

Industry & Trade Summary

**Television Receivers
and Video Monitors**

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PREFACE

In 1991 the United States International Trade Commission initiated its current *Industry and Trade Summary* series of informational reports on the thousands of products imported into and exported from the United States. Each summary addresses a different commodity/industry area and contains information on product uses, U.S. and foreign producers, and customs treatment. Also included is an analysis of the basic factors affecting trends in consumption, production, and trade of the commodity, as well as those bearing on the competitiveness of U.S. industries in domestic and foreign markets.¹

This report on television (TV) receivers and video monitors covers the period 1986–90 and represents one of approximately 250–300 individual reports to be produced in this series during the first half of the 1990s. This summary is the first to date on the electronic technology sector.

¹ The information and analysis provided in this report are for the purpose of this report only. Nothing in this report should be construed to indicate how the Commission would find in an investigation conducted under statutory authority covering the same or similar subject matter.

CONTENTS

	<i>Page</i>
Preface	i
Introduction	1
U.S. industry profile	2
Structure of industry	2
High definition television	4
Consumer characteristics and factors affecting demand	5
Foreign industry profile	6
U.S. trade measures	7
Tariff measures	7
Antidumping duties	8
Foreign trade measures	8
Tariff measures	8
Nontariff measures	8
U.S. market	10
Consumption	10
Production	10
Imports	10
Foreign markets	14
Foreign market profile	14
U.S. exports	14
U.S. trade balance	15
 Appendices	
A. Explanation of tariff and trade agreement terms	A-1
B. Reports of the U.S. International Trade Commission pertaining to television receivers and parts thereof	B-1
 Figures	
1. U.S. color TV retail market share by nationality of producer	3
2. Receivers, monitors, and parts: imports, exports, shipments	11
3. Receivers, monitors, and parts: U.S. imports by product	12
4. Receivers, monitors, and parts: U.S. imports by country of origin	13
5. Receivers, monitors, and parts: U.S. exports by country of destination	16
6. Receivers, monitors, and parts: U.S. exports by product	17
 Tables	
1. Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1991; U.S. exports, 1990; and U.S. imports, 1990	9
2. U.S. shipments, exports of domestic merchandise, imports for consumption, and apparent U.S. consumption, 1986-90	10
3. U.S. imports for consumption, by principal source, 1986-90	12

CONTENTS—*Continued*

	<i>Page</i>
Tables—Continued	
4. U.S. exports of domestic merchandise, by principal market, 1986–90	16
5. U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected country and country group, 1986–90	18

INTRODUCTION

This summary of industry and trade information on television receivers, video monitors, and parts of receivers and monitors covers the period 1986-90. The report is organized into three major sections: U.S. and foreign industry profiles; tariff and nontariff measures; and U.S. industry performance in domestic and foreign markets. In addition, appendices include definitions of tariff and trade agreement terms and statistical tables of television receiver and video monitor export and import information.

The products covered by this summary include television receivers, video monitors, and parts of receivers and monitors. Television receivers, more commonly called TV sets or just TVs, are electric products most often used by consumers for displaying television programs using broadcast or cable television signals. They may display either a color or monochrome (black and white) picture. They can also be used to display prerecorded video programs using a videocassette recorder (VCR) or videodisc player (VDP) as a source of the video signal, in the home, in school, or in industrial settings. If powered by batteries, they can be used outside the home to display broadcast television programs. Television receivers as defined by this summary include direct-view cathode-ray tube (CRT) television receivers, projection television receivers, LCD (liquid crystal display) television receivers, and satellite television receivers. Video monitors are television receivers that can also accept direct baseband input from sources such as VCRs and VDPs, bypassing the television tuner. Some monitors can accept direct red, green, and blue (RGB) input, allowing them to be connected to a computer and serve as a display device. Different types of televisions require different types of parts and components, but all must have a tuner, intermediate frequency amplifier, audio processing circuitry, speaker(s), a housing, user controls, power source, and an antenna.

The manufacturing methods for the different types of televisions vary primarily in the production of the display devices. Direct-view picture tubes, projection television displays, and LCD displays each require specialized production techniques.

Most television receivers use direct-view cathode ray tubes as the video image display device, the technology for which was developed in the 1920s. An image is generated by directing a stream of electrons through a gun in the tube against a layer of phosphors coating the inside of the faceplate of the tube. The viewer looks directly at the outside of the faceplate to see the video image. Direct-view tubes can display a black and white picture, using a tube with only white phosphor, or a full-color picture, using a combination of red, green, and blue phosphors on the inside of the faceplate. Television receivers using direct-view CRTs range in size from 1 1/2 inches to 35 inches, measured diagonally across the viewable area of the tube. Because of their power requirements, most receivers using CRTs use household current.

Projection television receivers generally use three monochrome CRTs: red, green, and blue. Images are projected by these high-voltage tubes onto a surface, resulting in a full-color picture. Two types of projection television receivers exist, two-piece and one-piece. A two-piece receiver projects the image through the three tubes onto a special viewing screen, similar to a movie screen, that is separate from the part of the receiver containing the tuner and projection tubes. A one-piece receiver projects the image from the three picture tubes onto the back of a screen which is viewed from the other side. A one-piece receiver looks very similar to a conventional direct-view television receiver, except the viewing surface is from 36 to 61 inches, measured diagonally across the viewable area of the screen.

LCD television receivers use a solid-state liquid crystal flat panel as the display device. The flat panel display uses a production technique similar to that employed in the fabrication of semiconductor devices. Because of the limitations of this technique, LCD television receivers on the U.S. market in 1991 are limited to screen sizes of less than 4 1/2 inches, although LCD television receivers with screen sizes up to 8.6 inches were marketed in Japan in mid-1991, priced at about \$4,000, and prototypes have been demonstrated with screen sizes of up to 14 inches. Because of the low power consumption of current LCD TVs, virtually all are capable of operating on battery power. It has been forecast for years by industry observers that a television receiver will evolve into a device that can be hung on a wall like a painting. When that time comes, it is likely that the wall-hanging receiver will be based on LCD technology.

There are also projection display devices on the market using LCD technology, whereby the image is projected through an LCD panel onto a screen. The devices now on the market do not contain tuners and do not constitute television receivers by themselves, but must be connected to a source such as a VCR. Without a tuner, these devices cannot be considered television receivers, and therefore are not subject to antidumping duties in place on televisions (see Antidumping duties, p. 25).

Broadcast standards divide the world into three markets: National Television System Committee (NTSC), developed in the United States during 1950-53; phase alternation line (PAL), developed by AEG-Telefunken in 1962; and sequential à memoire (SECAM), developed by Henri de France during 1958-60. There are also slight variations within each of these systems. A very limited number of television receivers can receive and display signals broadcast in more than one of the three systems, but there has been limited demand for such products.

The manufacture of television receivers involves the assembly of electronic, electric, and mechanical components with formed metal, plastic, and wood cabinet parts, along a production line where each worker performs a specific function. Parts and components may be produced by the assembler or may be purchased from outside suppliers. Typically, the

television assembler manufactures the electronic subassemblies because each subassembly must satisfy special design requirements. Production of electronic subassemblies usually involves the "stuffing" of printed circuit boards with discrete components, integrated circuits, and hybrid circuits. This process is usually highly automated using a variety of machines, such as radial and axial component insertion machines, robots, and surface mount machines. The specific machines used depend on the level of technology of the producer. There are also components and parts that do not lend themselves to automatic insertion and must be attached to the printed circuit board by hand. All components are soldered onto the board and tested to ensure accuracy and quality. The cost of materials now represents 80 percent or more of the value of a receiver.

The major items of production in the United States are color television receivers and video monitors, which accounted for 67 percent of total U.S. shipments in 1990. The remainder of U.S. shipments are parts of receivers and monitors. The United States has not manufactured monochrome television receivers since 1984.

Color television receivers constitute the largest share of U.S. imports of the products covered by this summary, accounting for almost 60 percent of total imports in 1990. Monochrome receivers account for less than 4 percent of imports. Parts of receivers and monitors account for the remaining 36 percent of imports.

U.S. INDUSTRY PROFILE

Industry Structure

There were 19 manufacturers of television receivers in the United States in 1990, the largest number ever, but the industry is concentrated in the following manufacturers:

Producer	Brands	U.S. market share ¹	
		1986	1990
Thomson	GE, RCA	24	22
Philips	Magnavox, Philips, Sylvania	10	12
Zenith	Zenith	16	12
Sony	Sony	6	7
Matsushita	Panasonic, Quasar	8	5

The largest producers in the United States are Thomson Consumer Electronics (French-owned), Philips Consumer Electronics (Dutch), and Zenith Electronics (the last major U.S.-controlled producer), which together held 46 percent of the U.S. market in

¹ *Television Digest*, August 6, 1990, p. 10. Shares are of sales to U.S. dealers.

² This figure is the sum of GE and RCA's shares of the U.S. market. GE/RCA was not acquired by Thomson until 1987.

1990. The Japanese companies with the largest shares of the U.S. market that year were Sony and Matsushita, which produces the Panasonic and Quasar brands.

Almost 90 percent of U.S. production of television receivers is by companies that are foreign-controlled, by Dutch, French, Japanese, Korean, and Taiwanese companies (see figure 1). Although foreign-owned producers have been in the United States since the early 1970s, only in the last five years did they become dominant. In 1986, the General Electric Company bought RCA, which then accounted for the largest share of the U.S. television market. GE then spun off its consumer electronics business, including the GE and RCA brands, to Thomson Consumer Electronics, a French-controlled firm. By the end of 1987, the only major U.S.-controlled producer was Zenith Electronics Corporation, with a share of about 15 percent of the U.S. color television market. In early 1991, Zenith sold a 5 percent share of itself to Goldstar, a Korean television producer.

