

1981

United States Policy toward the Transfer of Proprietary Technology: Licenses, Taxes, and Finance

Gary C. Hufbauer

George N. Carlson

Follow this and additional works at: <https://scholarship.law.vanderbilt.edu/vjtl>



Part of the [Intellectual Property Law Commons](#), and the [Science and Technology Law Commons](#)

Recommended Citation

Gary C. Hufbauer and George N. Carlson, United States Policy toward the Transfer of Proprietary Technology: Licenses, Taxes, and Finance, 14 *Vanderbilt Law Review* 337 (2021)
Available at: <https://scholarship.law.vanderbilt.edu/vjtl/vol14/iss2/7>

This Article is brought to you for free and open access by Scholarship@Vanderbilt Law. It has been accepted for inclusion in Vanderbilt Journal of Transnational Law by an authorized editor of Scholarship@Vanderbilt Law. For more information, please contact mark.j.williams@vanderbilt.edu.

UNITED STATES POLICY TOWARD THE TRANSFER OF PROPRIETARY TECHNOLOGY: LICENSES, TAXES, AND FINANCE

*Gary C. Hufbauer**
*George N. Carlson***

TABLE OF CONTENTS

I.	INTRODUCTION	338
	A. <i>The Generation and Diffusion of Proprietary Technology</i>	338
	B. <i>Geographical Considerations</i>	340
	C. <i>Post-Transfer Control</i>	342
	D. <i>Embodied v. Disembodied Technology</i>	344
II.	THE LICENSING OF TECHNOLOGY TRANSFER	344
	A. <i>Export Administration Act of 1979</i>	345
	1. General Provisions	345
	2. National Security Controls	346
	3. Foreign Policy Controls	346
	B. <i>Atomic Energy Act of 1954</i>	347
	C. <i>Arms Export Control Act of 1976</i>	347
	D. <i>Effect of the Afghanistan Episode</i>	348
	E. <i>Technology Transfers to the People's Republic of China</i>	348
III.	THE TAXATION OF TECHNOLOGY TRANSFER	350
	A. <i>Transfer Pricing</i>	350
	B. <i>Characterization of Earnings on Technology Sold Abroad</i>	351
	C. <i>Foreign Tax Credit Limit</i>	352

* Deputy Director, International Law Institute, Georgetown Law Center; Counsel to Chapman, Duff and Paul; formerly Deputy Assistant Secretary, International Trade and Investment Policy of the Treasury Department (1977-80) and formerly Director of the International Tax Office, Office of Tax Analysis of the Treasury Department, 1974-76. J.D., Georgetown University Law School.

** International Economist, Office of Tax Policy of the Treasury Department. B.A., 1964, U. of Wash., Seattle; M.A., 1966, Cornell; Ph.D., 1971, U. of Ill.

The authors wish to thank William A. Engehart, a legal assistant at Chapman, Duff and Paul, for his assistance in preparing this article.

D.	<i>Expense Allocation</i>	353
E.	<i>Bilateral Tax Treaties</i>	353
	1. Deduction of Royalties	354
	2. Withholding Taxes	355
F.	<i>Domestic International Sales Corporation</i>	356
IV.	FINANCING TECHNOLOGY TRANSFER	357
A.	<i>Export-Import Bank</i>	358
B.	<i>Overseas Private Investment Corporation</i>	359
C.	<i>Foreign Military Sales Credits</i>	359
D.	<i>Economic Support Fund</i>	360
E.	<i>Agency for International Development</i>	360
V.	CONCLUSION	361

I. INTRODUCTION

Much of the nation's technology is developed in public institutions, especially universities and government research laboratories, and is freely available through libraries and classrooms. Roughly one-half of total United States research and development expenditures are funded by the United States Government, and the findings from this research are generally available to citizens and foreigners at little or no charge. In addition, a great deal of technology that was once guarded by patents or trade secrets has since passed into the public domain. This paper ignores these freely available segments of the national technology base and discusses proprietary technology.

A. *The Generation and Diffusion of Proprietary Technology*

The useful application of proprietary technology has two distinct but related phases: generation and diffusion. The process of diffusion can be separated into diffusion within the country and diffusion across international borders. In the United States, the generation of industrial technology largely results from the research and development efforts of private firms in the expectation of commercial reward.¹ The level of commercial reward is influenced both by direct government subsidies to private firms and

1. See Hufbauer & Blake, *Industrial Technology in Foreign Affairs: A Tour of U.S. Government Policy*, in INTERNATIONAL SCIENCE AND TECHNOLOGY: THE POLICY GAP (G. Tolley ed. 1979). The system of commercial reward accomplishes two useful purposes: it discourages the development of technology which has no social use, and it provides both funds and incentive for new discoveries.

by tax incentives. In addition, the conditions governing diffusion influence what portion of the benefits of new technology can be captured as a commercial reward. If diffusion takes place freely and instantly, commercial returns to the inventing company will be small. If diffusion is controlled for decades by the inventing firm, the private return will approach, and possibly even exceed, the social rate of return.²

The rate of technology diffusion within the United States is affected by the following three legal mechanisms: the patent system, the legal protection for trade secrets, and the antitrust limits on contractual terms in technology licensing agreements. By contrast, the rate of technology diffusion between the United States and foreign nations is affected by six legal mechanisms. The first legal mechanism is export licensing, both of products and of plans. Export controls are usually imposed for national security or foreign policy reasons. They apply both to trade in specific items with potential military applications and to a broader range of items destined for the Soviet bloc and other hostile nations. The second control tool is the patent law. The statutory conditions for granting a patent are structured so that foreign inventors have an incentive to patent their inventions within the United States at an early date if they want United States patent protection. In addition, United States patent law contains reciprocity features that favor residents of nations adhering to the Paris Convention. Further, section 337 of the Trade Act of 1974 contains mechanisms to protect United States inventors against the use of pirated United States technology for the manufacture of goods abroad and their subsequent exportation to the United States market. The third control tool is tax policy. On the whole, international tax rules are not designed to encourage or discourage the flow of technology. Deviations from tax neutrality between technology income earned abroad and technology income earned in the United States usually reflect the exigencies of meshing the United States and foreign tax systems. Nevertheless, some of these deviations are important enough to influence the

