Industry & Trade Summary

Office Machines

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This report was prepared principally by

Andrew F. Malison

Electronic Technology and Equipment Branch
Services, Electronics, and Transportation Division

Address all communications to
Secretary to the Commission
United States International Trade Commission
Washington, DC 20436

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 office machines covers the period 1989 through 1994 and represents one of approximately 250 to 300 individual reports to be produced in this series. Listed below are the individual summary reports published to date on the electronics and transportation sectors.

USITC publication number	*Publication date*	*Title*
2430	November 1991	Aircraft, Spacecraft, and Related Equipment
2445	January 1992	Television Receivers and Video Monitors
2505	April 1992	Construction and Mining Equipment
2540	July 1992	Photographic Supplies
2648	July 1993	Measuring, Testing, Controlling, and Analyzing Instruments
2674	September 1993	Medical Goods
2708	December 1993	Semiconductors
2728	February 1994	Capacitors
2746	March 1994	Aircraft and Reaction Engines, Other Gas Turbines, and Parts
2751	March 1994	Certain Motor-Vehicle Parts and Accessories
2820	October 1994	Telecommunications Equipment
2821	October 1994	Computers, Peripherals, and Computer Components
2822	October 1994	Audio and Video Recording and Reproducing Equipment
2849	January 1995	Motorcycles and Certain Other Vehicles
2850	January 1995	Computer Software and Other Recorded Media
2851	February 1995	Optical Fiber, Cable, and Bundles
2877	May 1995	Television Picture Tubes and Other Cathode-Ray Tubes
2879	May 1995	Unrecorded Media
2950	March 1996	Office Machines

[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.

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INTRODUCTION

The office machine industry is a mature industry undergoing significant change because of technological advances in digital electronics and the globalization of electronics production. This industry accounts for about 8 percent of U.S. trade in electronics and 4 percent of U.S. production of electronics.[1] It manufactures many products used by individuals, businesses, governments, and educational institutions. Most of these products fall into one of the following functional groups: (1) copiers, (2) mail-handling machines, (3) calculating machines, (4) word processors (WPs) and typewriters, and (5) coin- and currency-handling equipment. Computers are not included in this industry. Figure 1 illustrates the relative size of these groups in terms of U.S. shipments and imports. This report examines the office machine industry during 1989-94 and includes discussions on U.S. and foreign office machine industries, tariff and nontariff trade measures, and U.S. industry performance in domestic and foreign markets.

Copiers accounted for 62 percent of U.S. office machine shipments in 1994. Their function is to duplicate documents and their features and capacities range widely. Copiers are distinguished by the number of pages that they can duplicate per minute. Personal or low-end copiers duplicate up to 10 pages per minute and are primarily for personal or small-office use. Convenience or mid-range copiers duplicate from 10 to 45 pages per minute and are used by most organizations with more than a few workers. These machines usually have features such as collating, stapling, sorting, and two-sided copying. High-end copiers duplicate from 46 to more than 90 pages per minute and are used principally by copy service firms or by large organizations with duplicating centers. In 1994 personal copiers were projected to account for about 27 percent of the U.S. copier market, convenience copiers for about 58 percent of this market, and high-end copiers for the remaining 14 percent.[2]

Mail-handling equipment accounted for about 14 percent of U.S. office machine shipments in 1994. These machines are used mainly by the U.S. Postal Service, Federal Express Corp., DHL Airways Corp., and other major mail handlers to sort, mark, count, scan, and otherwise process large volumes of mail. Businesses and other organizations also use mail-handling equipment such as postage-franking machines that can place postage stamps quickly on letters and simplify the purchase and tracking of these stamps. Mailing machines account for more than 70 percent of U.S. shipments of mail-handling equipment,[3] envelope-handling machines account for 15 percent of these shipments,[4] and the remainder is distributed evenly between addressing, collating, and forms-handling equipment.[5]

Calculating machines accounted for about 7 percent of total U.S. office machine shipments in 1994. More than 90 percent of these machines were point-of-sale (POS) terminals and most of the remainder were cash registers and calculators. POS terminals and cash registers are used in retail operations to handle cash receipts and maintain a record of transactions for accounting purposes. These devices range from stand-alone cash registers to sophisticated electronic devices that scan product bar-codes, verify credit availability, and exchange information with mainframe computers. Calculators are used by students, office workers, and scientists for quick calculations. Calculators, by virtue of their small size, can be hand-held and carried by the user for making quick calculations such as comparing prices while shopping.

In 1994 WPs accounted for about 5 percent of U.S. office machine shipments and typewriters for less than 1 percent of these shipments. WPs and typewriters are used principally for the composition and correction of text. Typewriters are used to compose short documents, fill out forms, and address envelopes as they are especially versatile for these simple tasks. On the other hand, WPs are used to compose and edit longer documents because they have more extensive

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[1] U.S. trade data in this summary are based on official data of the U.S. Department of Commerce (DOC) and shipment data are estimated by USITC staff based on information contained in several publications of the DOC's Bureau of the Census. Appendix B lists these publications as well as the principal products included in this summary, their Standard Industrial Classification product code, and share of U.S. shipments.

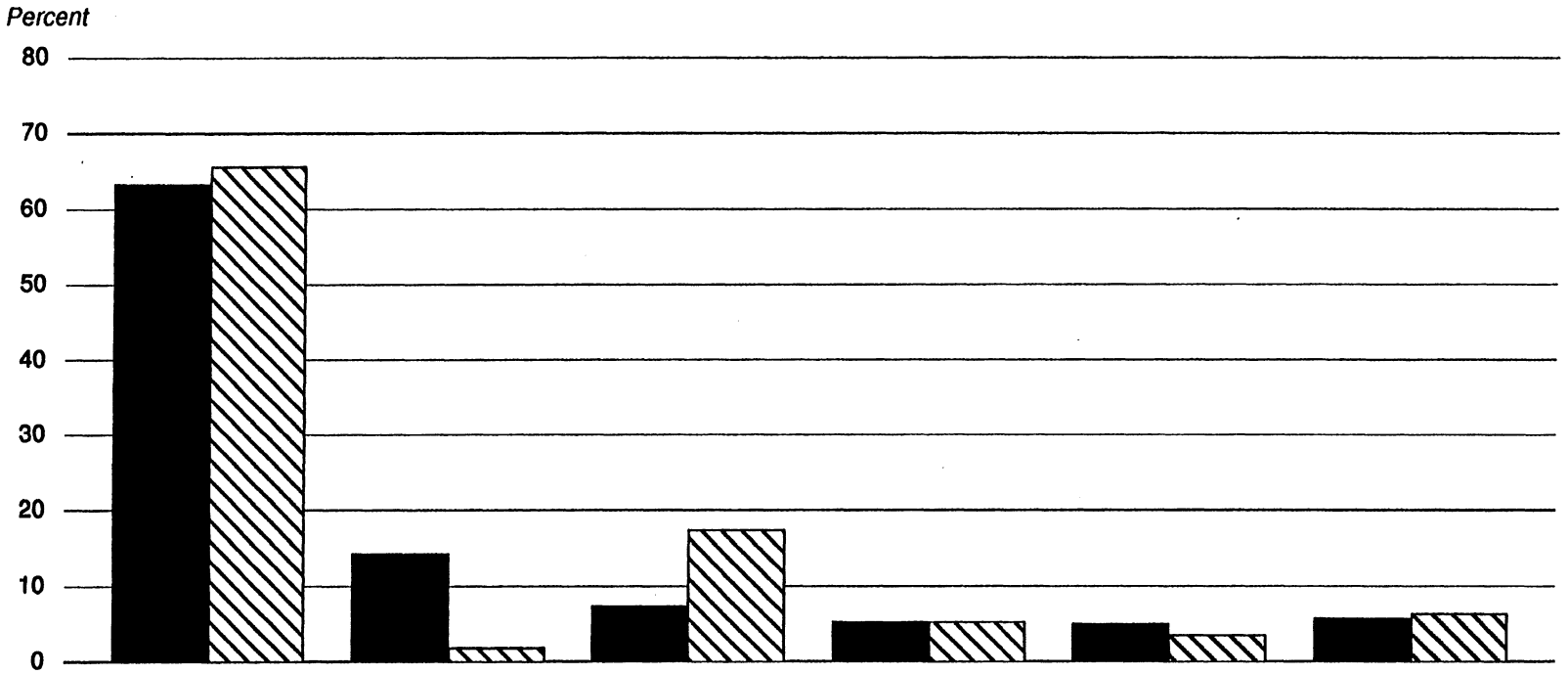
[2] Forecast from Dataquest, *Copiers North America* (San Jose, CA: Dataquest, Apr. 26, 1993), p. A-2.