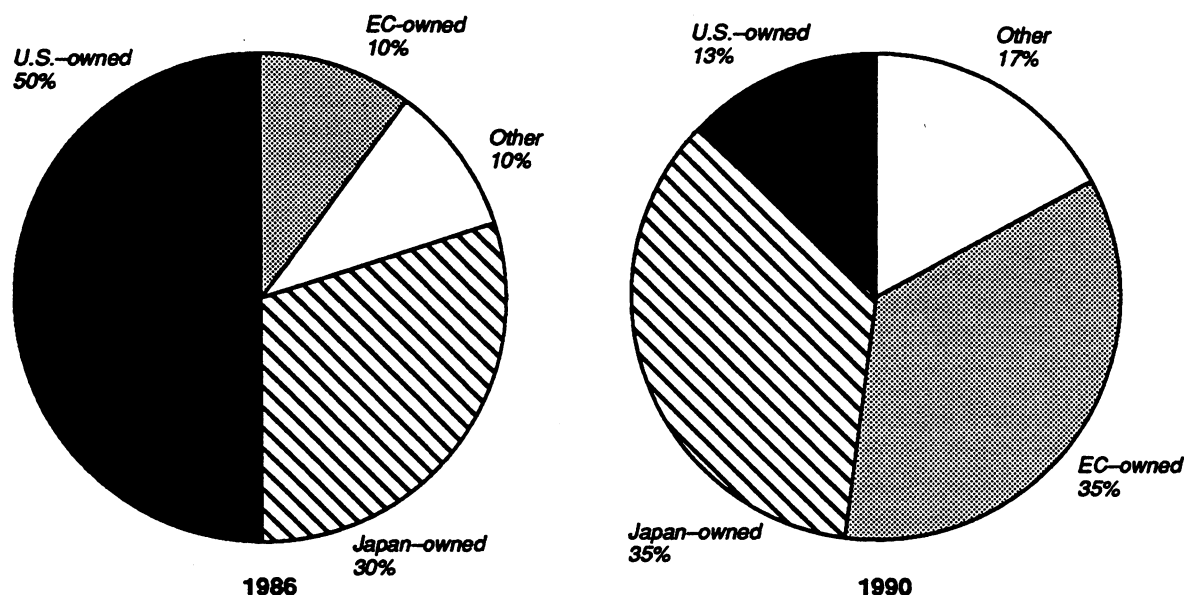
The Herfindahl Index³ for color televisions was .0834 in 1986 and .0941 in 1990, indicating a negligible rise in the concentration of the industry among the top companies. The industry concentration ratio also shows a slight increase in concentration, with 51.2 percent of the market in 1986 represented by the top four companies, and 52.8 percent in 1990. It is noteworthy that both indices showed greater concentration in 1982 than in either 1986 or 1990.

Television receivers and video monitors are reported in Standard Industrial Classification (SIC) 3651, Household Audio and Video Equipment. Video monitors may also be reported in SIC 3663, Radio and Television Broadcasting and Communications Equipment. Parts of television receivers are reported in SIC 3469, Metal Stampings Not Elsewhere Classified (chassis); 2517, Wood Television, Radio, Phonograph, and Sewing Machine Cabinets; and 2519, Household Furniture, Not Elsewhere Classified (plastic cabinets). Television picture tubes are reported under SIC 3671, Electron Tubes, and are treated in a separate summary.

U.S. producers manufacture predominantly direct-view, CRT-based, color television receivers, generally with screen sizes of 20 inches or larger. The cost of labor to assemble a CRT TV is virtually the same regardless of size, and U.S. producers can buy small-screen receivers less expensively from foreign sources than from sources in the United States. No U.S. production of LCD or other flat-panel receivers exists. About 10 percent of U.S.-produced televisions are projection-type. Shipping costs make the importation of large screen sizes uneconomical—only about 12 percent of 1990 imports of television receivers had screen sizes of 20 inches and over.

³ The Herfindahl Index is calculated by squaring the market shares of all producers, then summing them. The Index ranges from 0.0 in a perfectly competitive marketplace, with an infinite number of producers, to 1, in a monopolistic marketplace. A high index indicates a greater degree of concentration in the industry.

Figure 1
U.S. color TV retail market share by nationality of producer



Source: Television Digest and estimates by staff of USITC.

In 1990, the U.S. industry employed about 26,000 workers in 34 plants, concentrated in four States: Tennessee (29 percent of employment), Indiana (19 percent), California (16 percent), and Missouri (12 percent). This total was down slightly from the 1986 employment level of 27,000. In spite of the decline in employment, annual shipments remained level at approximately \$4 billion in current dollars during 1986-90. In current dollars, shipments per employee increased by just under 4 percent from 1986 through 1990; adjusted by the producer price index (PPI), they grew by just under 8 percent during the period, or by less than 2 percent per year.

The United States has a skilled, well-educated labor force that is being used to build more technologically advanced, larger-screen televisions than those it imports. When possible, the U.S. industry has shifted labor-intensive assembly activities to countries with substantially lower labor costs, such as Mexico and Malaysia. There is little stuffing of printed circuit boards in the United States because virtually all companies producing televisions in the United States have production or assembly facilities in Mexico in the maquiladora⁴ zone and also import subassemblies or complete receivers from other countries.

⁴ See discussion of maquiladoras on page 22.

U.S. producers may be classified in one of two groups: those with picture-tube-production facilities and those without such production capability. The four largest producers—Thomson (GE/RCA), Philips, Sony, and Zenith—plus Toshiba America all produce color picture tubes in U.S. facilities. The remaining U.S. producers do not have this capability and either purchase their picture tubes from one of these firms or import or purchase imported color picture tubes. One of the major constraints on television receiver production in the United States has been the availability of CRT picture tubes. Although the industry suffered from a tube shortage in the late 1980s, new picture tube production facilities have come on line, and there now seems to be an oversupply.

The television market is very price-sensitive, and profit margins for all television receiver manufacturers are very low. Only by maintaining large volumes of production and large market shares are companies able to remain profitable. In some cases, even large production volumes are insufficient. In 1990, Japanese-owned NEC left the U.S. television industry in part because it was unable to develop a sufficient share of the market to continue profitable operations.

Early reliability problems with U.S.-made receivers in the 1950s led U.S. manufacturers to establish dealer networks to sell and service television receivers. When Japanese manufacturers entered the U.S. market in the

1970s with more reliable receivers, they were able to market them through mass merchandisers because they did not need the extensive network of service providers.⁵ By shipping in volume, the Japanese manufacturers could take advantage of scale economies, and the lower prices available from mass merchandisers facilitated Japanese manufacturers' entry into the U.S. market.

High-Definition Television

The major advancement in television technology since the advent of color is high-definition television (HDTV). HDTV offers greatly increased picture resolution, a 16:9 aspect ratio⁶ as opposed to the current 4:3, and stereo sound. HDTV technology will have applications not only in consumer television, but in many other fields, ranging from defense to medicine. HDTV will benefit any industry where high resolution video displays are required. Over the next decade, HDTV could create a multibillion dollar market, and its impact could become enormous.

Japan, the European Community, and the United States are pursuing incompatible HDTV systems. Each of the three is reluctant to adopt a system being promoted by another. Even with the adoption of HDTV on a worldwide basis, incompatible systems are likely to exist, making efficiencies of scale more difficult to achieve just as NTSC, PAL, and SECAM impede such efficiencies.

Japanese producers began broadcasting HDTV via satellite in Japan in 1990. Neither the United States nor the European Community has yet agreed upon HDTV standards. In the United States, RCA's David Sarnoff Research Center began research in HDTV in the late 1970s. Other HDTV efforts beginning in the United States in the late 1970s and early 1980s included those by Zenith, New York Institute of Technology, MIT, Faroudja Laboratories, and the Del Rey Group. AT&T and Zenith formed a consortium to perform HDTV research, and Philips and Thomson are performing joint research in the United States.

The small scale of most of these efforts has limited the extent and rate of progress in HDTV and related technologies in the United States. Total private expenditures on HDTV R&D in the United States were roughly \$70 million as of early 1988. There has been little public-private cooperation in the U.S. HDTV effort compared with that of Japan and Europe.

Driven by the threat of Japanese domination of the European consumer electronics market, Western European producers began Eureka 95 in 1986, a

collaborative HDTV development effort that has made rapid progress. Under this program, the Europeans had planned on implementing a system known as multiple analog component (MAC) by 1993. Progressive improvement would be made from PAL and SECAM to MAC, then to extended-definition (ED)-MAC, finally to high-definition (HD)-MAC. MAC was developed to improve and rationalize transmissions to PAL and SECAM receivers. It incorporated a digital audio signal and an analog video signal. Variations included: D-MAC suitable for cable; C-MAC, suitable for satellite transmission only; and D2-MAC suitable for cable or satellite. HD-MAC is compatible with existing television sets—that is, current non-HDTV receivers will be able to receive and exhibit a picture, although not a high-definition picture—as opposed to the system created by the Japanese. The Japanese industry has been hinting that it would share its HDTV technology with the EC in exchange for sharing HD-MAC technology.⁷

In a blow to European HDTV hopes, two major satellite broadcasters in the United Kingdom merged in early 1991. One had been broadcasting in D-MAC, an enhanced-definition television system incompatible with PAL, the predominant terrestrial broadcasting system in Europe, while the other had been using the standard PAL system. After a transitional period, the merged system will broadcast in PAL only. D-MAC was a key part of the Eureka plan to create a Pan-European standard for satellite TV and use patents on D-MAC technology to block imports from the Far East. However, D-MAC already has lost favor in Germany, where major broadcasters are using Luxembourg's Astra satellite, which relies on the PAL system. Only France remains committed to D-MAC. If Europe abandons D-MAC, the Eureka project to develop HD-MAC high-definition system also could fail.