2. Studies by Mansfield and others have attempted to measure the commercial and social rates of return from research and development spending. These studies tend to show higher social rates of return for research and development projects than private rates of return. *E.g.*, Mansfield, Rapaport, Romeo, Wagner & Beardsley, *Social and Private Rates of Return from Industrial Innovations*, Q. J. ECON., May 1977.

flow of technology. The fourth control tool, again indirect, is financial policy. The United States operates the following programs to provide official credits and guarantees for sales and investment abroad: the Export-Import Bank, the Overseas Private Investment Corporation, the Foreign Military Sales Program, the Economic Support Fund, the Agency for International Development, and the Commodity Credit Corporation. To some extent, these programs differentially encourage the export of technology. The fifth control tool is import policy as revealed in the structure of tariffs, quotas, and administered protection. Again, this is largely an indirect tool. To the extent that the United States imposes high tariffs or restrictive quotas on imports of low technology goods, it burdens the production and export of high technology goods and vice versa. The sixth control tool is United States antitrust law. Technology licensing agreements that contain excessively restrictive conditions on the sale of the final product or the purchase of intermediate inputs can offend the antitrust laws and lead firms to decide between producing through controlled foreign corporations or not producing outside the United States at all.

This essay comments briefly on only three of the six legal mechanisms, the licensing, financing, and taxation of technology transfer. Technology transfer is not a lead topic around which United States policy has been organized. Rather, legal controls over the transfer of technology have been erected by a process of accretion, and the evolution and administration of those controls has been consigned to a number of different agencies. Nevertheless, it is possible to detect three weakly implemented organizing principles that have influenced the development of the legal mechanisms. These are geography, the extent of post-transfer control remaining in the hands of United States persons, and the extent to which technology is transferred in disembodied form, such as the sale of patent rights, or embodied form, such as the sale of equipment that incorporates new production features. These organizing principles reflect two underlying considerations. First, any country that plays the technology control game must attempt to compartmentalize the destination of its technology. Second, the scope for controls diminishes as the foreign availability of technology grows.

B. *Geographical Considerations*

Geography is a euphemism for the politico-military coloration

of various regions. For technology transfer purposes, the most important geographical axes are East-West, West-West, and North-South. Military security is the overriding issue characterizing East-West transfers. Motivated largely by security considerations, the United States relies on export controls and financing restrictions to regulate the flow of goods and services to the Soviet bloc. Despite these restrictions, the past decade has witnessed a dramatic expansion in United States-Soviet bloc commercial relations. For example, combined trade between the United States and the Soviet Union grew from virtually zero in 1970 to \$2.8 billion in 1978 and then, with the Afghanistan invasion, declined to about \$1.2 billion in 1980.³

Economic neutrality characterizes United States policy toward West-West transfers to industrialized noncommunist nations. This policy of neither encouraging nor discouraging technology transfers reflects the basic free trade and open investment attitude of the United States. Nevertheless, debate continues over the wisdom of technology transfer. Some observers contend that the United States should husband its technological resources and concentrate on exporting products, not know-how. Other observers note that it is virtually impossible to prevent the dissemination of knowledge, that technology transfers are increasingly a two-way proposition, and that the free international sale of existing technology provides financial resources for the generation of new technology.

North-South transfers of technology are characterized by a gap between rhetoric and reality. Developing countries believe they have a right to the know-how of the developed countries on a royalty-free basis: "They claim that their right of access to technology which they regard as the 'common heritage of mankind' has been limited and restricted unreasonably and that this is the main reason for their being underdeveloped."⁴ The United States and other industrial nations must balance domestic concerns against this perceived right. Through a number of financing windows, the United States enables developing countries to obtain United States technology at concessional prices, but United

3. BUREAU OF THE CENSUS, U.S. DEPT. OF COMMERCE, STATISTICAL ABSTRACT OF THE UNITED STATES 864 (1979), and author's estimates for 1980.

4. J. Ney, Jr., *Technology Transfer Policies*, ISSUES IN EAST-WEST COMMERCIAL RELATIONS, JOINT ECONOMIC COMMITTEE, 95TH CONG., 2D SESS. 18 (Comm. Print 1979).

States firms are seldom willing to surrender their technology for no commercial reward. United States labor unions are concerned about possible job losses resulting from foreign production supported by technology transfers. Because these are important issues, the Congress has called for a study of the domestic economic consequences of foreign technology transfers.⁵

C. *Post-Transfer Control*

Whether in an East-West, West-West, or North-South context, technology may be transferred in various ways. The means of international technology transfer can be arrayed according to the extent of control after the transfer takes place. At one extreme is direct investment in a wholly-owned foreign subsidiary, including subsidiaries established to perform research and development abroad. Next are technology transfers to a foreign subsidiary in which the United States firm holds a controlling interest, but collaborates with a minority partner. Next are technology transfers to a foreign venture in which the United States firm holds only a minority interest. Then come licenses to unrelated firms. Straight sales of a new product or sophisticated equipment that enables the purchaser to improve his own technological capabilities are next. Last, technology may be transferred by imitation abroad, with no commercial transaction in products or plans.

