significant policy influence when it comes to the service industries, Predictably, coordination is occasional.

Congress passed the International Trade and Investment Act of 1984 (Title III of Public Law 98-573, referred to earlier) partly to strengthen policy coordination, The Act gives both USTR and Commerce major responsibilities. With change in such matters always slow, it is not clear at this point how well inter-agency coordination is working. Nor is it clear how well the Department of Commerce will be able to fulfill its new responsibilities for analysis of competitiveness in the service industries, and for policy development; these have not been Commerce's strengths in the past.

Accompanying the calls for better coordination have been periodic proposals for trade reorganization. Those who advocate reorganization believe the fragmentation of responsibility in matters concerned with trade has gone too far, and that seeking better coordination among existing agencies is a vain hope; indeed, some might say that, should efforts at coordination lead to another administrative layer, the cure could be worse than the disease. The most common reorganization plans would create a department of trade (or department of trade and industry), Many bills proposed but not acted on in the 99th Congress called for some variant of the trade department theme. Most would move USTR and at least some parts of Commerce into a new department, perhaps joined by elements of other agencies. Those favoring reorganization believe such a step would help integrate trade-related policies at higher levels of the Administration, placing the new department's secretary in a position to deal with issues of both domestic and foreign economic policy—while also helping with the problems of an overloaded USTR, which must rely on other agencies for staff support.

The opponents of reorganization point out that a secretary of trade would be faced with a large department having numerous line responsibilities, entrenched operating procedures, and well-established political and bureaucratic relationships. Such an organization does not move quickly or easily. The secretary's room for maneuver would inevitably be limited; closeness to the president can counter such tendencies only so far. As those who look with disfavor on reorganization say, shuffling boxes on the organization chart won't accomplish much, Moreover, reorganization would be counterproductive if USTR—a small agency with a well-defined purpose and proven capabilities—loses some of its effectiveness, As a relatively elite group within the Federal Government,

USTR has been able to attract outstanding employees—a major reason for its success. Finding and keeping good people might prove more of a problem in a larger, more cumbersome agency.

Although a plausible case can be made that creating a new department would reduce some of the overlap between USTR and Commerce, reorganization would have less effect when it comes to the many other agencies with a say in trade policy. The Departments of Agriculture and Defense, to take only the most obvious examples, would not quickly or easily cede influence over policies they view as important. Treasury jealously guards its macroeconomic responsibilities. As the number of trade complaints rises, the U.S. International Trade Commission becomes more influential in determining the Nation's de facto trade policy; the Commission is an independent agency. Nor is it likely that a trade department could (or should) take on functions now the province of the independent regulatory agencies (e.g., the FCC, the FRB)—so important when it comes to service industries.

The potential drawbacks to the reorganization plans, then, are many. Still, OTA's analysis suggests that—even given widespread agreement on policies at high levels in the executive branch—it may no longer be possible for the United States to develop and implement trade and foreign economic policies in consistent and coherent fashion. The international economy has changed radically over the past two decades; the structure of the U.S. Government has not kept up. Currently, the Administration may not have the analytical capability to develop sound policies, nor the tools to pursue them,

The problems have two fundamental dimensions–with prospective solutions that could be pursued independently or jointly:

- *analysis and decision* support—long-term planning, better institutional memory, and analytical guidance for trade-related decisions that Federal officials must now make on what is essentially a day-to-day basis;
- *policy* integration—mechanisms for developing broad consensus on overall policy objectives, and for managing the interagency process of policy implementation,

OTA addressed the first of these questions in the section above entitled "Trade Analysis and Information" (see Option 3 in table *56).* Earlier portions of the chapter also discussed the need for coordination among Federal agencies,

When it comes to high-level policy development and integration—the second of these questions—there are a number of alternatives short of full-scale trade reorganization. The Reagan Administration has placed trade policy under the aegis of the Economic Policy Council, an informal cabinet-level group chaired by the Secretary of the Treasury. Other members of the EPC—which has no statutory basis—include the Secretaries of Commerce, Labor, Agriculture, and State, along with the U.S. Trade Representative and the Director of the Office of Management and Budget. In recent years, the Trade Policy Committee (TPC, an interagency group established under the Trade Expansion Act of *1962* and headed by the U.S. Trade Representative) has met only rarely, although its staff committees and subcommittees continue to function under USTR and EPC direction, Congress could direct the Administration to utilize the statutory TPC, rather than leaving trade policy subordinate to informal bodies like the EPC. Alternatively, Congress could replace or supplement the TPC with a new council on international trade within the Executive Office of the President, charged with formulating trade and foreign economic policy at the highest levels of the Administration.