[3] Mailing machines principally consist of mail-sorting machinery, mail-typing machinery, mail-canceling machinery, and stamp affixers.

[4] Envelope-handling machines primarily include envelope opening and sealing machines and letter folding and inserting machines.

[5] Addressing equipment primarily includes labeling machines, addressing-plate embossers, and addresser-printer machines. Forms-handling equipment includes busters, decollators, and imprinters.

Figure 1
Office machines: U.S. shipments and imports, by product groups, 1994



	Copiers	Mail-handling	Calculating	WP, typewriter	Coin, currency	Other machines
Shipments	62.3%	14.3%	7.4%	5.3%	5.0%	5.8%
Imports	65.6%	1.8%	17.4%	5.3%	3.5%	6.4%

Source: USITC staff estimates based on official statistics of the U.S. Department of Commerce and Elsevier Advanced Technology, Oxford, United Kingdom.

document editing capabilities than typewriters and can store documents on floppy disks.

Coin- and currency-handling machines accounted for about 5 percent of U.S. office machine shipments in 1994 and are mostly automated teller machines (ATMs). ATMs are used primarily in banks and public locations to provide credit and debit card users with access to funds and other banking services. Banks link their ATMs to offer banking services over wide geographical areas, and increasingly groups of banks and other financial institutions are linking their ATM networks further to expand service coverage. Other than ATMs, coin- and currency-handling machines also include machines for sorting, dispensing, counting, wrapping, and changing money.

Machines other than those included in the functional product groups discussed above together accounted for about 6 percent of U.S. office machine shipments in 1994. Most of these products are time recording and stamping machines, check-handling machines, perforating and stapling machines, ticket issuing and counting machines, and paper cutters and shredders. Dictating, voting, and shorthand writing machines are also grouped with other office machines.

This summary distinguishes among low-end, mid-range, and high-end office machines. This distinction is useful because the factors governing the industry differ in each of these product segments. Compared to high-end and, to a lesser extent, mid-range office machines, low-end office machines are low-value products that compete primarily on price. Also, they enjoy large markets and are based on technological knowledge that is accessible to most major producers in the industry. Low-end office machines include personal copiers, calculating machines, WPs, and typewriters.

Compared to low-end, and to a lesser extent, mid-range office machines, high-end office machines are high-value items with large profit margins. Also, they have small markets and are based on technological knowledge that is inaccessible to most producers in the industry because it is specialized or enjoys patent protection. These products also generally require a higher degree of sophisticated servicing than lower end machines. High-end office machines often become mid-range and even low-end machines as their markets grow, patent terms expire, or knowledge becomes more widespread.

The manufacture of copiers and other office machines primarily consists of assembling parts and subassemblies whose manufacture often is subcontracted by major office machine producers.[6] For many of these products, especially low-end office machines, producers have automated substantial portions of their production process. Automated production became more practical as designs were made modular, as quantities increased, and as integrated circuits (ICs) and automatic insertion machinery were developed for use in manufacturing. After manufacture, product testing is conducted to ensure that each item performs to standards.

The principal raw materials used in making office machines are metals and plastics. Parts made of these materials are used in constructing the frame and housing for most of these machines. ICs and other electronic components are used to process and display information in most office machines including copiers, ATMs, POS terminals, and WPs. In fact, electronic components increasingly are performing the essential functions of office machines such as copying in digital copiers or calculating in calculating machines. Many mechanical and electromechanical parts and components, such as belts and small electric motors, are also used in office machines. For example, in copiers these components transport the paper used for making copies through the machine. Similarly, small electric motors are employed in printing and floppy drive mechanisms in WPs.

U.S. INDUSTRY PROFILE

Industry Structure

The office machine industry consists of about 250 firms dispersed throughout the United States.[7] It is a highly concentrated industry with only a few firms dominating production in each product group. Xerox

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[6] U.S. industry representative, telephone interview by USITC staff, Mar. 1995.

[7] Data in this section on number of firms and workers are USITC staff estimates based on information contained in DOC, Bureau of the Census, *Census of Manufactures, Medical Instruments; Ophthalmic Goods; Photographic Equipment; Clocks, Watches, and Watchcases*, MC87-I-38B and MC92-I-35F(P), Mar. 1990 and Oct. 1994; and DOC, Bureau of the Census, *Census of Manufactures, Office and Computing Machines*, MC87-I-35F and MC92-I-38B(P), June 1990 and Nov. 1994.

Corp. accounts for 65 percent of U.S. copier production and Eastman Kodak Co. and Canon Inc. account for most of the remainder. Pitney Bowes Inc. produces about 90 percent of U.S. mail-handling equipment. Diebold Incorporated manufactures about half of U.S.-produced coin- and currency-handling machines, followed by American Telephone and Telegraph Global Information Systems (AT&T GIS) and Fagots, Ltd. AT&T GIS and International Business Machines Corp. (IBM) dominate U.S. production of POS terminals, and Texas Instruments (TI) and Hewlett Packard account for all U.S. calculator production. Similarly, only two firms, Brother Industries (USA) Inc. and Lexmark Corp., manufacture most U.S.-made WPs and typewriters (see figure 2).[8] From 1989 to 1994 the number of firms in the industry fell by 17 percent, but industry concentration did not change appreciably. During this period many smaller firms left this mature industry but the number of major producers and their shares of production remained largely unchanged. Figure 3 lists the principal materials, producer types, major products, and principal consumers of this industry.

U.S. office machine industry workers, which in 1992 numbered about 46,000, are among the most skilled and productive manufacturing workers. In 1992, office machine workers produced about $125 in value added per hour, more than twice the average of all manufacturing workers.[9] Only 26 percent of office machine workers were engaged in production in 1992 (the latest year for which data are available), versus 65 percent of total U.S. workers. In that same year, about 48 percent of office machine workers were managers, administrative, professional, paraprofessional, and technical workers, compared to 19 percent for all manufacturing industries. Sales, clerical, and service workers accounted for the remaining 26 percent.[10]

U.S. office machine firms employ few production workers because they are largely service companies that subcontract much of their production to foreign firms and affiliates. Services, mainly leasing, after sales systems support, and facilities management, account for close to half of many office machine producers' revenues. For example, in 1993 services accounted for 45 percent of Xerox's revenues, 41 percent of Diebold's revenues, and about half of AT&T GIS's revenues.[11] Office machine services are considered an attractive business because, compared to equipment sales, they are more profitable and less sensitive to changes in the economic environment. U.S. producers have a competitive advantage in providing such services, particularly high-end machine services that require sophisticated or extensive maintenance operations.[12]

Distribution

Office machines are sold by dealers, value-added resellers, and directly by manufacturers to end users. Most low-end and many mid-range office machines are distributed through dealers.[13] Dealers, many of which are supplied by wholesalers, usually have an advantage in making small shipments and providing support to small and mid-sized local firms. High-end and, to a lesser extent, mid-range office machines usually are supplied directly by the manufacturer or by value-added resellers. These suppliers of higher end machines generally concentrate on large firms with more than $70 million in annual sales. Major office machine manufacturers have an advantage in servicing large customers because they alone can provide the national and sometimes international support required by these customers. Value-added resellers provide office machines as part of installations that often include specialized software, networks, and other products and services that are unavailable from office machine

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[8] Shares of U.S. production in this section are estimates provided by U.S. industry representatives, telephone interviews by USITC staff, Feb. and Mar. 1995.