An excellent statistical survey on the various forms of technology transfer is prepared annually by the National Science Foundation.⁶ For present purposes, a brief summary will suffice. United States direct investment abroad reached a book value of nearly \$200 billion in 1980 and in recent years has grown at a rate of about ten percent annually.⁷ The largest portion of this outward investment is in manufacturing, with machinery and chemicals the most important industries.⁸ Foreign direct investment in the United States reached a book value of about \$60 billion in 1980.⁹ In the past three years, the growth rate of inward invest-

5. *Export Administration Amendment of 1977*, H.R. 5840, Sec. 118.

6. Bond, *International Indicators of Science and Technology*, in NATIONAL SCIENCE FOUNDATION, *SCIENCE INDICATORS-1980* (1980).

7. Wichard, *U.S. Direct Investment Abroad in 1979*, SURVEY OF CURRENT BUSINESS, 16-36 (Aug. 1980), and author's estimates for 1980.

8. *Id.* at 27.

9. Chung & Fouch, *Foreign Direct Investment in the United States in 1979*, SURVEY OF CURRENT BUSINESS 38-51 (Aug. 1980) [hereinafter cited as Chung &

ment has doubled to roughly twenty percent per year.¹⁰ As with outward investment, the largest proportion of inward investment is in manufacturing, with chemicals and machinery in the forefront.¹¹

United States and foreign licensing arrangements also exhibit a reciprocal pattern of technology transfer. United States companies' net receipts (receipts minus payments) of royalties and fees from foreign affiliates approached \$3 billion in 1980.¹² Manufacturing activity generates the largest proportion of these receipts, with machinery and chemicals again the most important individual industries.¹³ Foreign parent firms also provide technology to United States affiliates as evidenced by the level of net payments of royalties and fees (payments less receipts) of United States affiliates of about \$0.5 billion in 1980.¹⁴ The research and development effort of these foreign affiliates probably reached \$3 billion in 1980.¹⁵ The three leading industries are transportation equipment, machinery, and chemicals.¹⁶

Based on a comparison of foreign direct investment flows, royalty and fee payments, and research and development activity, the United States remains a net exporter of technology. These outflows have not necessarily eroded the export position of United States industry. The research and development-intensive machinery and chemical industries stand at the leading edge of the technology transfer movement, but they also account for seventy-five percent of the United States trade surplus in research and development-intensive goods and over fifty percent of all manufactured exports in the last twenty years.¹⁷

The legal structure surrounding the diffusion of technology often distinguishes between transactions that convey technology to independent parties and transactions that keep technology within the corporate group. For example, a patent license that

Fouch, and author's estimates for 1980].

10. *Id.* at 38.

11. *Id.* at 47.

12. Wichard, *supra* note 6, at 23, and author's estimates for 1980.

13. *Id.* at 23, 33-36.

14. Chung & Fouch, *supra* note 9, at 45.

15. See S. Okubo, *The Impact of Technology Transfer on the Competitiveness of U.S. Producers*, 15-17 (paper presented to Trade Policy Staff Committee) (July 18, 1980).

16. *Id.* at 15.

17. *Id.* at 30.

dictates the terms of sale of a final product or that requires the purchase of intermediate goods may well offend the United States antitrust laws. Similar restrictions can be imposed, however, on a controlled subsidiary of the parent corporation with no adverse legal consequences under United States law. As subsequent sections indicate, technology transfer control mechanisms also distinguish between transfers to strangers and transfers within the family.

D. *Embodied v. Disembodied Technology*

Nations generally prefer to sell their technology to foreigners in the form of new products or sophisticated equipment rather than in the form of blueprints. When equipment is exported, complementary factors of production such as labor and physical capital are employed to a greater extent than when blueprints are exported. There is some doubt, whether or not rationally based, that sellers of straight technology realize an adequate profit on its transfer. The sale of blueprints and patents may give birth to a foreign competitor much more quickly than the sale of a new product or sophisticated equipment. While reverse engineering is always possible, it takes more time than reading blueprints.

The preference for the sale of embodied technology finds expression in various legal control mechanisms. The Bucy Report suggested that the United States should abandon nearly all controls on exports of goods to the Soviet Union, but should retain and reinforce controls on the export of blueprints. The tax law gives a larger preference margin to the sale of goods to foreigners than to the licensing of patents. Official financing is more readily available for the export of goods than the export of pure technology.

II. THE LICENSING OF TECHNOLOGY TRANSFER

Under the Export Administration Act of 1979, the Arms Export Control Act of 1976, the Atomic Energy Act of 1954, as amended, the Nuclear Non-Proliferation Act of 1978, and the Energy Reorganization Act of 1974, as amended, the United States Government exercises wide-ranging authority to control the export of technology for national security and foreign policy reasons. The Departments of Commerce, Defense, State, and Energy, the National Security Council, the Nuclear Regulatory Commission, and the Arms Control and Disarmament Agency all play a role in

monitoring technology exports.¹⁸

A. *Export Administration Act of 1979*

1. General Provisions

The Export Administration Act of 1979 is the central piece of legislation regulating technology transfers from the United States.¹⁹ This Act declares that it is the policy of the United States,

- (i) To restrict exports of goods and technology that would significantly contribute to the military potential of any other country in a fashion detrimental to the national security of the United States;
- (ii) To restrict exports of goods and technology where necessary to further significantly the foreign policy of the United States; and
- (iii) To restrict exports of goods where necessary to protect the domestic economy from an excessive drain of scarce materials.²⁰

The first two policy declarations are particularly relevant in the technology transfer context. While the Act discourages the automatic or permanent imposition of export controls, it provides ample authority for the Administration to impose ad hoc restrictions. The Act delegates to the Secretary of Commerce the authority to establish a Commodity Control List specifying goods and technology subject to export controls. This list identifies for every controlled commodity the type of license required for export to each Country Group. The Act authorizes the Secretary of Commerce to issue the following three major types of licenses: validated licenses, authorizing a specific export, which are issued pursuant to an application by the exporter; qualified general licenses, which authorize multiple exports issues pursuant to an application by the exporter; and general licenses, which authorize exports without application by the exporter.