In May of 1991, the U.S. Government identified 22 high technologies critical to the future of the United States, including HDTV.⁸ About a dozen HDTV standards are under study in the United States. The Advanced Television Test Center has begun testing of proposed HDTV systems, in order to identify a system to be recommended for adoption by the Federal Communications Commission (FCC). The FCC ruled in September 1988 that any HDTV standard adopted for terrestrial broadcast in the United States had to be compatible with the almost 200 million television receivers already in place that were built to the NTSC TV broadcast standards. Although initiation of the tests has been delayed several times, they began in mid-1991, and a final selection is to be made in 1992. It is unlikely that HDTV receivers will be on the U.S. market before 1993. Industry sources anticipate that such receivers will retail for about \$3,000.

⁵ Office of Technology Assessment, Congress of the United States, *The Big Picture: HDTV & High-Resolution Systems*, Appendix A, U.S. Government Printing Office, 1990.

⁶ Aspect ratio is the ratio of picture width to picture height. A higher ratio yields a larger picture for a given height.

⁷ *The Economist*, A Survey of Consumer Electronics, Apr. 13, 1991, p. 6.

⁸ Technology Administration, U.S. Department of Commerce, *Emerging Technologies: A Survey of Technical and Economic Opportunities*, Spring 1990.

In mid-1990, General Instrument Corporation, a U.S. firm, unveiled a digital HDTV format (both the Japanese and European systems are analog). Although it could take years for a digital HDTV system to become a commercial reality, it would offer several advantages over the analog approaches of both the Japanese and European industries. These would include lower cost, easier interconnection with computers, and higher picture resolution. It would also allow HDTV broadcasts without reliance on satellites, which are essential to the Japanese and European systems.⁹

An intermediate step toward HDTV in the United States is improved definition television, or IDTV. IDTV receivers, on the market now, use advanced receiver circuitry to improve the picture resolution. Manufacturers marketing IDTV receivers appear to be using the technology as an opportunity to learn how to develop other features on the path to HDTV.

Consumer Characteristics and Factors Affecting Demand

TV receivers are generally sold directly from factory to retailer, then to the final consumer. Shipments from the factory or importer may be going either to single warehouses or storage facilities serving one or a limited number of outlets, or to regional warehouses for national chains, which then take upon themselves the distribution either to another storage facility or to the final point of sale. Some manufacturers, including major manufacturers, use a 2-step, factory-to-distributor-to-retailer distribution. Two-step distribution was more common 10 to 20 years ago when "mom and pop" television stores were still competitive. A distributor would maintain inventories with which to service individual retailers who could not afford to warehouse product on their own. The success of mass merchandisers and large retail chains that could buy directly from the factory and maintain inventories economically rendered the distributor unnecessary and caused to a large degree the decline of the independent retailer.

Buying groups are a market phenomenon created by independent retailers to assure price and supply of brand-name television receivers that enable the members to compete against mass merchandisers. Dealers that are members of a buying group order directly from the factory. The factory periodically remits a rebate to the headquarters of the buying group, which then distributes the rebate among members based on their volume of purchases. The number and power of buying groups have increased in the last decade, putting further pressure on profitability for the TV producer. The growth of buying groups also helps to explain a decline in private-label sales. The buying groups purchase and sell branded product since the separate retailers in the groups cannot buy private-label product in the volume sufficient to justify

a discount. Also, manufacturers will offer cooperative advertising allowances on branded product, but not on private label product.

Most television receiver manufacturers sell directly to retailers. There is no accurate count on the number of retailers marketing television receivers through a variety of outlets. The greatest volume of television receivers, just under 30 percent, is sold by electronics superstores like Circuit City. Slightly less than 25 percent is sold through electronics specialty stores and appliance stores. Mass merchandisers such as Kmart and Jamesway Stores account for about 15 percent of sales. Other major channels include nonretail and institutional sales (hospitals, hotels, schools), and traditional department stores, but even pharmacies, supermarkets, and hardware stores sell televisions to the consumer. Institutional sales—to hotels, hospitals, and similar institutions—represent a moderate share of total sales, perhaps 3 percent.

Pricing is of critical importance to the marketing of televisions. The retail price for television receivers has consistently declined in the face of a continuing increase in the prices for all items, illustrated by the consumer price index, as follows:

Year	Consumer price index (1986 = 100)	
	All items	TV receivers
1986	100.0	100.0
1987	103.6	95.8
1988	107.9	93.3
1989	113.1	91.4
1990	119.3	89.7

While the retail price of television receivers dropped by over 10 percent from 1986 through 1990, the producers' costs declined during the same period by just over 5 percent as follows:

Year	Producer price index (1986 = 100)	
1986	100.0	
1987	99.0	
1988	95.3	
1989	95.8	
1990	94.6	

The profit margins for factories, distributors, and retailers are extremely narrow, and, although the major manufacturers have attempted year after year to raise prices to more comfortable profit levels, stiff competition in the U.S. market forces all producers to sell at a minimal price, sometimes forsaking profit to maintain volume.

Ninety-six percent of U.S. households have at least one color television, and more than half have two or more.¹⁰ Most TV receivers are not purchased as the first receiver in a household, but rather as replacements for receivers no longer in use. However, an almost

⁹ *Journal of Commerce*, Feb. 15, 1991, p. 10.

¹⁰ Electronic Industries Association, *1991 Electronic Market Data Book* (Washington: 1991), p. 7.

equal number of purchases are additions to households that already have at least one television receiver. A growing reason for purchase is the displacement of a current set by a new receiver with more features. For example, the old 21-inch console television in the living room is moved to the den to make way for a new 27-inch table model with stereo sound and wireless remote control.

Other than price, the most common factors that are considered when one purchases a television include screen size, picture quality, and cabinet finish and style. The screen size purchased is a reflection of the use to which the receiver will be put. Small screen sizes—1 1/2 to 4 inches—are suitable for greater portability. For example, the viewer attending a football game is able to receive expert commentary and watch replays while a football game in progress. The small-screen television allows the viewer to watch his program without the need to compromise with the viewing wants of others, just as personal portable audio units like Sony's "Walkman" allow people to listen to what they want. Sales of smaller, lighter TVs, including those with LCD displays, have increased from just over 1 percent of unit sales to dealers in 1985 to over 3 percent in 1990. A larger screen size, perhaps up to 20 inches, would be desirable in a bedroom. Screen sizes in the range of 35 to 60 inches might be desirable for a large rec room, and up to 60 inches for a bar or restaurant. Portable and table model TV receivers—those requiring placement on a table or stand in order to be viewed—represent a larger share of total unit sales of TVs than in years past, increasing from 84 percent of total TV sales in 1985 to 93 percent in 1990. Sales of console television receivers—free-standing pieces of furniture—have declined steadily from the mid-1960s, when more than 40 percent of televisions sold in the United States were consoles, to less than 10 percent of total sales in 1990.

Other important considerations to the buyer are whether the unit offers stereo capability, cable compatibility, or wireless remote control. An additional factor is the perceived quality, as measured by a reputation for reliability and customer service.

Stereo sound is becoming an increasingly common feature, present in 32 percent of 1990 sales to dealers of color television, compared with 9 percent of 1985 sales to dealers.¹¹ The availability of second-audio-program (SAP)¹² as a feature is increasing, although few broadcasters are making use of it. Over

half the receivers sold in the United States in 1990 had wireless remote-control capability. More than 60 percent of the televisions sold in the U.S. are cable-compatible and do not require a separate interface box. Also, square-cornered, flat-faced picture tubes are in an increasing share of color television receivers. Large-screen sets—26 inches or larger—are taking a larger share of the market, with most of these sets being U.S.-produced rather than imported. In 1986, these units constituted 13 percent of total sales to dealers, while by 1990, their share grew to 20 percent.

With more than 50 percent of U.S. households connected to cable television, the compatibility of a TV with a cable system without a separate converter is increasingly popular. The majority of sets sold in 1990 were cable compatible. And, remote control, which was once an expensive step-up feature, is now virtually standard on all large-screen table and console color televisions.

FOREIGN INDUSTRY PROFILE

Until the early 1970s, the United States was clearly the world leader in television production. Then Japan and later other Far Eastern countries gradually began to dominate the industry. Superior design and manufacturing techniques were implemented by Japanese manufacturers, in an environment made favorable to technology development and capital investment by the Japanese Government. Japan is now recognized as the world leader in LCD and projection television technology, and is making major advancements in both digital and HDTV technology.

The Japanese Ministry of International Trade and Industry (MITI) sponsored multicompany research projects on improving television design, and distributed the results among all participants. Designs based on the results of the studies enabled Japanese manufacturers to reduce the number of components used in a TV receiver by 60 percent from 1971 to 1975. By contrast, during the same period, U.S. manufacturers reduced the number of components by less than 25 percent. The lower number of components meant less time and labor in assembling a receiver and fewer defects in the finished product.¹³

By 1985, the major world competitors in the television receiver industry were Japan, with production of about 18 million sets; China, of about 17 million sets; and the United States, of about 14 million sets. Germany, the largest Western European supplier, ranking sixth in world production, produced slightly more than 4 million units in 1985.

Historically, European companies with U.S. subsidiaries and affiliates have invested in R&D in the United States as well as in Europe, whereas Japanese companies have performed their R&D in Japan. As Japanese companies have become more international,

¹¹ Electronic Industries Association.

¹² SAP, or second-audio-program, provides for the reception of a second audio signal in addition to the main audio signal. For example, a producer intending to reach both a large Spanish-speaking audience as well as an English-speaking audience could provide both a Spanish audio signal on one channel and an English audio signal on the other. The viewer would be able to select either signal. SAP is not the same as stereo, in that both channels of sound are not audible at the same time.