[9] This figure was $145 for the industry's calculating machine segment and $83 for the industry's other segments, excluding the copier segment. USITC staff estimates based on DOC, *Census of Manufactures, Medical Instruments*, Oct. 1994; DOC, *Census of Manufactures, Office and Computing Machines*, Nov. 1994; and DOC, Bureau of the Census, *1992 Census of Manufactures, Summary*, MC92-SUM-1(P), Oct. 1994.

[10] Estimated by the USITC staff based on data reported (continued...)

[10] (...continued)
at the 3-digit SIC level in U.S. Department of Labor, Bureau of Labor Statistics, *Occupational Employment in Manufacturing Industries*, 1992.

[11] Data on Xerox and Diebold are taken from David R. Cohen, "Office Equipment & Supplies Industry," *Value Line*, July 29, 1994, pp. 1118 and 1137. Data on AT&T GIS were provided by industry representatives during interviews by USITC staff, Mar. 1995.

[12] U.S. industry representatives, telephone interviews by USITC staff, Mar. 1995.

[13] National Office Machine Dealers Association (NOMDA), "Product Shift Report" (NOMDA, Kansas City, MO, 1991).

Figure 2
Office machines: Major U.S. producers and their headquarter-country

Copiers	WPs & typewriters	Calculating machines	Mail-handling machines	Coin- & currency-handling machines
• Xerox-United States • Kodak-United States • Canon-Japan	• Lexmark-United States • Brother-Japan	• AT&T GIS-United States • IBM-United States • Hewlett Packard-United States • Texas Instruments-United States	• Pitney Bowes-United States • Friden Neopost Inc.-United States • Ascom Hasler Mailing Systems Inc.-Switzerland	• Diebold-United States • AT&T GIS-United States • Fagots-Japan

Source: USITC staff.

Figure 3
U.S. office machines industry: Principal materials, producer types, major products, and principal consumers

Principal materials	Producer types	Major products	Principal consumers
• Plastics	• Photographic/document management	• Copiers	• Business offices
• Fabricated metal articles	• Electronic/computer	• Mail-handling machines	• Government
• Electronic components	• Printer/typewriter	• Calculating machines	• Educational institutions
		• WPs & typewriters	• Households
		• Coin- & currency-handling machines	

Source: USITC staff.

manufacturers. These manufacturers and value-added resellers often work together with large customers that need both national or international equipment support and specialized equipment installations.[14]

During 1989-94 the number of office machine dealers decreased substantially because of competition from large dealers known as superstores or chain discounters and mega-dealer networks. Starting in the late 1980s, independent dealers, which account for most dealers, came under growing price pressures from superstores such as Office Depot and Staples and mega-dealer networks such as those owned by Alco Standard Corp. and Danka Inc. By virtue of their great purchasing power, these large dealers receive deep manufacturer discounts that are passed on to customers, drawing business away from independent dealers. As a result, many independent dealers have either gone out of business, been bought out by dealer networks, or formed buying groups to develop greater purchasing power.[15] In 1993 there were about 4,000 office machine dealers with annual sales under $10 million and about 450 with annual sales over $10 million. BIS Strategic Decisions, a market forecasting firm, estimates that by 1998 there will only be about 2,500 such dealers with annual sales under $10 million but 925 with annual sales over $10 million.[16] By 1994 superstores, whose initial customer base was mainly small businesses, were entering the corporate market by expanding into the catalog delivery business and acquiring contract stationers, which focus on selling business supplies to large businesses. Also, by 1994 the commanding purchasing power of these superstores reportedly had reduced notably the margins of two major office machine firms, a manufacturer and a wholesaler.[17]

Pricing

During 1989-94 the price of most office equipment fell as did the price of most other electronics-intensive equipment. This fall was made possible by technological advances and a streamlining of production that allowed manufacturers to incorporate more digital features into their equipment at a lower price. The industry's revenues did not fall as much as its prices because the downward swing in prices was offset by customers asking for equipment with more features.[18] Also, copier prices, particularly prices of mid-range copiers whose production is dominated by Japanese producers, did not fall. Prices for these products have increased twice a year since 1991, as the dollar slid against the yen. Most of the copier price increases reportedly were absorbed by consumers and smaller dealers with limited purchasing power.[19]

Producers in the industry generally can command higher prices by providing value-added services. For example, Diebold can charge more on its ATMs because it is the only firm that provides not only the equipment but also the software and service required by banks to operate their ATM networks.[20] Likewise, Xerox and Kodak are considered to be insulated from much price competition in their high-end offerings because they are the only providers of these copiers that can provide national service. On the other hand, price competition in the lower end product segments of the market is so intense that equipment is sold often to attract other business. Most notably, many small dealers sell copiers to generate service sales because their operating margins are only about 22 percent of revenues on this equipment but 40 percent on these services.[21]

Structural changes

During 1989-94 the structure of the U.S. office machine industry changed in reaction to sluggish demand, technological innovations, and globalization. Employment dropped about 27 percent as producers generally increased their transfer of low-skilled production abroad and focused on their core competencies. Most notably, in 1992 Xerox announced a 10,000 worker cutback and AT&T

[14] U.S. industry representatives, telephone interviews by USITC staff, Mar. 1995.

[15] Frank G. Cannala, "Copiers: Still an Important Source of Revenue in '95," *Business Technology Solutions*, Jan. 1995, p. 19.

[16] These data on dealers include only office machine dealers that carry copiers and/or facsimile machines. BIS Strategic Decisions, interview by USITC staff, Mar. 1995.

[17] David R. Cohen, "Office Equipment & Supplies Industry," *Value Line*, July 29, 1994, p. 1115.

[18] For more information on the impact of technology on prices in advanced technology electronics industries see Neil Goss, Peter Coy, and Otis Porter, "The Technology Paradox," *Business Week*, Mar. 6, 1995, pp. 76-84.

[19] BIS Strategic Decisions, telephone interview by USITC staff, Mar. 1995.

[20] U.S. industry representative, telephone interview by USITC staff, Apr. 1995.

[21] BIS Strategic Decisions, telephone interview by USITC staff, Mar. 1995.

announced a 12,000 worker cutback. Also, Smith Corona Corp., a major producer of WPs and typewriters, moved its U.S. typewriter manufacturing from Cortland, NY to Mexico to reduce labor costs.[22]

Xerox divested its equipment financing and leasing operations and increased its subcontracting of subassemblies and copiers. In turn, the company leveraged its distribution capabilities by expanding into the mid-range copier business. In addition, it leveraged its document management technology by establishing a joint venture with Interleaf, a document publishing software firm, to offer *Docutec*.[23] Similarly, AT&T GIS, which was formed in September 1991 through a buy-out of NCR Corp. by AT&T, scaled back its U.S. manufacturing while leveraging NCR's competency in cash register and data entry technologies with AT&T's knowledge of networking, telecommunications, and computing.[24] The consolidation and restructuring in the office machine industry during 1989-94 increased productivity in the office machine industry by about 27 percent, as measured by the value of shipments per employee.[25]

Technology and capital expenditures

Since the early 1980s, office machines increasingly have incorporated digital technologies, sharing more of the characteristics and functions of computer, networking, and telecommunications equipment. Digital technologies, which consist mainly of ICs and software, provide office machines with so-called "intelligent" features such as the capability for POS terminals and cash registers to exchange price, sales, and credit information with remote computers.[26] Usually, more advanced office machines are more digital intensive.