Country Groups are maintained to distinguish different policy criterion for different nations. For example, Country Group Y contains the Soviet Union and most of the Eastern bloc countries, excluding Poland and Romania. Exports of goods and technology

18. The Office of Export Administration in the Department of Commerce is designated as the "central contact point" within the U.S. Government, 45 Fed. Reg. 64,226.

19. Export Administration Act of 1979, Pub. L. No. 96-72, 93 Stat. 503-36 (1979).

20. *Id.*

with no possible military application destined for Country Group Y are subject to less stringent controls. If an export has potential military application, the proposed transaction is reviewed to assess the possible detriment to United States national security. Country Group T, which includes most countries in the Western hemisphere except Cuba, and Country Group V, which includes most Western industrial countries, are not generally subject to the strict military application test.

The foreign availability of a good or technology is considered in any decision to impose export controls. At one extreme are cases in which the technology is available without export restrictions in sufficient quantity and quality abroad and the technology is not deemed vital to national security and foreign policy goals. In such cases, the President may not impose controls. At the other extreme are cases in which the United States has a monopoly, and foreign availability is simply not an issue. Most cases, however, fall in a grey area in which availability is limited abroad. In these cases, the executive branch is given discretion to determine whether sufficient cooperation can be obtained from the Western allies, through the auspices of the Coordinating Committee, to make export controls worthwhile.

2. National Security Controls

The determination whether national security controls should be placed on the export of goods to a specific country is not based solely on the country's geographical status. It also reflects the country's present and potential relationship to countries friendly or hostile to the United States and its ability to control retransfers of United States exports. The Secretary of Defense has primary responsibility for developing a list of militarily critical technologies, which becomes a part of the Commodity Control List, but the Secretary of Commerce is assigned a secondary role in drawing up this list. The Act also establishes a system of performance indexing to provide for annual increases in the levels of controlled goods and technologies. Any technology not maintaining the progressively higher performance levels should, in principle, be withdrawn from the Commodity Control List.

3. Foreign Policy Controls

The Act gives the President authority to impose export controls for the purpose of advancing the foreign policy goals and declared

international obligations of the United States. In practice, foreign policy controls are within the province of the Department of State and the National Security Council. Criteria for determining the need for controls under this section are:

- (i) the probability that such controls would have the intended effect, in light particularly of the foreign availability of the technology;
- (ii) the compatibility of such controls with the foreign policy objectives of the United States, including the effort to counter international terrorists;
- (iii) the likely effect of the controls on the export performance, competitive position, and international reputation of the United States and of individual companies; and
- (iv) the ability of the United States to enforce the proposed controls.

B. *Atomic Energy Act of 1954*

The Atomic Energy Act, as implemented by the Energy Reorganization Act, prohibits United States persons from producing nuclear materials outside the United States except in the context of approved international cooperative arrangements or upon a determination by the Secretary of Energy "that such activity will not be inimical to the interest of the United States." The Department of Energy is responsible for reviewing applications for specific authorizations to engage directly or indirectly in the production of nuclear material outside the United States.

The regulations require that any person wishing to engage in production abroad shall apply for either a general or specific license. Except in four sensitive areas general and specific authorizations generally fall along geographic lines. The four sensitive areas of activity include assistance in the design, construction, fabrication, or operation of a nuclear reactor, a facility for the production of heavy water, a facility for the separation of isotopes or any source of special nuclear material, and a facility for the processing, alloying, or production of special nuclear materials. In these four sensitive areas, the Secretary of Energy will, with the advice of the Nuclear Regulatory Commission, determine the suitability of an export of technology to any foreign nation.

C. *Arms Export Control Act of 1976*

The United States Foreign Military Sales (FMS) program is another vehicle for potential technology transfers. Between 1970

and 1975, FMS sales increased from \$1.1 billion to \$15.8 billion annually.²¹ Congress believed that greater policy control was in order and consequently enacted the Arms Export Control Act in 1976, which consolidated existing legislation and established an Arms Export Control Board. The Arms Export Control Act delegates to the Secretary of State authority to control the export of commercially-sold defense articles and services. The principles governing munitions control are outlined further in the Foreign Assistance Act of 1961, as amended. The Arms Export Control Board reviews coproduction agreements involving military equipment.

In 1977 President Carter spelled out a policy of unilateral restraint setting qualitative and quantitative limits to United States sales. Shortly thereafter, the President approved controversial sales of military hardware to Iran and Saudi Arabia. Elsewhere in the world, increased arms sales by France, the Soviet Union, and other suppliers seemed to fill any void left by the new United States policy of restraint. It is unclear what impact the arms restraint policy has had on the total volume of arms sales.

D. *Effect of the Afghanistan Episode*

Following the December 1979 invasion of Afghanistan, the President ordered the Secretary of Commerce to revise United States policy with respect to the export of high technology items to the Soviet Union. On May 5, 1980, the Commodity Control List and the Advisory Notes for that list were revised to reflect national security considerations. Certain lasers, silicone materials, silicone deposition equipment, and semi-conductor sawing and surface finishing equipment would be subject to the more restrictive validated licensing procedure. It was further announced that the United States would enter into immediate negotiations to restrict the foreign availability of these goods to the Soviet Union. The United States has since attempted to persuade its allies in the Coordinating Committee to limit shipments of high technology goods to the Soviet Union.

E. *Technology Transfers to the People's Republic of China*

The United States and the People's Republic of China now per-

21. SENATE COMM. ON FOREIGN RELATIONS, UNITED STATES CONVENTIONAL ARMS TRANSFER POLICY (June 1980) (unpublished as of March 1, 1981).

ceive that their common interests will be enhanced by an expansion of United States exports of technology to China. The United States-China Trade Agreement was an early diplomatic step towards implementing this policy. The Agreement eases the way for the establishment of offices of United States companies in Peking. It establishes a framework for more normal banking operations between the two countries, and it ensures most-favored-nation treatment in trade between the two countries.