¹³ Office of Technology Assessment, Congress of the United States, *The Big Picture: HDTV & High Resolution Systems*, Appendix A, U.S. Government Printing Office, 1990.

they are beginning to spread their R&D activities around the world,¹⁴ whereas U.S. companies generally perform their R&D in the United States.

The production of television receivers is highly capital-intensive, and most foreign producers have a significant advantage in the cost of capital, and, in certain countries, in the cost of labor. Firms in Japan, the largest producer of these products, have access to capital markets in which interest rates have historically been lower than in the United States. Low interest rates are also characteristic of the capital markets in Korea. In Western Europe, as well as in the United States, U.S. firms must compete with Thomson, which is backed by the resources of the French Government.

Japan is heavily export-oriented in this industry, as it is in all other consumer electronics technologies. As the cost of labor in Japan increased, production activities that were more labor-intensive and required less skilled workers were moved offshore. Most Japanese producers are affiliated with one of the big six "keiretsu," or corporate groups in Japan, networks of customers, suppliers, and distributors that may serve to diminish competition from outsiders. These groups are organized as financial or conglomerate keiretsus, formed around trading companies or banks, or as vertical keiretsus formed around large industrial enterprises. Sources of capital, materials, and other inputs to production can be ensured more easily for producers that are members of keiretsu than for producers of other countries, where antitrust laws may prohibit the type of cooperation permitted in Japan.

Japanese producers have high fixed costs, in part due to providing permanent employment and to maintaining exclusive distribution outlets.¹⁵ High volume production is needed to cover these fixed costs, but also to generate significant economies of scale. The Japanese Government protected the profitability of domestic sales, priced 50 to 60 percent higher than for comparable sets sold in the United States, by tariffs, quotas, import and foreign licensing, and restrictions on foreign direct investment.¹⁶ This protection allowed the Japanese to price aggressively in foreign markets.¹⁷ The Japanese industry blocked imports by denying distribution through their extensive network of franchised dealers, each of which carried only one manufacturer's products.¹⁸ Tariffs on color TV receiver imports were 30 percent in Japan until 1968, compared to 7.5 to 10 percent in the United States over the same period.

As of 1985, China was the second-largest producer of televisions in the world, producing more televisions

than any other country except Japan. China produces less technologically sophisticated televisions, both monochrome and color, primarily for domestic consumption. Production has grown to the point of oversupply in 1990, resulting in a ban on imports. Chinese exports have grown rapidly in recent years. China's current strengths are its low labor cost and the appreciating currencies of Far Eastern competitors like Japan, Taiwan, Korea, and Hong Kong. A disadvantage to Chinese producers is the fact that key components are not made in a sufficient volume in China and must be imported.

Taiwan is another major competitor in the world market for television receivers. According to the Taiwanese Ministry of Economic Affairs, Taiwan produced 3.71 million color TVs in 1989, a decline of 0.8 percent from production in 1988. Exports reached 3.38 million sets. The principal exporters were Orion and RCA. The United States absorbed 62 percent of Taiwanese color television production in 1989. Although Taiwan is one of the major electronic products exporting countries, it must import most advanced products to meet the growing demand. With the increasing cost of labor in Taiwan, and the increasing value of the New Taiwan (NT) dollar, Taiwanese producers are finding it necessary to move production to Southeast Asia in order to remain competitive.¹⁹

A major source of U.S. imports of television receivers is maquiladoras in Mexico. "Maquiladora" operations in Mexico assemble and/or process goods for export to foreign markets, usually the United States. Imported machinery, components, and materials enter Mexico free of duty but under bond, which is returned when the product and/or machinery is exported. Maquiladoras are either subsidiaries of foreign companies, usually U.S. firms, or Mexican firms performing contract assembly for foreign firms.

Complete television receivers or subassemblies produced in maquiladoras may enter the United States under special classification provisions, subheadings 9802.00.60 or 9802.00.80, of the HTS.²⁰ Under these subheadings, U.S. duty is applied only on the value of the imported product minus the value of U.S. content.

U.S. TRADE MEASURES

Tariff Measures

The nominal rate of duty on U.S. imports of television receivers and video monitors ranges from 3.7 percent on parts of receivers and monitors to

¹⁴ John Burgess, "Television Takeover," *Washington Post*, May 26, 1991, p. H1.

¹⁵ *Phase II: Japan's Distribution System and Options for Improving U.S. Access*, investigation No. 332-283, USITC publication 2327, October 1990.

¹⁶ *The Big Picture: HDTV & High Resolution Systems*, Appendix B.

¹⁷ See discussion of antidumping duties, p. 9.

¹⁸ *The Big Picture: HDTV & High Resolution Systems*, Appendix B.

¹⁹ American Institute in Taiwan, *Taiwan's Electronics Industry and Sales Opportunities for U.S. Products*, February 1991.

²⁰ For more detailed information on this special classification provision, see USITC, *Production Sharing: U.S. Imports Under Harmonized Tariff Schedule Subheadings 9802.00.60 and 9802.00.80, 1986-1989*, USITC publication 2365, Mar. 1991.

5 percent on complete receivers and monitors (see table 1). The trade weighted average duty rate in 1990 was 4.8 percent. As a result of the U.S.-Canada Free-Trade Agreement, duties on imports of television receivers from Canada are being reduced systematically and are scheduled to be eliminated by January 1, 1998. None of the items within this summary are eligible for treatment under the Generalized System of Preferences (GSP).

Antidumping Duties

In 1971, the U.S. International Trade Commission determined that the U.S. television receiver industry was being injured by imports of television receivers from Japan that were being, or were likely to be, sold at less than fair value on the U.S. market.²¹ Accordingly, following the Treasury Department's dumping finding, an antidumping order with respect to television receivers from Japan was filed.²² In April 1984, the Commission determined that the U.S. television receiver industry was materially injured or threatened with material injury by the dumping of color television receivers from Korea and Taiwan.²³ As a result of these investigations, antidumping orders are in place on imports of color television receivers and monitors from Japan, Korea, and Taiwan. The latest review by the Department of Commerce on imports of color televisions from Japan and Taiwan was for 1989-90. The duties on imports from Japan range from 0.16 percent to 35.4 percent, and from Taiwan, 0.0 percent to 23.89 percent. The latest review of imports from Korea was for 1987-88, and the margins ranged from 0.11 percent to 3.79 percent. It is noteworthy that the range of duties on imports from Korea and Taiwan has remained flat or declined from the duties originally imposed, whereas the range of duties on imports from Japan has increased significantly.²⁴

In 1971, Zenith Electronics Corporation and the National Union Electric Corporation filed an antitrust suit against Japanese producers, claiming that these producers had engaged in a predatory-pricing conspiracy to destroy the U.S. consumer electronics market by selling television receivers in the U.S. market at less than fair value. After years of legal challenges, the U.S. Supreme Court decided in 1986 not to review the \$3 billion suit because of the lack of

²¹ *Television Receiving Sets from Japan*, investigation No. AA1921-66 (T.C. publication No. 367 (1971)).

²² Treasury Decision (T.D.) 71-76 (36 F.R. 4597, Mar. 9, 1971).

²³ *Color Television Receivers from Korea and Taiwan*, investigations Nos. 731-TA-134 and 135 (Final), USITC publication 1514, Apr. 1984.

²⁴ For Japan, the margins on imports in 1980-81, the earliest period for which data are available, ranged from 0 percent to 0.86 percent. For Taiwan, the margins on imports during the initial review of 1982-83 ranged from 0.01 percent to 23.77 percent; for Korea, from 0 percent to 16.57 percent.

evidence indicating a conspiracy.²⁵ Then, early in 1989, Zenith charged Asian manufacturers with circumventing the antidumping measures by shifting production away from headquarters countries. The U.S. Department of Commerce monitored imports from Malaysia and Mexico because there was "reason to believe or suspect that imports of complete and incomplete TV receivers from Mexico and Malaysia constitute an extraordinary pattern of injurious dumping." However, after monitoring these imports for a year, the International Trade Administration of the U.S. Department of Commerce determined that there was insufficient evidence of Zenith's allegations and did not open an antidumping investigation.

FOREIGN TRADE MEASURES

Tariff Measures

In Japan, the current duty rate on imports of television receivers and video monitors from GATT signatory countries such as the United States is 4 percent ad valorem. The average tariff rates in Japan are among the world's lowest, although the individual rates may be high on certain products other than televisions.

In Korea, there are relatively high duties—30 percent ad valorem on color television receivers and 20 percent ad valorem on monochrome receivers and parts of television receivers. The trade-weighted average duty in 1990 was 11.4 percent.

In Canada, the duty is 6.6 percent ad valorem on color television receivers and combinations, and 6 to 6.5 percent on other receivers. As a result of the U.S.-Canada Free-Trade Agreement, the Canadian duties on imports of television receivers from the United States are being reduced systematically and scheduled to be eliminated by January 1, 1998.

The Mexican duty on televisions is 20 percent ad valorem on complete receivers and 10 percent ad valorem on parts. No duties are assessed on imports of U.S. parts and subassemblies into maquiladora plants. The external duty rate in the EC on imports of television receivers and parts is 14 percent ad valorem.

Nontariff Measures

In Japan, most formal tariff and nontariff barriers were removed through the Structural Impediments Initiative (SII) of 1989.²⁶ However, there are informal barriers to entry into the Japanese market that continue to hinder foreign competitors. There is a rigid distribution system in Japan that denies new entrants, including foreign firms, such free market access as

²⁵ *Zenith Radio Corp. et al v. Matsushita Electric Industrial Co., Ltd., et al*, 807 F.2d 44, cert. denied, 86-1453.

²⁶ 1990 National Trade Estimate Report on Foreign Trade Barriers.