The use of digital technologies in office machines during 1989-94 intensified competition in the industry. Namely, it increased substitutability between office machines and other electronic equipment and between high-end and low-end office machines. For example, copiers became more substitutable with facsimile machines and computer printers as more were shipped with multifunctional capabilities that allowed them to double up as computer printers and/or facsimile machines. Similarly, high-end copiers replaced publishing machines, as they increasingly incorporated publishing system features such as print-on-demand, which allows the production of short runs of bound books more quickly and economically than publishing systems. Technological changes also allowed PCs with specialized software to emulate the functions of WPs, typewriters, calculating machines, and certain mail-handling machines. In addition, technological advances allowed such things as the equipping of personal copiers with many advanced features formerly found only in mid-range copiers.

As technological barriers fell during 1989-94, producers generally sought to broaden their product lines to tap into niche markets and defend their traditional markets. For example, as discussed earlier, Xerox expanded its line of copiers to include more mid-range copiers.[27] Similarly, AT&T GIS embarked on a strategy to increase its sales in the low-end POS terminal market from 10 percent to more than 20 percent.[28] Also, Diebold began to offer universities integrated access management networks that combine ATM, POS, and security devices. These networks allow students to pay for meals and books, buy tickets to special events, check out library books, cash checks, and get into dorms, all using the same card.[29]

Overall capital expenditures in the office machine industry remained unchanged in real terms during

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[22] The reasons Smith Corona gave for the move were lower labor rates in Mexico, the coming North American Free Trade Agreement (NAFTA), aggressive competition from foreign firms, and the lack of enforcement of U.S. trade laws. Keith Bradsher, "Smith Corona Plant Mexico Bound," *New York Times*, July 22, 1992, p. D11; "Smith Corona closes N.Y. plant, will move operation to Mexico," *Washington Times*, July 22, 1992, p. C1; and "Free trade hits N.Y. town as Smith Corona pulls out," *Washington Times*, Aug. 3, 1992, p. B4.

[23] *Docutec* is an integrated publishing and reproduction system that has become one of Xerox's best selling products.

[24] U.S. industry representative, telephone interview by USITC staff, Mar. 1995.

[25] Estimates based on information in DOC, *Census of Manufactures, Medical Instruments*, Oct. 1994, and DOC, *Census of Manufactures, Office and Computing Machines*, Nov. 1994.

[26] "A Hot Time for Office Machines," *Modern Office Technology*, Sept. 1992, p. 44.

[27] U.S. industry representative, telephone interview by USITC staff, Mar. 1995.

[28] Ibid.

[29] "Diebold Plans Major Push in Market for Debit-Card Point of Sale Terminal Market," *American-Banker*, Sept. 28, 1993, p. 16. Also see, "On Campus: Student Cards Do it All," *Barron's*, Nov. 15, 1993, p. 47.

1989-94.[30] However, such expenditures varied among the industry's product segments. Most notably, those segments producing high-end copiers, ATM machines, and other high-end products experienced growth in capital outlays. For example, Xerox increased its capital expenditures about 8 percent during this period and Diebold more than doubled such expenditures. In contrast, capital expenditures in segments producing most other office machines generally declined.[31] Data on R&D expenditures for this industry are unavailable, but industry interviews suggest that higher end products are more R&D intensive than lower end products, and that the industry's overall R&D expenditures did not change appreciably. However, R&D continued to become more important in the higher end product segments of the industry as these products became more digital intensive.[32]

Globalization

Office machine producers are generally highly globalized, maintaining affiliates and alliances with foreign firms for manufacturing, R&D, and distribution. For example, Xerox has sales and distribution subsidiaries worldwide except in Asia, which it serves through a joint venture, Fuji-Xerox, with the Japanese firm Fuji. Most major office machine producers maintain manufacturing and assembly facilities in the world's major markets. Such a presence is important to serve these markets effectively and, sometimes, avoid tariff and nontariff barriers (See Foreign Trade Measures section below). For example, AT&T GIS manufactures in Japan and Germany. Similarly, the Japanese firm Canon and the Swiss firm Ascom Hasler have affiliates that manufacture in the United States.

U.S. office machine producers also have and are expanding affiliates or joint ventures in countries with low wages to manufacture their more labor-intensive subassemblies. For example, Diebold is scheduled to open manufacturing operations in 1995 and, as discussed before, Smith Corona recently moved its U.S. labor-intensive production to Mexico. Many U.S. producers also rely heavily on Japanese producers that have an advantage in high-volume manufacturing. For example, during 1989-94 Xerox and Kodak entered arrangements with Japanese producers to source mid-range copiers, whose production is dominated by these Japanese firms. Such arrangements became important to Xerox and Kodak as technological advances made mid-range copiers increasingly attractive in the high-end copier market, which these firms dominate. Japanese producers entered these arrangements to expand their products' distribution in the United States.[33]

Globalization is considered necessary for most office machine producers because many of their customers are multinationals that prefer to work with the same supplier worldwide. Globalization can also provide a significant advantage to manufacturers of lower end products such as calculators and cash registers that benefit from economies of scale. Extensive presence abroad is also necessary for many producers because most large foreign office machine markets require manufacturers to adapt their products to local languages, regulations, and standards. For example, ATM providers need to adapt their software and equipment to conform to local accounting, telecommunications, and banking regulations and standards.[34]

Consumer Characteristics and Factors Affecting Demand

Most products covered in this summary are used by industry, government, and academic institutions in everyday business. For example, almost every office uses copiers, calculators, and typewriters. Also, most retail operations use cash registers, POS terminals, and coin- and currency-handling machines, and many households have WPs, typewriters, and calculators. More specialized articles, such as mail-handling machines, serve only a few organizations.

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[30] USITC staff estimates based on data in leading industry firms' annual reports and DOC, *Census of Manufactures, Office and Computing Machines*, Nov. 1994.

[31] Capital expenditure data on these segments are only available through 1992. From 1987 to 1992 capital expenditures of manufacturers of calculating machines classified in SIC 3578 declined from $40 million to $26 million. Such expenditures of producers of other office machines (excluding copiers) classified in SIC 3579 declined from $125 million to $115 million.

[32] U.S. industry representatives, telephone interviews by USITC staff, Mar. 1995.

[33] Dataquest, *Copiers North America* (San Jose, CA, Dataquest, Apr. 26, 1993), p. 6-4.

[34] U.S. industry representatives, telephone interviews by USITC staff, Feb. and Mar. 1995.

Price, features, availability of service, and compatibility with other equipment are among the primary factors influencing demand. The sensitivity to these factors differs by market because markets generally have unique software, ruggedness, and networking requirements. These markets include food and drug producers, general merchandise producers, and hospitality providers. Similarly, the importance of the factors that influence demand varies by product. Low-end and, to a lesser extent, mid-range office machines usually are more sensitive to price than to customer service. Features are important in all segments, with customers often forgoing a price savings in favor of choosing the latest features within a product line.

Compatibility with other equipment increasingly is important in all segments of the market. Such compatibility gives users flexibility in upgrading their systems and choosing service and replacement parts suppliers. Moreover, compatibility is necessary to integrate office machines with other electronic equipment. This integration is attractive particularly because it can increase productivity greatly. Such compatibility, for example, allows upgrading the computer hardware used in a point-of-sales network without having to change the POS terminals. Similarly, this compatibility allows transactions of an ATM network to be integrated with a bank's accounting computer and with other ATM networks.