On April 25, 1980, the International Trade Administration moved the People's Republic of China, for export control purposes, from Country Group Y to a new Country Group P. China is the only member of Country Group P. The validated license requirements for Country Group P are the same as those for Groups Q, W, and Y, but in considering "which exports would contribute significantly to military potential in a way which would be detrimental to the U.S. national security, factors relevant are different from those of the Warsaw Pact countries."

On September 12, 1980, the Department of Commerce announced the new guidelines for export controls on goods and technical data going to China:

- (i) Evidence that a stated end-user is engaged in military activities will not necessarily result in denial of an application, if the proposed export is otherwise appropriate for a stated, and accepted, end use;
- (ii) Equipment and technical data specifically intended for the design, development or manufacture of end items probably will normally be denied if those same end products would not be approved;
- (iii) Equipment and technical data which could contribute to the design and construction of nuclear weapons and delivery systems, intelligence gathering or electronic warfare will not be approved;
- (iv) Licenses may be approved if the equipment or data could be used in the design, development or manufacture of tactical military items;
- (v) Licenses will be disapproved if the potential military application is so significant that the export would present an unacceptable risk regardless of the end use;
- (vi) Licenses will be disapproved unless the substance of the requirements of the Export Administration regulations concerning end use statements and post-sale access by the supplier have been fulfilled;
- (vii) Equipment incorporating advanced technology will not be approved if its performance exceeds requirements of the stated civil use or approvable military application.

III. THE TAXATION OF TECHNOLOGY TRANSFER

Generally speaking, the tax policies of the United States and other Organization for Economic Cooperation and Development (OECD) nations are designed, on the one hand, to facilitate the legitimate transfer of technology to foreign operations, and, on the other hand, to discourage the artificial shifting of profits to tax haven jurisdictions. These broad policy goals are implemented in a number of detailed rules relating to transfer pricing, the allocation of research and development expenses, and the sale of technology.

A. *Transfer Pricing*

United States citizens, residents, and corporations are subject to United States taxation on their worldwide income. This tax is deferred, however, on the earnings of a foreign corporation until they are distributed to the United States shareholder, typically a United States parent corporation. Because of this deferral element, it is theoretically possible for a United States taxpayer to reduce its tax liability by artificially transferring income to a controlled foreign corporation. The objective of section 482 of the Internal Revenue Code is to prevent this artificial shifting of profits. It contains a set of intercompany pricing rules which require goods and services to be transferred between related parties on an arm's length basis: "The standard to be applied in every case is that of an uncontrolled taxpayer dealing at arm's length with another uncontrolled taxpayer."²² Thus, intercompany sales of patents and similar intangible property must be made on an arm's length basis for tax purposes.

The section 482 regulations allow an exception for a bona fide cost sharing agreement. If related parties negotiating at arm's length each bear a share in the costs and risks of a research project, they may share proportionately in the benefits without any additional pricing adjustment.²³ In addition, the section 482 regulations do not apply when technology is transferred as a contribution to capital of a controlled foreign corporation.

For the great majority of transactions, the arm's length standard is the internationally accepted standard. It governs the pricing of transactions between associated enterprises in the OECD

22. Treas. Reg. § 1.482-1(b)(1).

23. *Id.* § 1.482-2(d)(4).

Model Double Taxation Convention on Income and Capital²⁴ and the United Nations Model Double Taxation Convention between Developed and Developing Countries.²⁵ A recent OECD report declared that "the general principle to be taken as the basis for the evaluation for tax purposes of transfer prices between associated enterprises under contracts for licensing patents or know-how is that the prices should be those which would be paid between independent enterprises acting at arm's length."²⁶

B. *Characterization of Earnings on Technology Sold Abroad*

In the characterization area, the tax law illustrates the sometimes confusing results of separate policies introduced at different times to deal with related but distinct aspects of the same issue. In the sphere of foreign technology sales, two types of characterizations are at play. These are the capital gains-ordinary income dichotomy and the United States source-foreign source income dichotomy. The tax law distinguishes between the sale of patent rights or the granting of an exclusive license and the nonexclusive licensing of a patent. If a patent is sold or exclusively licensed, the income is characterized as a capital gain even though the payment is partly conditioned on future production or profits.²⁷ If the patent is merely licensed on a nonexclusive basis, the income is characterized and taxed as ordinary income.

In 1962 Congress enacted section 1249 of the Internal Revenue Code, which denies capital gains treatment if technology is sold to a controlled foreign corporation. A parent firm can still transfer technology in a tax-free exchange as part of its contribution to capital under sections 351 and 367. A sale of technology to an unaffiliated foreign subsidiary is still taxed as capital gains income. In 1976 Congress added section 904(b), which characterizes certain capital gains on property sold to a foreign entity as

24. ORGANIZATION FOR ECONOMIC COOPERATION & DEVELOPMENT, MODEL DOUBLE TAXATION CONVENTION ON INCOME & ON CAPITAL art. 9(1) (1977) [hereinafter cited as OECD CONVENTION].

25. UNITED NATIONS, UNITED NATIONS MODEL DOUBLE TAXATION CONVENTION BETWEEN DEVELOPED & DEVELOPING COUNTRIES (1980) [hereinafter cited as U.N. CONVENTION].

26. ORGANIZATION FOR ECONOMIC COOPERATION & DEVELOPMENT, TRANSFER PRICING AND MULTINATIONAL ENTERPRISES 51 (1979) [hereinafter cited as TRANSFER PRICING].