Informal cabinet councils like the EPC have responsibilities that often shift over the course of an Administration, as well as between Administrations, If Congress were to create a statutory trade council, a president might or might not give it real authority. But the existence of such a council would provide a ready-made focal point for a chief executive who sought to implement a coherent trade policy. Legislation establishing such a council could symbolize congressional resolve to raise the priorities for trade policy to a level in keeping with its significance for the U.S. economy.

By itself, creation of a department of trade or a statutory trade council within the Executive Office of the President (or both) would do little to help the Nation's service (or manufacturing) industries maintain their competitiveness. Plainly, the effectiveness of a department or council would depend on how well the details were handled, and on how the president chose to proceed once the legislation had been passed. But given the growing importance of the service industries, Federal agencies with both domestic and trade responsibilities will, one way or another, have to redirect at least some of their activities over the next 10 or 15 years.

At many places in this report, OTA has stressed the interdependencies between services and manufacturing. This means that policymaking must also be integrated at some level between these two sides of the economy. If the 100th Congress decides to reorganize the trade functions of the government, it might build deliberate linkages into the legislative framework, not only between trade policies and domestic policies, but between policies affecting the services and those affecting manufacturing.

CONCLUDING REMARKS

Many of the policies that would help U.S. service industries maintain their international competitiveness could also help the Nation's manufacturing industries. American software and information services firms owe much of their competitive ability to a large installed base of computer hardware, to knowledgeable customers who have been aggressive in pursuing new computer applications, and to hardware manufacturers who have remained at the technological frontiers. In turn, good software helps sell U.S.-made computer systems. Government policies contributing to low entry barriers, abundant venture capital, and high employee mobility have helped spur the entrepreneurial vigor characterizing both software and information services in the United States. More broadly, advances in computer applications have helped many U.S. manufacturing companies improve their productivity and maintain their international competitiveness. And computer-based training methods hold out opportunities for teaching people how to learn, so that lifelong education can become a reality rather than a slogan. These are not the only examples: parallel if less far-reaching relationships hold between business services (advertising, accounting, management consulting) and their customers. Deregulation of domestic air travel has led to lower passenger fares, hence market expansion and new orders for airframe and engine manufacturers. Deregulation also helped open up international air travel, contributing to exports of American-made passenger jets.

The linkages between the services and manufacturing create a complex institutional challenge. Starting in the **1970s,** the service industries made use of their access to the policymaking apparatus (nothing unusual for industries like banking or insurance, but new for the service sector as a whole) to help push GATT negotiations on services toward the top of the Nation's policy agenda—an effort arising in part from a feeling that policy makers had not been very responsive to the interests of the service side of the economy. Certainly the international ramifications of domestic policies have seldom received much consideration. But there is more than a question of responsiveness here: OTA's analysis suggests that it is the blurring of boundaries between services and manufacturing, rather than the special nature of services, that gives them much of their new importance, Still more broadly, recognition has grown that slackening international competitiveness—occuring more or less simultaneously in so many American industries—marks a real turning point in the U.S. position in the world. This has brought an intensified debate over trade policy. So far, the services have not had much prominence

in the debate, but this may change—particularly if the Uruguay Round negotiations make rapid progress on their services track.

Many bills in recent Congresses have sought, in one way or another, a tougher negotiating stance vis a vis the Nation's trading partners. The ostensible premise has been that equalizing the rules of the game would help U.S. industry compete, and bring exports and imports into closer balance. Other legislative proposals, focusing on the domestic causes of declining U.S. competitiveness, have proposed changes in education and training, or in technology policy. Most of the bills reflect, in one way or another, tensions between two powerful forces:

- the tradition of U.S. leadership in advocating open markets internationally, and unfettered competition;
- dawning realization that American firms face real trouble in competing in those markets—markets that U.S. policies have helped create.

In the services, where U.S. competitiveness remains generally high, this tension has been less apparent than in manufacturing (although plain enough when it comes to the E&C industry); liberalization of trade and investment would help some (not all) U.S. service industries.

Agreements in GATT and elsewhere will not be easy to reach; many of the barriers in the services consist of domestic regulations that few governments regard as fair game for discussion and negotiation. Although the United States has partially deregulated a number of its service industries over the last 15 years, some regulation will plainly continue—to protect public health and safety (air travel), to safeguard consumers and investors (financial services),

In the past, Federal agencies have seldom taken much account of impacts on international competitiveness when pursuing regulatory or deregulatory goals—even when these impacts are quite direct. And indirect impacts are important too: government regulations not only constrain companies, they condition management decisions more subtly (e. g., through expectations concerning future regulatory actions). Moreover, the impacts of deregulation can be negative as well as positive. Relaxation of antitrust enforcement, for instance, if carried too far could threaten industries—including the majority of traded services—in which domestic competition has honed the international capabilities of American firms. This might seem a worry for the future more than the present. But it is certainly legitimate to ask if the U.S. semiconductor industry would have come into existence in anything like its current form if today's antitrust climate had been in place 30 years ago. The 1956 AT&T consent decree, which caused Bell Laboratories to diffuse its technology widely, shaped many aspects of an industry that remains a major source of technological and competitive strength for the United States, despite recent battering by the Japanese.