Some product characteristics affecting demand for copiers include copy volume (the number of copies the machine is designed to produce in a month), document handling features (e.g., collating and stapling), and machine speed (number of copies per minute). Small offices and people who work out of their homes generally require only desktop copiers that have low copy volume, few document handling features, and reduced speeds. On the other hand, copy service print shops need high-volume, high-speed copiers to meet the demands of their customers for quantity copying and rapid turnarounds. During 1989-94 copier volumes, document handling features, and machine speeds generally rose for all types of copiers. During this period technological innovations generally reduced the price of these capabilities, and customers expected their new copier purchases to provide improved performance over their previous purchases.

Color copiers began to make a significant impact in the market during 1989-94 as color copying became more prevalent in advertising, insurance, education, architecture and design.[35] Canon, Xerox, and Kodak are the leading producers of color copying machines and other manufacturers, such as Minolta Camera Co., Ricoh Company Ltd., and Sharp Corporation, also have models. A reason for the increasing sales of color copiers is that color increases document readership by 32 percent and retention by 26 percent.[36]

During 1989-94 substitutes increasingly affected the demand for many office machines. For example, as discussed earlier facsimile machines can be used to make small quantities of copies and, as a result, increasingly are preferred for this function over personal copiers. Similarly, PCs can function as calculating machines, WPs, and typewriters and compete for these office machines' customers. Most notably, over the last decade PCs have become less expensive and, as a result, an increasingly popular substitute for WPs and typewriters. PCs generally are preferred to WPs and typewriters because they can be used not only for composing and correcting text but also for spreadsheet, database, and other software applications.[37]

Differences in product prices and features of the industry's main vendors are small, particularly for lower end products. As a result, profit margins in the industry are usually small and customer satisfaction, guarantees, extended warranties, and distribution have become more important to competing.[38]

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[35] "A Hot Time for Office Machines," *Modern Office Technology*, Sept. 1992, pp. 44-45.

[36] Julie Harnett, "Potential of Color," *Financial Times*, Oct. 8, 1991, sec. 3, p. 4.

[37] "Prospects Diminished By Rise of PCs and Word Processors," *Electronics*, Jan. 1992, pp. 472-504.

[38] Jon Peepper, "Office Machines: More for Less," *Nation's Business*, Feb. 1992, p. 44.

FOREIGN INDUSTRY PROFILE[39]

The United States, Japan, and Western Europe are the world's major office machine producers. During 1989-94, on average the United States and Japan each accounted for about 30 percent of the world's office machine production in value terms and Western Europe for 23 percent of this production (see figure 4). Most of the remainder was produced by Asian countries. In 1994, members of the Association of South East Asian Nations (ASEAN)[40] accounted for 4.4 percent of the world's office machine production, China for 3.5 percent, Brazil for 2.2 percent, the Republic of Korea (Korea) for 1.6 percent, Hong Kong for 1.6 percent, and Taiwan for 1 percent (see figure 5). The world's production of office machines was about $29.1 billion in 1989 and declined by 2 percent to $28.4 billion in 1994.

During 1989-94, the combined U.S. and Japanese share of world office machine production fell slightly and production in Western Europe and other areas rose slightly (see figure 4). Most of the growth in Western Europe was due to an expansion of European copier producers, mainly subsidiaries of Japanese and U.S. firms seeking to serve the European market better and to avoid tariff and nontariff barriers to imports.[41] The decline in Japan's share of world production during 1989-94 was due largely to weak demand for these products in Japan, the strong yen, and weak demand in Western Europe, the second largest export market of Japanese office machine producers. Japanese office machine production also fell because some of this production was transferred to Western Europe, China, and ASEAN countries.[42] As shown in figure 5, China and these ASEAN countries accounted for most of the growth in the world's office machine production during 1989-94.

Japan

Japan is the world's major net exporter of office machines. Most of these exports are copiers, especially low-end and middle-range copiers. During 1989-94, Japanese office machine production declined by $900 million (16 percent) to $4.8 billion. This drop primarily was accounted for by weak domestic demand and the worldwide displacement of WPs and typewriters by PCs. The drop in Japanese production was also due to a decline in the production of cash registers and calculators. As wages in Japan and the yen rose during 1989-94, these products became more competitively manufactured in ASEAN countries, China, and other low-wage areas. These declines in production were offset partially by a 6-percent rise in Japanese copier production.[43]

The transfer of production of office machines from Japan is reflected in the number of Japanese affiliates producing office machines and other industrial equipment outside Japan.[44] From 1989 to 1993 the number of these affiliates in all of Asia grew from 61 to 81, with Malaysia and China accounting for most of this rise. During this period the number of these affiliates in Europe rose from 24 to 43 and in the United States from 38 to 43.[45]

Japan's office machine industry has a significantly different structure than its U.S. counterpart. Most notably, concentration in its principal product segments is low. Also, its producers are highly diversified firms that produce electronic and optical components and equipment for both internal consumption and outside sales. The principal Japanese office machine producers are Canon, Fuji-Xerox, Minolta, Ricoh, Konica, Mita,

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[39] Except where otherwise noted, production data in this section are USITC staff estimates based on data from Elsevier Advanced Technology, *Year Book of World Electronics Data* (Oxford, United Kingdom: Elsevier Science Publishing, Ltd., 1989 to 1994 issues). These data are not fully comparable with DOC data used elsewhere in this report because they exclude parts and are in current dollars for 1989-92 and projected in constant 1992-dollars for 1993 and 1994.

[40] Members of ASEAN are Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam.

[41] Industry representatives, telephone interviews by USITC staff, Mar. 1995.

[42] Electronic Industries Association of Japan (EIAJ), (continued...)

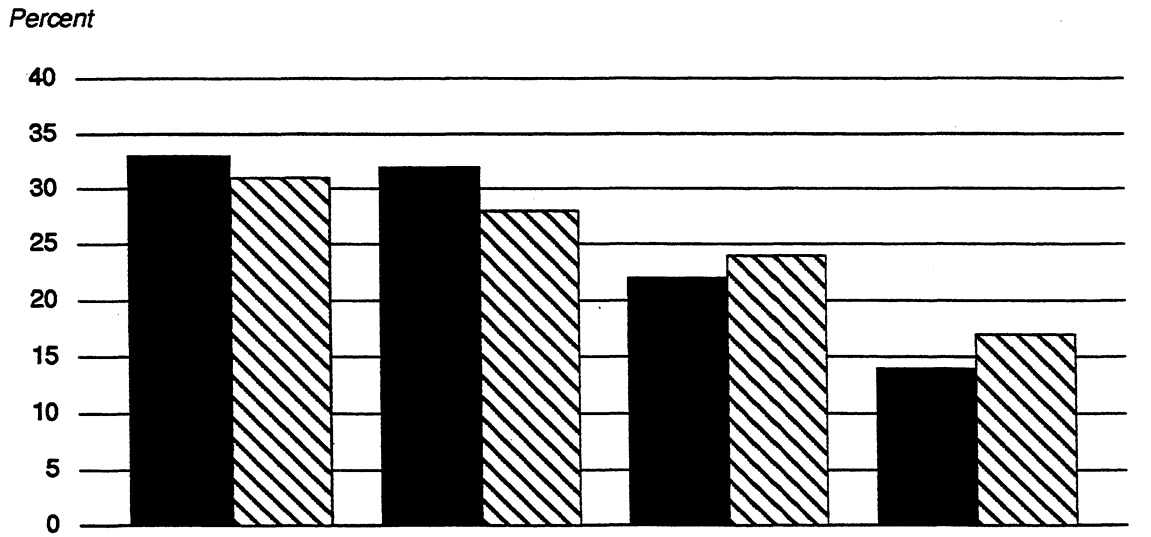
[42] (...continued)
Perspective (Tokyo: EIAJ, 1993), pp. 6 and 8, and *Japan Electronics Almanac '93/'94* (Tokyo: Dempa Publications, Inc., 1993), p. 95.