27. I.R.C. § 1235.

United States source income, rather than foreign source income, unless the gains are taxed abroad at a rate of at least ten percent. If a taxpayer finds itself in an excess foreign tax credit situation, it may be penalized by the capital gains characterization when it sells technology to an unaffiliated foreign entity and incurs only a low foreign tax rate. In other words, contrary to the congressional intent in 1962, the taxpayers might be better off with an ordinary income-foreign source characterization than with a capital gains-United States source characterization.

C. *Foreign Tax Credit Limit*

As a unilateral method of reducing double taxation, the United States provides a foreign tax credit for income taxes paid by United States persons to foreign governments. The total annual foreign tax credit presently is about \$26 billion, of which petroleum taxes account for about \$18 billion.²⁸ The two major issues of the foreign tax credit involve the tests applied to distinguish between creditable and noncreditable foreign taxes and the design of the foreign tax credit limit. For most purposes, only taxes imposed on income are creditable, and an overall limit applies. This means that foreign taxes imposed on high-taxed income of Type A earned in Country X can be claimed as a credit against United States taxes otherwise due on low-taxed income of Type B earned in Country Y. To continue this example, royalties received from industrial countries are generally similar to Type B. They are taxed at low rates, usually under ten percent. Since many foreign tax rates on corporate income are higher than United States tax rates, firms have an incentive to generate additional income that is characterized as foreign source income under United States tax laws, but which attracts low foreign tax rates.

In response to these tax-saving efforts by firms, a senior Treasury official, Daniel Halperin, recently suggested that Congress should consider distinguishing between active and passive foreign source income and impose separate foreign tax credit limits on each. If translated into legislation, this suggestion would result in higher total taxation of technology income received by United States firms from foreign sources.²⁹

28. U.S. Treas. Dep't, Office of Tax Analysis.

29. Statement of Daniel I. Halperin, Deputy Assistant Secretary (Tax Legislation), before the Subcommittee on Taxation and Debt Management of the Senate Committee on Finance, (Sept. 10, 1980) (unpublished as of March 1,

D. *Expense Allocation*

Section 482 leaves unresolved the issue of what expenses should be attributed to income from the sale or license of technology. The attribution of expenses is important because indirectly it affects the allowable foreign tax credit. The allowable credit is limited to the amount of United States taxes that would otherwise be imposed on the taxpayer's net foreign income. A correct apportionment of expenses is necessary in measuring a taxpayer's net foreign source income.

Under section 862(a)(4) of the Code, royalties from patents and trade secrets used outside the United States are foreign source income. Section 862(b) provides, in turn, that expenses reasonably related to the royalty income shall be deducted for the purpose of determining taxable income. Regulation 1.861-8, which interprets the statute, provides taxpayers with detailed guidance for apportioning their expenditures. A major portion of the regulation is devoted to the apportionment of research and development expenditures.

Research and development expenses undertaken solely to meet United States health, safety, or pollution standards imposed by federal, state, or local governments are allocated to domestic income. The remaining research and development expenses are apportioned between a taxpayer's domestic and foreign source income on the basis of either sales or gross income. Since the apportionment reduces foreign source taxable income and, thus, the allowable limit on the foreign tax credit, it may reduce the tax benefit of research and development expenditures for a multinational firm that finds itself in an excess foreign tax credit position. Underlying the regulation, however, is a presumption that technology importing countries should recognize the expenses of generating technology in determining their own tax base, even when the expenses are incurred in the United States. Moreover, the regulation applies in mirror-image. Foreign parent companies can use the regulation's most favorable provisions in allocating their own foreign research and development expenses to the activities of their United States subsidiaries.

E. *Bilateral Tax Treaties*

The two basic jurisdictional standards for asserting tax liability

are source and residence. Under the source standard, a country asserts tax jurisdiction over patent royalties and other income earned within its geographical territory. It makes no difference who receives the income. Residents and nonresidents are both taxed on income derived within the source jurisdiction. By contrast, under the residence principle, the residence of the taxpayer is the relevant criterion. A patent royalty would be taxed where the recipient of the royalty resides. These competing jurisdictional standards can give rise to double taxation. Double taxation is especially likely when many countries impose taxes on the basis of both source and residence jurisdiction. For example, the royalty on a patent used in Country A but licensed from an individual resident in Country B could be taxed in Country A asserting source jurisdiction and in Country B asserting residence jurisdiction. Bilateral tax treaties are an important vehicle for reducing this sort of international double taxation. Major differences exist between the approaches of the developed and developing countries in addressing the two major tax issues that affect the taxation of technology income, which are the deductibility of royalties paid by the recipient of the technology and the appropriate rate of the withholding tax levied by the country where the technology is used.

1. Deduction of Royalties

With respect to the first issue, developed countries generally allow the user of technology to deduct the royalty as a business expense. These countries follow the nondiscrimination article of the OECD model income tax convention, which provides that "royalties . . . paid by an enterprise of a Contracting State to a resident of the other Contracting State shall, for the purpose of determining the taxable profits of such enterprise, be deductible under the same conditions as if it had been paid to a resident of the first-mentioned State."³⁰ This paragraph is intended to prohibit discrimination based on residence.³¹

Developing countries, in contrast, tend to restrict the deductibility of royalty payments to nonresidents. These countries view royalties as a thinly-veiled profit distribution rather than as a legitimate expense of acquiring technology. The recently issued

30. OECD CONVENTION, *supra* note 24, art. 24(5).

31. TRANSFER PRICING, *supra* note 25, at 51.

United Nations model tax treaty, however, frowns on deductibility restrictions aimed solely at nonresidents. It contains a non-discrimination provision identical to the OECD model.³² The treaty commentary recognizes that the paragraph "would not be acceptable to those countries that made deductibility of disbursements made abroad by foreign-owned corporations conditional on the recipient being taxed in such countries."³³