Table 1

Television receivers and video monitors and combinations including television receivers: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1991; U.S. exports, 1990; and U.S. imports, 1990

HTS subheading	Description	Col. 1 rate of duty as of Jan. 1, 1991		U.S. exports, 1990	U.S. imports, 1990
		General	Special ¹		
Million dollars					
8528.10.80	Color television receivers, nesi	5%	Free (B,E,IL) 3.5% (CA)	400.4	1,864.7
8528.20.00	Black and white or other monochrome television receivers	5%	Free (B,E,IL) 3.5% (CA)	44.3	123.4
8529.10.20	Television antennas and antenna reflectors, and parts suitable for use therewith	3.7%	Free (B,E,IL) 1.4% (CA)	126.8	48.8
8529.90.10	Tuners for television apparatus	5%	Free (E,IL) 3.5% (CA)	9.7	72.3
8529.90.15	Printed circuit boards and ceramic substrates and subassemblies thereof for color TV, with components listed in add. U.S. note 4, Chapter 85 of the Harmonized Tariff Schedule of the United States	5%	Free (B,E,IL) 2.5% (CA)	138.6	656.7
8529.90.20	Printed circuit boards and ceramic substrates and subassemblies thereof for color TV, nesi	3.7%	Free (B,E,IL) 2.5% (CA)	138.6	84.1
8529.90.35	Parts of television apparatus, nesi	3.7%	Free (B,E,IL) 2.5% (CA)	167.0	324.2

¹ Programs under which special tariff treatment may be provided, and the corresponding symbols for such programs as they are indicated in the "Special" subcolumn, are as follows: Generalized System of Preferences (A); Automotive Products Trade Act (B); Agreement on Trade in Civil Aircraft (C); United States-Canada Free-Trade Agreement (CA); Caribbean Basin Economic Recovery Act (E); and United States-Israel Free-Trade Area (IL).

Source: U.S. exports and imports compiled from data of the U.S. Department of Commerce.

exists in the United States.²⁷ The major Japanese consumer electronics manufacturers operate exclusive networks of retail stores, each selling the products of one manufacturer. Establishing independent distribution channels appears to be difficult and expensive partly as a result of government regulation. According to some experts on Japan's distribution system and accounts by foreign businessmen, the formation of keiretsu often result in limiting the number of channels of distribution in some sectors of the economy. They may also result in the closure of these channels to foreign companies or new entrants to the market.²⁸

The Government of Korea is pursuing an antiimport program to address its trade account deficit. Korean sources state that, when the trade account returns to surplus, the antiimport drive will be terminated.²⁹

China has been pursuing a policy of substituting domestic production for imports of televisions, an effort that has been so successful that a quantitative ban on imports of TV receivers was imposed in 1989 due to an oversupply by domestic producers. State planning, rather than tariffs, plays a major role in regulating trade. A quality license policy on television receivers was begun in May 1990. Exports by Chinese manufacturers are subsidized by the Chinese Government.³⁰ China is on the United States' Super 301 watch list for inadequate protection of intellectual property rights.³¹

Three mutually incompatible television broadcast systems exist in the world, with several variations of each system. NTSC is used in the United States, Canada, Mexico, Japan, and Korea. PAL is used in most Western European countries, except for France, in most of Africa and the Middle East, China, and Australia. SECAM is used in France and in most Eastern European countries. South America is a mix of NTSC, PAL, and SECAM. In order to market television receivers successfully in a foreign country, the receiver must comply with the existing broadcast standard. Incompatible broadcast systems serve as a nontariff barrier to efficiencies of scale.

²⁷ See *Phase I: Japan's Distribution System and Options for Improving U.S. Access*, investigation No. 332-283, USITC publication 2291 (June 1990) and *Phase II: Japan's Distribution System and Options for Improving U.S. Access*, investigation No. 332-283, USITC publication 2327 (October 1990).

²⁸ *Phase I: Japan's Distribution System and Options for Improving U.S. Access*, investigation No. 332-283, USITC publication 2291, June 1990, p. 48.

²⁹ American Embassy, Commercial Section, *FY 1991 Country Marketing Plan: Seoul, Korea*, Seoul, Dec. 6, 1990, p. 6.

³⁰ 1990 National Trade Estimate Report on Foreign Trade Barriers.

³¹ Section 182, Trade Act of 1974.

U.S. MARKET

Consumption

From 1986 to 1990, U.S. consumption of television receivers and video monitors decreased from \$7.2 billion to \$6.1 billion, a decrease of 15 percent, or just under 4 percent per year (see table 2 and figure 2). The main article of consumption in 1990 was color television receivers, accounting for 67 percent of consumption. Imports as a share of consumption remained fairly constant, increasing slightly from 50 percent in 1986 to 52 percent in 1990. While the number of television receivers consumed remained constant from 1986 through 1990, the mix changed somewhat, with monochrome television receivers decreasing from 8 percent to 1 percent of the total value of U.S. consumption.

Production

U.S. shipments of television receivers and video monitors were \$4.0 billion in 1986 and 1990, although shipments declined to \$3.8 billion in 1987 and 1988, and \$3.9 billion in 1989. The U.S. color television pipeline inventory - the sum of factory and distributor inventories - contained just over 9 weeks of sales at the end of 1986. Pipeline inventory at the end of 1990 was slightly over 5 weeks. The number of units in pipeline inventory declined by 33 percent from 1986 to 1990, with most of the decline taking place between 1987 and 1988. Pipeline inventory declined by 4 percent from 1989 to 1990.

Imports

U.S. imports of television receivers and video monitors declined from \$3.6 billion in 1986 to \$3.2 billion in 1990, a decline of 3 percent per year (see table 3).³² Color television receivers accounted for about 60 percent of 1990 imports of the products covered by this summary, and monochrome receivers accounted for less than 4 percent. The majority of the remaining 1990 imports were of printed circuit boards in HTS 8529.90.15, which accounted for almost 21 percent of total imports, and unspecified parts of television apparatus (HTS 8529.90.35), which accounted for 10 percent of total imports (see figure 3). The principal import suppliers in 1986 and 1990 were Mexico, Japan, and Taiwan (see figure 4), but their importance as suppliers differed substantially as shown in the tabulation on page 13.

³² Imports of complete CRT televisions are classified in HTS subheading 8528.10.8005 through 8528.10.8050. Complete LCD televisions are classified in subheading 8528.10.8058. Projection television receivers are classified in subheading 8528.10.8060.

Table 2

Television receivers and video monitors and combinations including television receivers: by U.S. shipments, exports of domestic merchandise, imports for consumption, and apparent U.S. consumption, 1986-90

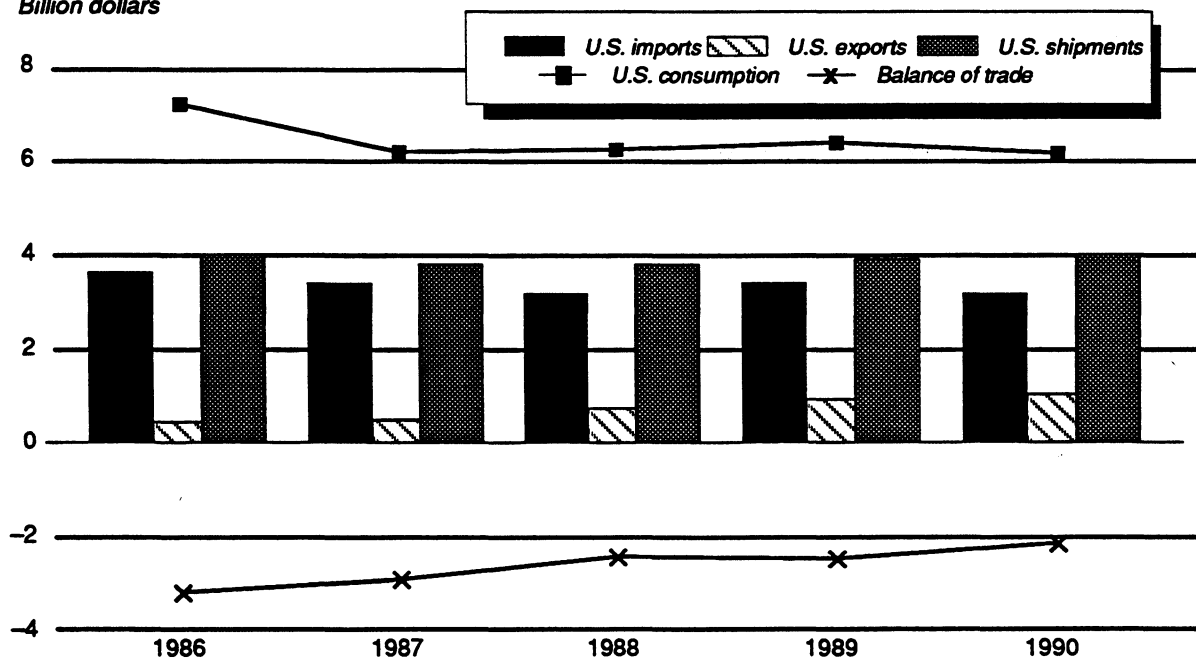
Year	U.S. shipments ¹	U.S. exports	U.S. imports	Apparent U.S. consumption	Ratio of imports to consumption
	Million dollars				Percent
1986	4,000	432	3,621	7,189	50.4
1987	3,800	483	3,396	6,713	50.6
1988	3,800	740	3,172	6,232	50.9
1989	3,900	926	3,405	6,379	53.4
1990	4,000	1,025	3,174	6,149	51.6

¹ Estimated by the staff of the U.S. International Trade Commission.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