[43] EIAJ, *Facts and Figures on the Japanese Electronics Industry* (Tokyo: EIAJ, 1989), pp. 23-28, and EIAJ, *Facts and Figures on the Japanese Electronics Industry* (Tokyo: EIAJ, 1994), pp. 28-33.

[44] These producers include producers of computers and computer peripherals.

[45] EIAJ, *Facts and Figures*, 1989, p. 121, and EIAJ, *Facts and Figures*, 1994, p. 21.

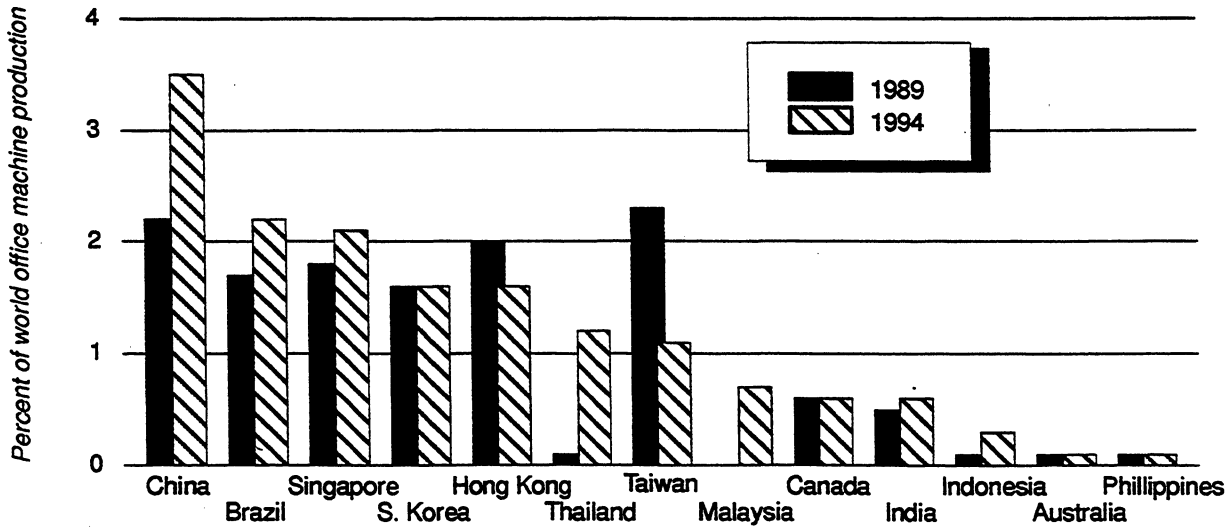
Figure 4
Office machines: Share of world production, by major producing regions, 1989 and 1994



	United States	Japan	West. Europe	Other
1989	33%	32%	22%	14%
1994	31%	28%	24%	17%

Source: Elsevier Advanced Technology, Oxford, United Kingdom.

Figure 5
Office machines: Share of world production, by secondary producing countries, 1989 and 1994



Source: Elsevier Advanced Technology, Oxford, United Kingdom.

Sharp, and Toshiba, all major world suppliers of electronic equipment and components.

Like the United States, Japan exports a large portion of its office machine production. However, unlike the United States, Japan is not a large importer of office machines. In 1994, for example, Japan exported 34 percent of the value of its office machine production but imported only 2 percent of the value of its consumption of these machines.[46] That same year, the United States exported 20 percent of the value of its office machine production and imported 45 percent of the value of its consumption of these machines.

Japan is considered to have an advantage over the United States and other areas in manufacturing office machines. This advantage is attributed in part to several technological strengths. A 1991 report of the Japanese Technology Transfer Evaluation Center (JTEC) found that Japanese research and development in a number of opto- and microelectronics technologies, which are critical to the development of advanced office machines, surpassed that of the United States, placing Japan ahead in component development. The report also found Japan ahead in transferring technology from laboratory to pilot plant production. This capability is considered to be particularly important for reducing time-to-market and can provide a significant competitive advantage, particularly in lower end product lines. The report also indicated that despite these advantages, Japan trailed the United States in systems development, which is especially important for competing in the market for high-end office machines.[47]

Western Europe

From 1989 to 1994 Western Europe's office machine production grew by about $500 million (8 percent) to $6.7 billion in nominal terms but fell slightly in real value terms. This fall was due principally to a severe recession in Western Europe that weakened demand for these office machines. Western Europe's largest indigenous office machine suppliers are Siemens AG of Germany, Ing. C. Olivetti & C. S.p.A. of Italy, Groupe Bull of France, and Fagots/ICL of the United Kingdom. All these companies are highly diversified and vertically integrated multinational electronics firms. As in the United States, each sector of the office machine industry in Western Europe is highly concentrated.

Affiliates of U.S. and Japanese office machine producers dominate the production of office machines in Western Europe. In 1990, U.S. affiliates accounted for 24 percent of this production and Japanese affiliates for 29 percent of this production.[48] Since 1990, these shares have increased as the number of Japanese and, to a lesser extent, U.S. affiliates of office machine producers has grown.[49] Western Europe is an attractive site to these foreign-based producers for manufacturing office machines because it has a good infrastructure and a skilled workforce. Also, Western Europe is a major market for office equipment. Proximity to this market is particularly important because it eases the adaptation of equipment to the continent's many languages and standards. Some firms also produce in Western Europe to avoid tariff and nontariff barriers discussed later in this report.[50] The continent's largest U.S.-based office machine manufacturer is Xerox. Major Japanese-based manufacturers are Canon and Ricoh.[51]

Indigenous European office machine producers are generally regarded as less competitive than U.S. office machine producers and their affiliates because they lag in the software and digital technologies that are necessary for innovating in the office machine industry. This lag is reflected in recent findings of the National Critical Technologies Review Group, which assesses the United States' relative position in critical technologies. In particular, the group found that between 1990 and 1994 the United States led Western Europe and, to a lesser extent, Japan in most information and manufacturing critical technologies.[52] Compared to Japanese and U.S. firms, indigenous European firms were also weak in integrating research

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[46] EIAJ, *Facts and Figures*, 1994, pp. 11-22.

[47] Patricia N. Rogers, ed., *Japanese Technology Transfer Evaluation Center (JTEC) Program Summary* (Loyola College, NY, 1991), pp. 25-26.

[48] Electronics International Corporation (E.I.C.), *Electronics in the World* (New York, NY: E.I.C., Nov. 1991), p. 199.

[49] Commission of the European Communities (EC), *Panorama of EU Industry 94* (Luxembourg: Office for Official Publications of the EC, 1994), p. 10-5.

[50] U.S. industry representatives, telephone interviews by USITC staff, Mar. 1995.

[51] E.I.C., *Electronics in the World*, p. 201.

[52] National Critical Technologies Review Group, *National Critical Technologies Report*, Washington, DC, Executive Office of the President, Office of Science and Technology Policy, Mar. 1995.

and development, innovation, standardization, and marketing. Western Europe is also at a disadvantage in producing office equipment because both its labor and capital costs are high.[53]

Western Europe maintains a large trade deficit in office machines. Most of Western Europe's imports are from the United States, Japan, and South East Asia. Western Europe's office machine exports mainly are sent to the United States and South East Asia and only a negligible portion is sent to Japan. Most exports consist of parts sent to South East Asia for assembly of subassemblies reimported into the United Kingdom, Germany, and France for further production by affiliates of U.S. firms.[54]

Other Principal Producing Areas

From 1989 to 1994 office machine production in regions other than the United States, Japan, and Western Europe rose by about $575 million (13 percent) to $4.9 billion. Production of office machines in ASEAN countries and, to a lesser extent, China, grew significantly, but production declined in Taiwan, Hong Kong, and Korea. Most office machine producers in these countries are affiliates and subcontractors of U.S., Japanese, and European firms. These countries specialize in producing lower end products whose manufacture benefits from low labor rates.