As many examples in this chapter have shown, with the U.S. economy increasingly integrated into the world economy, Federal Government decisions can no longer be viewed solely in a domestic context. Policy makers and regulators will have to pay more than sporadic attention to international competitiveness.

The United States finds itself remodeling its policymaking system when the need becomes great enough, pressures build to high levels. With realization growing that the U.S. position in the world economy has altered irrevocably from that of two or three decades ago comes a shift in the ways Federal agencies formulate and implement policy—a shift that is underway but far from complete.

For Congress, perhaps the next step is simply to seek enhanced visibility for the impacts on competitiveness of executive branch decision-making—to build international competitiveness into the policymaking process. Better data and analysis would help move things along. Congress could seek to strengthen the linkages between service industries and manufacturing through support for their common technology/science base; indeed, simply ac-

knowledging that technology plays a critical role in maintaining a competitive group of service industries would be a start.

Coordination among Federal agencies will be an ever-present need, no matter the choices made by Congress. Jurisdictional disputes, traditions and habits–constants of the U.S. policymaking system—will not change overnight. But with time and accumulated experience, coordination between domestic regulatory policies and U.S. foreign economic policy should become somewhat easier. And Congress may decide the time is right to make more substantial changes in Federal policymaking structures. While ad hoc policymaking may have worked in the past, today—with shrinking or vanishing sources of advantage in global competition—the United States seems to need a new framework, as well as a new set of tools, for dealing with shifts in international competitiveness and their consequences.

APPENDIX IOA: EFFECTS OF TAX POLICY ON INTERNATIONAL COMPETITIVENESS IN THE SERVICES

Tax policies can affect competitiveness in many ways—for instance, by influencing the attractiveness of consumption relative to investment. Taxation also influences business decisions more directly; almost inevitably, investments in some economic sectors will be favored over others because of differing effective tax levels across the economy. Because international competitiveness depends on the outcomes of competitive rivalries within the economy, as well as those between U.S. and foreign firms (ch. [2]), a micro-level view of taxation often proves most illuminating.

This appendix gives a number of brief examples drawn selectively from service sectors covered in earlier chapters. The examples highlight some of the provisions of the Tax Reform Act of 1986 (Public Law 99-514), a fundamental change in U.S. tax law, and one with impacts that will not be fully evident for several years.

Financial Services

Banks in the United States have typically paid far less of their income in taxes than companies in other industries—to *some* extent a quid pro quo for accepting lower rates of return on tax-free investments such as municipal bonds. But to the extent that low effective taxes (actual taxes paid divided by income) represent something other than compensation for lower returns before taxes on activities the government wishes to favor, favorable tax treatment has made the banking industry more attractive to investors. Indeed, low taxes have been one of the factors leading foreign banks to enter the U.S. market.

The 1986 tax act could substantially raise the taxes that banks pay. While the international effects will be indirect—none of the provisions directly change the taxation of foreign as opposed to domestic business—American banks may well be induced to emphasize fee-earning services relative to lending (a trend already well underway] because they will not be able to claim tax losses on loans as easily. In addition, a major source of income for banks—buying tax-exempt securities with borrowed money, the expense of which reduces taxes—will be largely eliminated. Finally, the Tax Reform Act, by eliminating the investment tax credit, may cut into revenues from the leasing businesses that many financial institutions have established.

With higher taxes, U.S. banks may lose some international business they might otherwise get on straight lending because they will have to increase their net interest margins slightly. Fewer safe profit-generating activities domestically means a narrowed range of strategic options internationally.

Engineering and Construction

Tax policies have long been a concern of U.S. E&C firms operating overseas, and their employees. The income taxes that Americans stationed abroad must pay influence the wage levels they expect, hence the costs to their employers. Furthermore, when U.S. E&C companies invest in foreign countries, they must generally pay taxes on their profits to both the U.S. Government and the host nation. The primary question has been the extent to which U.S. tax obligations will be reduced as a consequence of foreign tax payments.

For individuals, Section 911 of the Nation's tax code has excluded the first $80,000 of overseas wages from Federal income taxes. Although E & C companies, along with others that station Americans abroad, have argued for an increase in the level of exclusion, the 1986 tax act reduces it to $70,000. As a result, U.S. firms that send highly paid employees overseas—e.g., managers and engineers—will find themselves at a slightly greater labor cost disadvantage relative to many of their foreign competitors.