Figure 2
Receivers, monitors, and parts: Imports, exports, shipments

Billion dollars



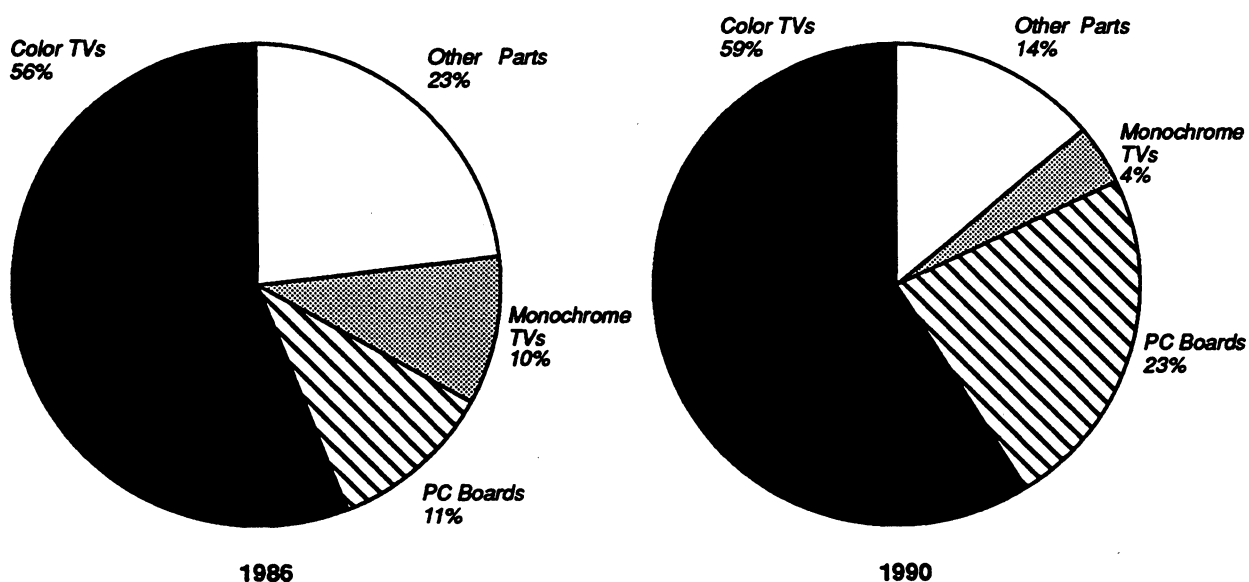
Source: U.S. Department of Commerce.

Table 3
Television receivers and video monitors and combinations including television receivers: U.S.
imports for consumption, by principal source 1986-90

Source	1986	1987	1988	1989	1990
<i>Value (1,000 dollars)</i>					
Mexico	703,164	750,586	1,068,827	1,329,783	1,465,340
Japan	1,301,073	859,362	558,066	525,835	431,166
Taiwan	586,311	660,630	540,331	423,013	265,732
Singapore	226,673	202,196	230,960	270,341	261,089
Malaysia	70,190	156,555	150,893	208,504	224,061
Korea	499,032	549,551	389,585	323,865	221,559
Thailand	256	77	0	21,807	76,843
China	621	15,166	24,379	98,176	64,883
Canada	84,888	66,184	90,029	84,851	54,730
Hong Kong	93,865	77,954	56,424	51,603	37,635
All other	54,683	58,017	62,098	7,280	71,286
Total	3,620,756	3,396,278	3,171,592	3,405,058	3,174,324

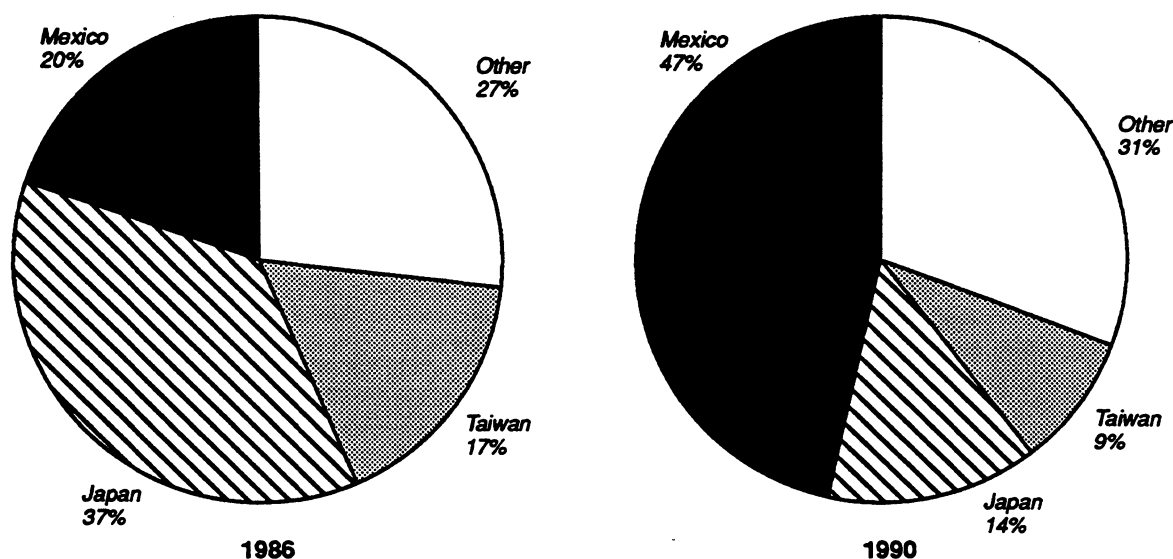
Source: Compiled from official statistics of the U.S. Department of Commerce.

Figure 3
Receivers, monitors, and parts: U.S. imports by product



Source: U.S. Department of Commerce.

Figure 4
Receivers, monitors, and parts: U.S. Imports by country of origin



Source: U.S. Department of Commerce.

Country of origin	Percent share of value of U.S. imports supplied	
	Years	
	1986	1990
Mexico	20	47
Japan	37	14
Taiwan	17	9

Imports from Mexico more than doubled from 1986 to 1990. The increase in imports from Mexico is due in part to the shifting of production from the United States to Mexico to take advantage of low labor rates. Also, Japanese and Korean producers moved production to Mexico. Imports from Japan also declined because Japan has shifted some production for the U.S. market to the United States.

Duty-free imports of television receivers and video monitors totaled \$327 million in 1990. Of these, \$275 million, or 84 percent, were under the provisions of 9802.00.60 or 9802.00.80. Of these imports under the provisions of 9802.00.60 or 9802.00.80, \$237 million were of color television receivers from Mexico. Over 95 percent of all duty-free imports of these products in 1990 were from Mexico.

Part of the reason for the overall decline in imports has been a shift in consumer preferences for larger

screen sizes, produced in the United States. In 1986, 72 percent of color televisions sold to dealers had screen sizes smaller than 20 inches, the smallest screen size made in the United States. In 1990, only 48 percent of color televisions sold to dealers had screen sizes smaller than 20 inches. Sales to dealers of 20- to 25-inch color televisions rose from 20 percent in 1986 to 38 percent in 1990.³³

Imported televisions are mainly traditional televisions based on a single CRT, or picture tube, for direct viewing, although projection types, bent-neck CRT types, and liquid crystal display (LCD) types are also imported. Of complete television receivers imported in 1990, 5 percent were projection receivers, and 2 percent were LCD-type receivers.

Most of the television receivers imported by the United States are lower in value than those produced in the United States. As noted earlier, the United States produces no monochrome television receivers, importing all it consumes. Monochrome televisions are substantially lower in value than color television receivers, with imports of monochrome receivers in 1990 averaging \$56 each and color television receivers averaging \$167 each. The average value of a color television receiver produced in the United States was \$330 in 1990.

³³ Electronic Industries Association.

Color television receivers were 60 percent of the products covered by this summary imported by the United States from Mexico in 1990, versus only 32 percent in 1986. Color television receivers were only 51 percent of imports from Japan in 1990, versus 62 percent in 1986. Imports of color television receivers from Taiwan, Korea, and Japan, which are still among the top 10 suppliers, dropped significantly in the same period, to 45, 44, and 33 percent of their 1986 levels respectively. Over 60 percent of imports from ASEAN countries were of complete receivers in 1990. That year, less than 30 percent of imports from the EC were of complete receivers.

Imports of complete CRT televisions are classified in HTS subheading 8528.10.8005 through 8528.10.8050. Complete LCD televisions are classified in subheading 8528.10.8058. Projection television receivers are classified in subheading 8528.10.8060.

There were several changes in commodity classifications for television receivers and video monitors dictated by the conversion from the Tariff Schedules of the United States to the Harmonized Tariff Schedule effective with 1989 imports. Under the TSUS, complete but unassembled television receivers, also known as kits, were reported separately from complete, assembled receivers. Under the HTS, all complete receivers, whether assembled or not, are reported under the same headings. Satellite television receivers were classified separately from television receivers under the TSUS. Under the HTS, satellite television receivers are under the same tariff heading as other television receivers, although they have a distinct statistical subheading, and are imported at a slightly higher rate of duty than they were under the TSUS (5 percent ad valorem versus 3.7 percent).

FOREIGN MARKETS

Foreign Market Profile

Historically, U.S. producers did not actively pursue the world markets where NTSC was not the broadcasting standard—Europe, Africa, and Southeast Asia. Currently, most of the companies producing televisions in the United States are controlled by corporations headquartered in Europe or Japan. These corporations also produce television receivers in or near other markets in which they compete.

Concentration in the television market is increasing as a result of the purchase of certain U.S. and European companies by the larger firms in the industry. Philips, the largest producer in Europe, holds a 10 percent share of sales to dealers in the U.S. market. Thomson SA, second in the European market after Philips, holds a 24 percent share of the U.S. market. Nokia of Finland, while not yet a participant in the U.S. market, consolidated the operations of several other European producers into its product line in early 1988. The current proliferation of brand names belies the decreasing number of independent manufacturers.