During 1989-94 the restructuring of the U.S., Japanese, and European office machine industries accelerated the transfer of labor-intensive production to ASEAN countries and China from these industries. Production in Taiwan, Hong Kong, and Korea decreased during this period because these countries' electronics producers are becoming more proficient in the design and manufacture of more sophisticated products. Also, these countries' wage rates are less attractive than those of neighboring ASEAN countries or China. Singapore, Thailand, and Malaysia are the principal ASEAN producers of office machines. Most office machines produced in Singapore are typewriters and copiers, and most office machines produced in Thailand and Malaysia are calculators. The principal office machines produced in China are calculators and low-end copiers.

U.S. TRADE MEASURES

Tariff Measures

In 1994 the nominal rate of duty on U.S. imports of office machines ranged from free to 5.3 percent ad valorem and the trade-weighted average duty rate on these imports was 3.5 percent ad valorem. That year the North American Free Trade Agreement (NAFTA) reduced duties on U.S. imports of office machines from Canada and Mexico.[55] The following year the Uruguay Round Agreement (URA) also reduced tariffs on U.S. imports of office machines (see table 1). These Uruguay Round tariff reductions are scheduled to take effect over 1995-99. Based on 1994 U.S. imports, the trade-weighted average rate of duty on U.S. office machine imports are projected to be 3.2 percent ad valorem in 1995 and 2.3 percent ad valorem in 1999.[56] All of the products covered by this summary are eligible for duty-free treatment under the Generalized System of Preferences (GSP),[57] the Caribbean Basin Economic Recovery Act (CBERA), the U.S.-Israel Free Trade Area Implementation Act, and the Andean Trade Preference Act. See appendix A for an explanation of tariff and trade agreement terms.

Nontariff Measures

U.S. imports of office machines face no nontariff barriers.

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[53] Commission of the EC, *Panorama of EU Industry 94*, pp. 10-5 and 10-14.

[54] Commission of the EC, *Panorama of EU Industry 94*, pp. 10-4 and 10-15, and Commission of the EC, *Panorama of EU Industry 1991-1992* (Luxembourg: Office for Official Publications of the EC, 1992), p. 12-30.

[55] U.S. Trade Representative (USTR), *North American Free Trade Agreement Between the Government of the United States of America, Government of Canada, and Government of the United Mexican States*, 1992, annex 302.2 United States, pp. 596-601 and 656-657.

[56] General Agreement on Trade and Tariffs (GATT), *Legal Instruments Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations Done at Marrakech on 15 April, 1994*, schs. I United States, pp. 7272-7287 & 7418-7419.

[57] At the time this summary was published, the U.S. Congress was considering renewing the GSP program, which expired July 31, 1995.

Table 1

Office machines: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1995; U.S. exports, 1994; and U.S. imports, 1994

HTS subheading	Description	Col. 1 rate of duty As of Jan. 1, 1995 General	Special[1]	U.S. exports, 1994	U.S. imports, 1994
				--Million	*dollars--*
8469.10.40	Word processing machines	1.8%	Free (A,CA,E,IL,J,MX)	49(2)	128
8469.10.80	Automatic typewriters	1.8%	Free (A,CA,E,IL,J,MX)	2(2)	14
8469.21.00	Nonautomatic electric typewriters, weighing not more than 12 kg, excluding case	Free		8	68
8469.29.00	Nonautomatic electric typewriters, weighing more than 12 kg, excluding case	Free		5	4
8469.31.00	Nonelectric typewriters, weighing not more than 12 kg, excluding case	Free		2	5
8469.39.00	Nonelectric typewriters, weighing more than 12 kg, excluding case	Free		1	(3)
8470.10.00	Electronic calculators capable of operation without an external source of power	3.3%	Free (A,CA,E,IL,J,MX)	17	335
8470.21.00	Electronic calculating machines, incorporating a printing device, nesi	3.3%	Free (A,CA,E,IL,J,MX)	4	156
8470.29.00	Electronic calculating machines, not incorporating a printing device, nesi	3.3%	Free (A,CA,E,IL,J,MX)	8	15
8470.30.00	Calculating machines nesi, other than electronic	3.3%	Free (A,CA,E,IL,J,MX)	3	20
8470.40.00	Accounting machines	3.1%	Free (A,CA,E,IL,J,MX)	1	18
8470.50.00	Point-of-sale terminals and cash registers	Free		83	297
8470.90.00	Other machines nesi, incorporating a calculating device	3.5%	Free (A,CA,E,IL,J,MX)	18	100
8472.10.00	Duplicating machines	3.0%	Free (A,CA,E,IL,J,MX)	23	64
8472.20.00	Addressing machines and embossing machines	3.8%	Free (A,CA,E,IL,J,MX)	10	4
8472.30.00	Machines for sorting, folding, opening or sealing mail	3.3%	Free (A,CA,E,IL,J,MX)	64	25
8472.90.20	Automatic banknote dispensers and other coin and currency handling machines	3.3%	Free (A,CA,E,IL,J,MX)	94	153
8472.90.40	Pencil sharpeners	4.8%	Free (A,CA,E,IL,J,MX)	2(2)	9
8472.90.60	Numbering, dating and check-writing machines	Free		2(2)	9
8472.90.70	Accessories and auxiliary machines which are intended for attachment to an electrostatic photocopier and which do not operate independently of such photocopier	Free		36(2)	131(4)
8472.90.90	Other office machines not elsewhere classified in HTS heading 8472	3.3%	Free (A,CA,E,IL,J,MX)	75(2)	276(4)
8473.10.30	Parts of word processing machines	3.6%	Free (A,CA,E,IL,J,MX)	22(2)	11
8473.10.60	Parts of automatic typewriters	3.6%	Free (A,CA,E,IL,J,MX)	132(2)	67
8473.10.90	Accessories for machines of heading 8469, nesi	3.6%	Free (A,CA,E,IL,J,MX)	8(2)	4
8473.21.00	Parts and accessories of electronic calculating machines of subheading 8470.10, 8470.21 or 8470.29	3.5%	Free (A,CA,E,IL,J,MX)	25	17
8473.29.00	Parts and accessories of machines of heading 8470, nesi	3.5%	Free (A,CA,E,IL,J,MX)	193	172

See footnotes at end of table.