2. Withholding Taxes

In the absence of a tax treaty, most countries impose withholding taxes on royalties arising within their borders and paid to nonresidents. The term "withholding" is a misnomer since the withholding tax is a final tax on distributions paid to foreign recipients, levied on the basis of source jurisdiction. It is a substitute for taxation at the regular rates applied to resident individuals and corporations. Withholding taxes frequently are levied on gross royalties with no deduction for expenses. For example, in the absence of a treaty, the United States statute calls for a thirty percent withholding tax to be levied on gross royalty payments to nonresidents.³⁴

The royalty article of the OECD model treaty assigns exclusive taxation of royalties to the residence jurisdiction: "Royalties arising in a Contracting State and paid to a resident of the other Contracting State shall be taxable only in that other State if such owner is the beneficial owner of the royalties."³⁵ Many of the tax treaties between developed countries follow this principle. Therefore, treaty withholding rates on royalties paid between the United States and developed countries are typically zero, with the exception of treaties with Canada, France, and Japan which allow low withholding taxes.

Because of their need for tax revenue and foreign exchange and because technology transfer is primarily a one-way flow from developed countries, developing nations often are unwilling to follow the OECD model and grant exclusive taxation of royalties to the residence country. The model treaty developed by the Andean Pact reverses the residence principle. The sole right to tax

32. OECD CONVENTION, *supra* note 24, art. 24(5).

33. U.N. CONVENTION *supra* note 25, at 222 (1980).

34. I.R.C. §§ 871, 881.

35. OECD CONVENTION, *supra* note 24, art. 12(1).

royalties is reserved to the country where the technology is used.³⁶ This issue was discussed extensively by the United Nations Group of Experts on Tax Treaties between Developed and Developing Countries:

While one or two developing countries clung in principle to exclusivity of source jurisdiction, the developing countries on the whole did not see this as a crucial issue. Instead the basic issue before the United Nations Group involved the scope to be given source jurisdiction for the various items of income.³⁷

The principle that emerged in the discussion by the Group of Experts was primary, but not exclusive, source country taxation.³⁸ Accordingly, the royalties article of the United Nations model treaty provides that:

royalties may also be taxed in the Contracting State in which they arise and according to the laws of that State but if the recipient is the beneficial owner of the royalties, the tax so charged shall not exceed — percent [the percentage is to be established through bilateral negotiations] of the gross amount of the royalties.³⁹

The commentary to the United Nations royalty article recommends that the source country recognize royalty-related expenses in setting a withholding rate. In other words, the source country should recognize that, when expenses are one-half of the gross royalty, a tax of thirty percent on gross royalties is equivalent to a tax of sixty percent on net income. The United Nations concedes, however, that other factors are also likely to be considered, such as the need for revenue and foreign exchange, the one-way flow of royalty payments from developing countries, and "the desirability of obtaining and encouraging a flow of technology to developing countries."⁴⁰

F. *Domestic International Sales Corporation*

The Domestic International Sales Corporation (DISC) legisla-

36. 60a CAHIERS DE DROIT FISCAL INTERNATIONAL (Studies on International Fiscal Law) 14 (1975).

37. Surrey, United Nations Group of Experts and the Guidelines for Tax Treaties Between Developed and Developing Countries, 19 HARV. INT'L L.J. 8-9 (1978).

38. *Id.* at 9.

39. OECD CONVENTION, *supra* note 24, art. 12(2).

40. U.N. CONVENTION, *supra* note 25, at 140.

tion was designed to provide a lower tax rate on export profits or, in statutory language, "qualified export receipts."⁴¹ A firm can qualify for DISC benefits if, among other tests, it can show that ninety-five percent of its receipts are qualified export receipts. Qualified export receipts include certain services that are ancillary to the shipment of goods, for example:

- (1) receipts for engineering or architectural services for construction projects located outside the United States;
- (2) commissions on export sales;
- (3) services which are related and subsidiary to the corporation's own sales of export products or the sales on which it earns a commission;
- (4) managerial services provided to another DISC, including such services as export market studies, provision of shipping arrangements and contacting potential foreign purchasers; and
- (5) the interest earned on qualified export assets.⁴²

Under these tests, the license of technology by a United States firm to a foreign firm, unrelated to the sale of products, could not be characterized as a qualified export receipt. The Carter Administration was unenthusiastic about widening the coverage of the DISC statute to encompass more services because of revenue reasons and international obligations accepted by the United States under the General Agreement on Tariffs and Trade Code on Subsidies and Countervailing Measures.⁴³

IV. FINANCING TECHNOLOGY TRANSFER

The United States Government operates the following six major programs to provide financing and financial guarantees for international transactions: Export-Import Bank, Overseas Private Investment Corporation, Foreign Military Sales Credit Program, Economic Support Fund, Agency for International Development, and Commodity Credit Corporation. None of these programs is directly targeted on the technology transfer process, but each has some impact on the international transfer of technology.

41. I.R.C. §§ 991-997.

42. *Id.* § 993(a)(1).

43. See statement by Secretary Philip Klutznick on Export Trading Companies, *Export Trading Company Act of 1980: Hearings before the Subcomm. on Int'l Finance*, 96th Cong., 2d Sess. 257 (1980).

A. *Export-Import Bank*

In fiscal year 1980 Export-Import Bank (EXIMBANK) programs supported about \$15 billion of United States exports. About \$5 billion of direct credits and \$7.9 billion of guarantees were extended. The supported exports were partly financed by cash payments and credit extended by private sources including the exporter. Technology exports are an incidental beneficiary of an export promotion program established for other reasons. Disproportionate amounts of EXIMBANK financial support are used to assist high technology exports because United States export strength is concentrated in high-technology capital goods and credit terms are more important to the overall cost of a capital good than an intermediate good. EXIMBANK supported about eight percent of all United States exports, but about eighteen percent of United States capital goods exports.