U.S. manufacturers attempting to compete in foreign markets with U.S.-produced receivers have a disadvantage in that transportation costs are greater for the larger screen size televisions (20 inches and over) produced by U.S. manufacturers. U.S.-produced sets are built to the NTSC standard, with very few exceptions. In markets where NTSC is the standard and when transportation costs do not make competition prohibitively expensive, the United States is competitive, namely in Canada and Mexico. However, even in countries using the NTSC standard, different power supplies require receivers built to different specifications. For example, an NTSC receiver built to work in the United States will not work in places where household current is other than 120 volts, or other than 60 cycles.

U.S. Exports

U.S. exports rose from \$0.4 billion in 1986 to \$1.0 billion in 1990, an increase of 137 percent, or an average annual increase of 24 percent (see table 4). Exports as a percentage of shipments of all the products in the digest rose from 11 percent in 1986 to 26 percent in 1990. The major markets for U.S.-produced equipment in 1986 and 1990 were Mexico, Canada, and Taiwan (see figure 5); the percent share of U.S. exports was as follows:

Country of destination	Percent share of U.S. exports	
	Years	
	1986	1990
Mexico	31	38
Canada	22	19
Taiwan	9	6

Exports to Mexico increased during this period from \$136 million to \$393 million. The bulk of the increase was due to an increase in exports of printed circuit boards and other parts of television receivers, exported to Mexico for television receiver production to be reimported into the United States. These exports were not for Mexican domestic consumption. While exports of tuners and antennas dropped by 44 and 69 percent, respectively, exports of other parts increased by 800 percent, from \$30 to \$268 million. Although color television exports increased significantly, from \$186 million in 1986 to \$400 million in 1990, their share of total exports decreased from 43 percent to 39 percent (see figure 6).

Since manufacturers in the United States manufacture only to NTSC standards, their export markets are limited to those that have adopted the NTSC standard, primarily countries in North and South America and a few other countries in the Far East. Parts of television receivers, however, have a more widespread market, as there are certain parts used by all television receivers regardless of broadcast system standard.

Exports to Canada more than doubled, from \$95 million in 1986 to \$199 million in 1990, because

of an increase in exports of complete color television receivers, which comprised almost 70 percent of 1990 U.S. exports to Canada. Exports to Chile increased by 3,200 percent from 1986 to 1990, from \$0.4 million to \$14 million, due mainly to an increase in exports of antennas from \$0.2 million to \$9.8 million. Less than 24 percent of U.S. exports to ASEAN countries and less than 30 percent of exports to EC countries were of complete television receivers.

Major exporters are the manufacturers themselves, exporting complete receivers and monitors to end markets and also exporting subassemblies and assemblies for further processing and reimporting. Distributors and retailers are also significant exporters to Central and South America. It is noteworthy that one Japanese-owned U.S. producer has recently begun exporting to Japan. These exports are of larger-screen

television receivers incorporating picture tubes made at this company's plant in the United States.

U.S. TRADE BALANCE

The U.S. balance of trade improved from a negative \$3.2 billion in 1986 to a negative \$2.1 billion in 1990 (see table 5). Most of the improvement seemed to be due to declining imports from Japan. The trade deficit with Japan declined from \$1.3 billion in 1986 to \$0.4 billion in 1990. The country with which the United States had the worst trade balance in 1990 was Mexico, which exported to the United States over \$1 billion more than it imported from the United States. Most of those imports were by U.S. producers that had moved production and assembly facilities to Mexico. The United States had a favorable balance of trade with Canada of \$144 million in 1990, the only one of its top 10 trading partners with which it had a favorable balance.

Table 4

Television receivers and video monitors and combinations including television receivers: U.S. exports of domestic merchandise, by principal market, 1986-90

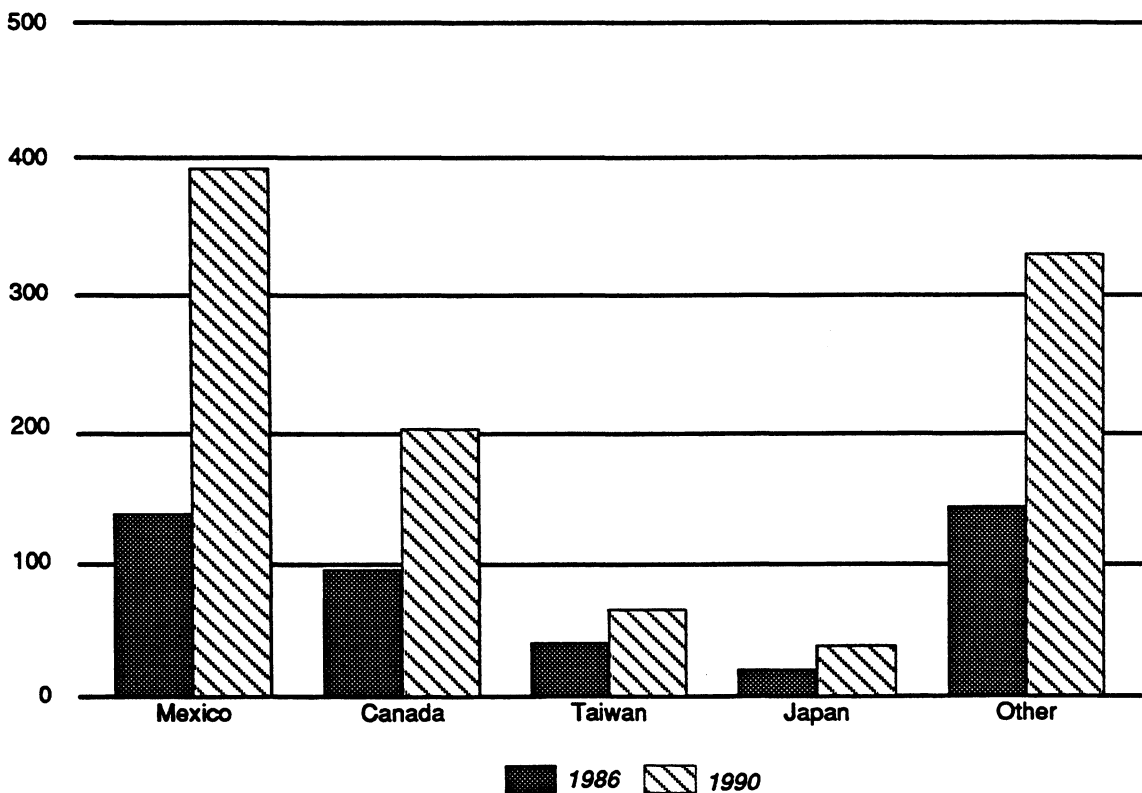
Market	1986	1987	1988	1989	1990
<i>Value (1,000 dollars)</i>					
Mexico	135,976	145,652	270,564	360,558	393,188
Canada	95,311	114,214	132,187	172,723	199,032
Taiwan	40,027	40,201	80,113	71,545	64,589
United Kingdom	17,707	23,277	35,348	36,337	40,796
Japan	19,544	13,633	24,997	44,502	37,526
Germany	10,351	13,570	15,241	22,953	27,839
France	6,304	9,132	19,061	18,215	17,689
Brazil	2,896	2,268	3,173	5,602	13,553
Korea	9,516	7,163	22,924	12,732	13,239
Chile	409	382	3,026	5,809	13,091
All other.	93,741	113,105	133,442	175,203	204,911
Total	431,782	482,597	740,076	926,179	1,025,453

Source: Compiled from official statistics of the U.S. Department of Commerce.

Figure 5

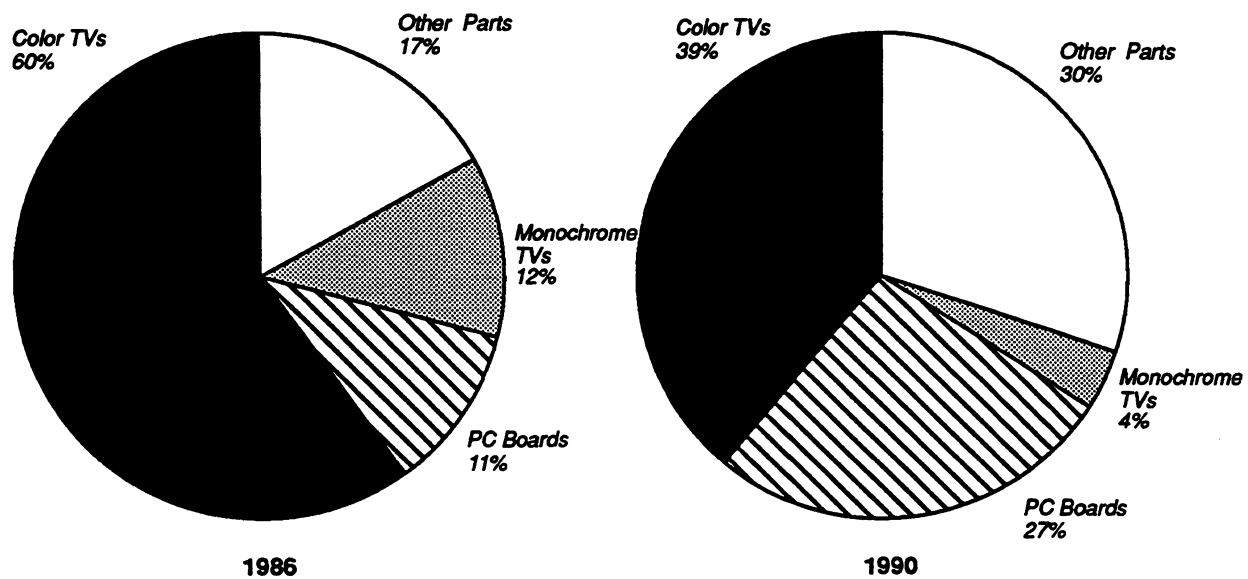
Receivers, monitors, and parts: U.S. exports by country of destination

Million dollars



Source: U.S. Department of Commerce.