Other tax policies that affect the E&C industry include the levies on technical assistance that some countries impose. These are taxes on professional services produced outside the country but sold within its borders. In most cases, the cost of this tax is simply passed along to the client. Because it then appears as part of the E&C firm's revenues, the cost of the local tax itself is subject to U.S. taxes. Legislation proposed in the 99th Congress (H. R, 3494) would have permitted American companies to deduct or credit taxes paid to a foreign government on construction services carried out in the United States for an overseas project. This would probably not make much difference for competition. The E&C industry has been slow to take advantage of tax incentives that are already available for promoting exports. For instance, even though architectural and engineering services for foreign construction projects were specifically included in legislation establishing tax-sheltered Foreign Sales Corporations, E&C firms have yet to make use of this mechanism.

More favorable tax treatment of international E&C activities could help cash flow positions and profitability levels, and might marginally lower the bids that American firms enter on some projects, By themselves, however, changes in tax policy would not have much effect on the cost disadvantages U.S. E&C firms must contend with in many foreign markets.

Information Technology Services

Entrepreneurial startups have been responsible for much of the vigor in this sector. Venture capital supplies for startups depend, among other things, on tax treatment of capita] gains. Because the 1986 Tax Reform Act raises effective capital gains tax rates, startups may become somewhat less attractive. It remains to be seen how great the impact will be, because other factors–primarily converging technological and market opportunities—have an even stronger influence on entrepreneurial industries.

A second tax issue—relating only to computer software—illustrates the sometimes circuitous routes through which taxation can affect competition, In the past, the Internal Revenue Service (IRS) has sought to treat software firms as passive holding companies when a large proportion of their revenues came from licensing. While the 1986 tax bill specifically exempts software firms from classification as passive holding companies, the example remains instructive. Some software suppliers choose to license their products, in both domestic and foreign markets, because other forms of protection for intellectual property rights fail to provide adequate protection (box GG, ch. 9). If a licensee makes illegal copies or otherwise breaks the agreement, the software firm can revoke the license. Revenues, however, come not from sales but from licensing fees. Because of this, the IRS had proposed to tax software firms as passive holding companies —subject to higher rates than active operating companies. Such a classification would have done considerable violence to the nature of this industry. Nonetheless, the IRS had threatened firms with bills for back taxes—as much as *$30* million in one case.

Technical Licensing

Relative tax levels here and abroad affect decisions on exploiting proprietary technology—whether to produce at home and export or to license companies abroad, whether to negotiate licenses with unaffiliated firms or only with affiliates. Other things the same, a multinational will attempt to arrange its internal transactions to minimize tax liabilities on a global basis. International differences in taxation give MNCs many opportunities for doing so. At the most obvious level, royalties from unaffiliated firms will be taxed as income, whereas royalty flows from affiliates can be treated as intracorporate charges, exempt from taxation. Of course, the tax-collecting authorities of each country will attempt to ensure that they get their fair share—one reason for the tax treaties that governments negotiate with each other.

In the United States, the IRS requires that fees and royalties from intracorporate licensing approximate revenues that would be earned in arms-length transactions. U.S.-based multinationals are likewise expected to allocate R&D expenditures on a reasonable basis between the parent firm and foreign subsidiaries. This prevents companies from, say, loading all R&D costs onto the U.S. parent's income statement so as to lower domestic earnings and hence the firm's IRS bill, Other possibilities arise

because U.S. law permits deferral of taxes on foreign earnings until the income is repatriated to the United States. In the absence of IRS rules governing allocations of expenses, MNCs would be tempted to transfer income to subsidiaries located in countries with low corporate tax rates—by, for instance, permitting their subsidiaries to use U. S.-developed technologies at no charge. After paying foreign taxes on income from the technology, the company could then repatriate the funds as untaxed capital flows. Existing tax laws are intended to prevent indirect transfers of this type, but it is hard to say how well they work; regardless of the extent to which MNCs comply with the letter and spirit of IRS rules, they will always have considerable latitude in using license agreements as vehicles for moving funds internationally.

Many host governments tax international transfers involving royalty payments. While this can dampen licensing activity, managements have alternatives here too. They may, for example, inflate the fees they charge their subsidiaries by the amount of the tax. In such cases, the host government is likely to know perfectly well what is going on. If it wishes the technology transfer to take place, the host country can set a tax, perhaps for political purposes, and accept the fact that fees will be inflated. If it wishes to stop the practice, the government can always set ceilings on maximum royalty rates. This narrows the MNC's room for maneuver; if the firm cannot find another financial conduit, it may decide to leave the market.