The EXIMBANK has not yet financed the export of technology separate from the export of goods. In principle, a straight patent sale or long-term licensing agreement could be financed. The few transactions of this sort that have been presented to the EXIMBANK have not seemed suitable because alternative private market financing appeared to be available. When it decides to finance the export of capital goods, the EXIMBANK will also finance related technical services and associated know-how. The EXIMBANK examines the transaction to ensure that its financing is limited to an appropriate percentage of the cost of developing the technology transferred. While these costs may bear little relationship to the market value of the technology, the EXIMBANK wants to protect itself against subsequent complaints that part of the debt corresponds to "water."

Its enabling legislation requires the EXIMBANK to take into account the possible adverse effects on the United States economy that might result from technology transfers. French, German, Japanese, and other foreign suppliers are usually ready to sell the same capital equipment that the EXIMBANK would finance on behalf of a United States exporter. Therefore, analysis usually reveals that the foreign plant will be built in any event, ensuring competitive pressure in the relevant market for final goods. The main consequence that would flow from an EXIMBANK decision not to support the United States capital goods

exporter would be the loss of an export sale.⁴⁴

B. *Overseas Private Investment Corporation*

In fiscal year 1980 the Overseas Private Investment Corporation (OPIC) wrote approximately \$1.1 billion of new insurance coverage on foreign investments of United States corporations. Inconvertibility, expropriation, and war-risk are the three types of coverage written.⁴⁵ OPIC was not designed to promote exports of technology. Its development mandate, however, spelled out in the enabling legislation, has been given increasing emphasis. One favorable item in evaluating whether development objectives are served by a particular project is whether a recognizable technology transfer can be identified. Indirectly, therefore, technology transfers are assigned weight in OPIC insurance programs.

OPIC insurance normally covers equity and debt contributions to the foreign enterprise. The normal measure of eligible coverage is the value of cash and equipment transferred to the enterprise. OPIC insurance cannot cover pure goodwill transferred abroad. It can, however, cover prospective royalty payments for patents and know-how transferred under a technical assistance agreement.

Perhaps the most useful feature of OPIC insurance, from the standpoint of royalty recipients, is the protection against inconvertibility. When inconvertibility of a developing country currency occurs, the parent firm simply assigns its blocked account to OPIC and receives dollars. Expropriation and war-risk coverage only insure those royalty payments that have accrued up to the point of confiscation or war destruction.

C. *Foreign Military Sales Credits*

The United States Government finances a portion of the foreign sales of military equipment. In fiscal year 1980 new credits extended under the Foreign Military Sales credit program amounted to about \$2 billion. Ordinarily the financing is limited to the original equipment. An initial order of spare parts, ammu-

44. Statement by Raymond J. Albright, Vice-President, Export-Import Bank of the United States, before the Joint Hearings on the Committee on Science and Technology (June 24, 1980) (unpublished as of March 1, 1981).

45. Since a given investment can "die" only once, the gross figure for insurance overstates the maximum amount of claims that could be filed against OPIC.

niton, and technical services may be financed as part of the original equipment sale. In exceptional circumstances, these renewable supplies may be financed in isolation. With pressure from the State Department, exceptional circumstances are becoming a more frequent event.

No distinction is made in repayment terms or interest rates between original equipment and renewable supplies, including technical services. Credit agreements ordinarily call for repayment over a period of seven to twelve years, with interest rates set a fraction of a percent over the Treasury bond rate.

Foreign military sales and credits are evaluated by the Security Assistance Program Review Committee, an interagency body chaired by the State Department. This Committee puts together a recommended program that is sent to the Arms Export Control Board and usually approved and forwarded to the Secretary of State. The bureaucratic review usually focuses on the size and components of the country assistance program rather than the nature of financial details. In other words, once the physical package is designed, financing is usually determined on the basis of the country's foreign exchange position and development status.

D. *Economic Support Fund*

The Economic Support Fund, which is managed by the State Department, is designed to assist the political and military allies of the United States. In fiscal year 1980 it provided about \$2.5 billion of concessional credit for budget support purposes. In recent years, the major beneficiaries have been Israel and Egypt. Few, if any, procurement strings are attached to the use of the funds. Accordingly, technology transfers are a small, incidental feature in the program.

E. *Agency for International Development*

Technology transfer to less developed countries can take place through the mechanism of development assistance. In fiscal year 1979, the Agency for International Development (AID) committed \$1.7 million in grants, loans, and guarantees to the poorest lesser developed countries.⁴⁶ AID's evolving policy of attending to

46. *Development Issues: U.S. Actions Affecting the Development of Low Income Countries*, The 1980 Annual Report of the Chairman of the Development Coordination Committee (Mar. 15, 1980) (unpublished as of March 1, 1981).

basic human needs in the less developed countries does not often result in the transfer of proprietary technology. Instead, agriculture, rural development, nutrition, and family planning programs, using technology in the public domain, account for more than sixty percent of AID's commitments.

V. CONCLUSION

This capsule review should indicate the substantial conceptual and practical hurdles that stand in the way of anyone seized with the ambition of designing an effective and coherent technology transfer policy. At best, three weakly-implemented organizing principles can be discerned in existing policies. These are discrimination on the basis of geography, post-transfer control, and degree of embodiment. These organizing principles, and the consequent discrimination between technology transfer transactions, have not been carefully scrutinized, clearly articulated, or widely accepted. Much conceptual work should precede any attempt to implement these or converse principles in any systematic or vigorous fashion.

Present technology transfer control mechanisms were mainly created as a by-product of other policies. Their design and implementation is scattered throughout the federal government. It is difficult to believe that technology transfer issues will become sufficiently important for basic tax policies, finance policies, or patent policies to be modified to implement the goals of a hypothetical technology control board. Nevertheless, a systematic review of the technology transfer implications of basic policies designed for other purposes would seem worthwhile.