Figure 6
Receivers, monitors, and parts: U.S. exports by product



Source: U.S. Department of Commerce.

Table 5

Television receivers and video monitors and combinations including television receivers: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected country and country group, 1986-90¹

(Million dollars)

Item	1986	1987	1988	1989	1990
U.S. exports of domestic merchandise:					
Mexico	136	146	271	361	393
Japan	20	14	25	45	38
Taiwan	40	40	80	72	65
Singapore	2	4	6	8	7
Malaysia	1	(²)	(²)	1	1
Korea	10	7	23	13	13
Thailand	(²)	3	1	1	5
China	3	3	2	7	6
Canada	95	114	132	173	199
Hong Kong	3	5	12	13	12
All other	123	148	189	234	287
Total	432	483	740	926	1,025
EC-12	48	65	95	121	130
ASEAN	6	9	7	13	18
U.S. imports for consumption:					
Mexico	703	751	1,069	1,330	1,465
Japan	1,301	859	558	526	431
Taiwan	586	661	540	423	266
Singapore	227	202	231	270	261
Korea	499	550	390	324	222
Malaysia	70	157	151	209	224
Canada	85	66	90	85	55
Thailand	(²)	(²)	0	22	77
China	1	15	24	98	65
Hong Kong	94	78	56	52	38
All other	55	58	62	67	71
Total	3,621	3,396	3,172	3,405	3,174
EC-12	47	46	46	40	32
ASEAN	297	362	389	523	597
U.S. merchandise trade balance:					
Mexico	(567)	(605)	(798)	(969)	(1,072)
Japan	(1,282)	(846)	(533)	(481)	(394)
Taiwan	(546)	(620)	(460)	(351)	(201)
Singapore	(224)	(199)	(225)	(262)	(254)
Malaysia	(69)	(156)	(151)	(207)	(223)
Korea	(490)	(542)	(367)	(311)	(208)
Thailand	0	3	1	(21)	(72)
China	2	(12)	(23)	(91)	(59)
Canada	10	48	42	88	144
Hong Kong	(91)	(73)	(45)	(38)	(26)
All other	68	89	127	166	216
Total	(3,189)	(2,914)	(2,432)	(2,479)	(2,149)
EC-12	1	19	49	81	98
ASEAN	(291)	(353)	(382)	(509)	(579)

¹ Import values are based on customs value; export values are based on f.a.s. value, U.S. port of export. U.S. trade with East Germany is included in "Germany" but not "Eastern Europe."

² Less than \$500,000.

Source: Compiled from official statistics of the U.S. Department of Commerce.

APPENDIX A
EXPLANATION OF TARIFF AND TRADE AGREEMENT TERMS

TARIFF AND TRADE AGREEMENT TERMS

The *Harmonized Tariff Schedule of the United States* (HTS) replaced the *Tariff Schedules of the United States* (TSUS) effective January 1, 1989. Chapters 1 through 97 are based upon the internationally adopted Harmonized Commodity Description and Coding System through the 6-digit level of product description, with additional U.S. product subdivisions at the 8-digit level. Chapters 98 and 99 contain special U.S. classification provisions and temporary rate provisions, respectively.

Rates of duty in the *general* subcolumn of HTS column 1 are most-favored-nation (MFN) rates; for the most part, they represent the final concession rate from the Tokyo Round of Multilateral Trade Negotiations. Column 1-general duty rates are applicable to imported goods from all countries except those enumerated in general note 3(b) to the HTS, whose products are dutied at the rates set forth in *column 2*. Goods from the People's Republic of China, Czechoslovakia, Hungary, Poland, and Yugoslavia are among those eligible for MFN treatment. Among articles dutiable at column 1-general rates, particular products of enumerated countries may be eligible for reduced rates of duty or for duty-free entry under one or more preferential tariff programs. Such tariff treatment is set forth in the *special* subcolumn of HTS column 1.

The *Generalized System of Preferences* (GSP) affords nonreciprocal tariff preferences to developing countries to aid their economic development and to diversify and expand their production and exports. The U.S. GSP, enacted in title V of the Trade Act of 1974 and renewed in the Trade and Tariff Act of 1984, applies to merchandise imported on or after January 1, 1976 and before July 4, 1993. Indicated by the symbol "A" or "A*" in the special subcolumn of column 1, the GSP provides duty-free entry to eligible articles the product of and imported directly from designated beneficiary developing countries, as set forth in general note 3(c)(ii) to the HTS.

The *Caribbean Basin Economic Recovery Act* (CBERA) affords nonreciprocal tariff preferences to developing countries in the Caribbean Basin area to aid their economic development and to di-

versify and expand their production and exports. The CBERA, enacted in title II of Public Law 98-67, implemented by Presidential Proclamation 5133 of November 30, 1983, and amended by the Customs and Trade Act of 1990, applies to merchandise entered, or withdrawn from warehouse for consumption, on or after January 1, 1984; this tariff preference program has no expiration date. Indicated by the symbol "E" or "E*" in the special subcolumn of column 1, the CBERA provides duty-free entry to eligible articles the product of and imported directly from designated countries, as set forth in general note 3(c)(v) to the HTS.

Preferential rates of duty in the special subcolumn of column 1 followed by the symbol "IL" are applicable to products of Israel under the *United States-Israel Free-Trade Area Implementation Act* of 1985, as provided in general note 3(c)(vi) of the HTS. Where no rate of duty is provided for products of Israel in the special subcolumn for a particular provision, the rate of duty in the general subcolumn of column 1 applies.

Preferential rates of duty in the special duty rates subcolumn of column 1 followed by the symbol "CA" are applicable to eligible goods originating in the territory of Canada under the *United States-Canada Free-Trade Agreement*, as provided in general note 3(c)(vii) to the HTS.

Other special tariff treatment applies to particular *products of insular possessions* (general note 3(a)(iv)), goods covered by the *Automotive Products Trade Act* (general note 3(c)(iii) and the *Agreement on Trade in Civil Aircraft* (general note 3(c)(iv)), and *articles imported from freely associated states* (general note 3(c)(viii)).

The *General Agreement on Tariffs and Trade* (GATT) (61 Stat. (pt. 5) A58; 8 UST (pt. 2) 1786) is the multilateral agreement setting forth basic principles governing international trade among its more than 90 signatories. The GATT's main obligations relate to most-favored-nation treatment, the maintenance of scheduled concession rates of duty, and national (nondiscriminatory) treatment for imported products; the GATT also provides the legal framework for customs valuation standards, "escape clause" (emergency) actions, anti-dumping and countervailing duties, and other

measures. Results of GATT-sponsored multilateral tariff negotiations are set forth by way of separate schedules of concessions for each participating contracting party, with the U.S. schedule designated as Schedule XX.

Officially known as "The Arrangement Regarding International Trade in Textiles," the *Multifiber Arrangement* (MFA) provides a framework for the negotiation of bilateral agreements between importing and producing countries, or for unilateral action by importing countries in the absence

of an agreement. These bilateral agreements establish quantitative limits on imports of textiles and apparel, of cotton and other vegetable fibers, wool, man-made fibers and silk blends, in order to prevent market disruption in the importing countries—restrictions that would otherwise be a departure from GATT provisions. The United States has bilateral agreements with more than 30 supplying countries, including the four largest suppliers: China, Hong Kong, the Republic of Korea, and Taiwan.

APPENDIX B
REPORTS OF THE U.S. INTERNATIONAL TRADE COMMISSION
PERTAINING TO TELEVISION RECEIVERS AND PARTS

Tuners from Japan *investigation No. AA1921-64, TC publication 341, 1971.*

Television Receiving Sets from Japan *investigation No. AD-66, TC publication 367, 1971.*

Television Receivers, Radios, and Phonographs *investigation No. TEA-W-77, TC publication 380, 1971.*

Coils and Antennas *investigation No. TEA-F-19, TC publication 385, 1971.*

Deflection Yokes and Horizontal Output Transformers *investigation No. TEA-W-80, TC publication 386, 1971.*

Electronic Receiving Tubes and Transistors *investigation No. TEA-W-89, TC publication 396, 1971.*

Television Receivers and Certain Parts Thereof *investigation No. TEA-I-21, TC publication 436, 1971.*

Television Receivers, Radio Receivers, Phonographs, and Radio-Phonograph Combinations *investigation No. TEA-W-177, TC publication 562, 1973.*

Electronic Receiving Tubes and Mounts *investigation No. TEA-W-217, TC publication 637, 1974.*

Television and Radio Coils *investigation No. TEA-W-227, TC publication 664, 1974.*

Electronic Receiving Tubes and Mounts *investigation No. TEA-W-234, TC publication 679, 1974.*

Electronic Receiving Tubes and Mounts *investigation No. TEA-W-239, TC publication 690, 1974.*

Television Receivers, Color and Monochrome, Assembled or Not Assembled, Finished or Not Finished, and Subassemblies Thereof *investigation No. TA-201-19, USITC publication 808, 1977.*

Color Television Receivers and Subassemblies Thereof *investigation TA-203-6, USITC publication 1068, 1980.*

Television Receiving Sets from Japan *investigation No. 751-TA-2, USITC publication 1153, 1981.*

Color Television Receivers from the Republic of Korea and Taiwan *investigations No. 731-TA-134 and 135 (Final), USITC publication 1514, 1984.*

Liquid Crystal Display Television from Japan *investigation No. 751-TA-14 (Final), USITC publication 2042, 1987.*