Table 1--*(Continued)*

Office machines: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1995; U.S. exports, 1994; and U.S. imports, 1994

HTS subheading	Description	Col. 1 rate of duty As of Jan. 1, 1995 General	Special[1]	U.S. exports, 1994	U.S. imports, 1994
				--Million dollars--	
8473.40.20	Parts of automatic banknote dispensers and other coin and currency handling machines of subheading 8472.90.20	3.5%	Free (A,CA,E,IL,J,MX)	30([2])	54
8473.40.60	Parts and accessories of the goods of subheading 8472.90.70	Free		14([2])	23([4])
8473.40.90	Other parts and accessories nesi of the goods of subheading 8472	3.5%	Free (A,CA,E,IL,J,MX)	75([2])	123([4])
9009.11.00	Electrostatic photocopying apparatus (direct process)	3.3%	Free (A,E,IL,J,MX) 1.1% (CA)	26	27
9009.12.00	Electrostatic photocopying apparatus (indirect process)	3.7%	Free (A,CA,E,IL,J,MX)	243	1,992
9009.21.00	Photocopying apparatus, other than electrostatic, incorporating an optical system	3.3%	Free (A,E,IL,J,MX) 1.1% (CA)	14	12
9009.22.00	Photocopying apparatus, other than electrostatic, of the contact type	3.3%	Free (A,E,IL,J,MX) 1.1% (CA)	6	1
9009.30.00	Thermocopying apparatus	3.3%	Free (A,E,IL,J,MX) 1.1% (CA)	4	5
9009.90.10	Parts of photocopying apparatus of subheading 9009.12 specified in additional U.S. note 5 of this chapter, other than photoreceptors or assemblies containing photoreceptors	Free		11([2])	31([4])
9009.90.30	Photoreceptors or assemblies containing photoreceptors of photocopying apparatus of subheading 9009.12 specified in additional U.S. note 5 of this chapter	3.5%	Free (A,CA,E,IL,J,MX)	19([2])	58([4])
9009.90.50	Other parts and accessories, other than photoreceptors or assemblies containing photoreceptors, of electrostatic copying machines of subheading 9009.12	Free		289([2])	478([4])
9009.90.70	Photoreceptors or assemblies containing photoreceptors of electrostatic copying machines of subheading 9009.12	3.5%	Free (A,CA,E,IL,J,MX)	159([2])	872([4])

[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); North American Free-Trade Agreement, goods of Canada (CA) and Mexico (MX); Caribbean Basin Economic Recovery Act (E); United States-Israel Free Trade Area (IL); and the Andean Trade Preference Act (J).

[2] These data are estimated by the USITC staff because there is no corresponding Schedule B classification.

[3] Less than $0.5 million.

[4] These data are estimated because the subheading was revised as of Jan. 1, 1995.

Source: U.S. exports and imports compiled from official statistics of the U.S. Department of Commerce, except as noted.

Table 2
U.S. International Trade Commission investigations related to trade in office machines

Date Filed	Type of Investigation	Product	Petitioner	Source Country	Final Outcome
1990	Antidumping (731-TA-483/484)	Personal WPs	Smith Corona	Japan Singapore[1]	Affirmative Negative[1]
1991	Antidumping (731-TA-515)	Portable electric typewriters	Brother Industries (USA)	Singapore	Affirmative

[1] In the preliminary antidumping investigation, the Commission made a negative injury determination with respect to imports from Singapore, and the investigation involving Singapore was terminated.

Source: Compiled by the staff of the U.S. International Trade Commission.

U.S. Government Trade-Related Investigations

Table 2 summarizes trade-related investigations concerning the products covered in this summary. The Commission conducted three antidumping investigations during 1989-94, two of which resulted in affirmative determinations and the issuance of anti-dumping orders by the U.S. Department of Commerce. All three involved Smith Corona and Brother, world leaders in the production of WPs and typewriters, either as the petitioner or the principal importer of the goods subject to investigation. In the first investigation, which was based on a petition filed in 1990, Smith Corona was the petitioner and Brother was the principal respondent. In the second investigation, which was based on a petition filed the following year, Brother was the petitioner and Smith Corona the respondent. In 1994 these firms agreed to withdraw the cases against each other. Accordingly, on May 2, 1994, the antidumping duty orders were revoked at these firms' request.[58]

FOREIGN TRADE MEASURES

Tariff Measures

Tariffs applied on U.S. office machines in principal U.S. export markets range from free to more than 60 percent ad valorem. These tariffs are relatively low in the European Union (EU), Japan, Canada, and Mexico, the main foreign markets for U.S. office machines. In 1994 the trade-weighted average rate of duty applied to U.S. office machines entering these markets was about 2 percent.[59] On the other hand, tariffs applied to U.S. office machines in other markets were generally high.[60]

The recently concluded NAFTA and Uruguay Round significantly reduced tariffs assessed on U.S. office machines abroad. Because of the NAFTA, Mexico's trade-weighted average rate of duty on imports of these machines fell from 14 percent ad valorem in 1993 to 2 percent ad valorem in 1994.[61] The U.S.-Canada Free Trade Agreement, which entered into effect in 1989, reduced Canada's duties on such imports to less than 1 percent from 1989 to 1993 and the NAFTA eliminated these duties.[62]

In 1994 the trade-weighted average rate of duty applied to U.S. office machines worldwide was about 21 percent ad valorem. Based on the 1994 mix of U.S. exports, this rate of duty will fall to 13 percent ad valorem because of the Uruguay Round. Most of this reduction is scheduled to take place over 1995-99 and will result from the tariff cuts of South American and ASEAN countries. The Uruguay Round, for example,

[58] 59 F.R. 22583 (May 2, 1994).

[59] Estimated by the staff of the USITC based on rates reported in GATT, *Uruguay Round of Multilateral Trade Negotiations*, schs. I Australia - CXXIII Swaziland, and USTR, *NAFTA*, annex 302.2 Mexico and Canada.

[60] GATT, *Uruguay Round of Multilateral Trade Negotiations*, schs. I Australia - CXXIII Swaziland.

[61] USTR, *NAFTA*, annex 302.2 sch. Mexico, ch. 78-85, pp. 61-66 and ch. 90, pp. 4-5.

[62] USTR, *NAFTA*, annex 302.2 sch. Canada, pp. 418-422 and 494.

reduces the trade-weighted average rate of duty on Brazil's imports of U.S. office machines from about 43 percent ad valorem to about 27 percent ad valorem. Also, in the Uruguay Round other countries in South America have agreed to a ceiling on their rates of duty on office machine imports that generally ranges from 25 to 35 percent. Similarly, most ASEAN countries have agreed to halve their tariffs on office machines. Because of the Uruguay Round, the trade-weighted average rate of duty applied on U.S. office machines during 1995-99 is scheduled to decline from about 5.3 percent ad valorem to 3.7 percent ad valorem in the EU and from an estimated 2.3 percent ad valorem to 0 in Japan.[63]

Nontariff Measures

During 1989-94 there were no identified nontariff barriers directed specifically at U.S. office machines in major U.S. export markets. Such nontariff barriers as may exist are more likely applicable to a wide range of products. Most notably, U.S. exports to the EU allegedly are hindered by EU rulings relating to the use of national preferences in government procurement. The EU's 1992 rules governing public procurement mandate that public water, energy, transport, and telecommunications purchasers provide a 3-percent price preference to EU bids over equivalent non-EU offers. It also allows these purchasers to reject bids with contracts containing less than 50 percent EU origin.[64] These rulings are considered by U.S. industry to constitute a barrier to U.S. exports particularly in large tenders.[65] Similarly, U.S. exports are sometimes hindered by EU standards requiring lengthy and costly product certifications.[66] U.S. industry representatives assert that these certifications often cannot be justified by manufacturers, especially smaller suppliers with limited foreign presence.[67]

During 1989-94 the government policies of several countries seeking to develop indigenous office machine industries also allegedly limited U.S. office machine exports. In Brazil, for example, inadequate protection of U.S. intellectual property rights and domestic producer fiscal incentives, R&D subsidies, and favorable antitrust treatment reportedly affected U.S. exports adversely.[68]

U.S. MARKET

Consumption

During 1989-94, U.S. consumption of office machines grew by $1 billion (8 percent) to $12.9 billion in nominal terms but declined 3 percent in real dollar terms (see table 3).[69] During the period's first half, this consumption fell as the U.S. economy entered a recession and after that expanded as the economy and capital equipment orders rose.[70]

U.S. office machine consumption trends during 1989-94 varied widely by product group. Namely, copier consumption, which accounted for about two-thirds of total U.S. office machine consumption during the period, grew by 12 percent. Mail-handling and calculating machine consumption, which together accounted for most of the remainder of total consumption, grew significantly. Specifically, mail-handling equipment consumption grew by 68 percent,

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[63] The trade-weighted average duty rates reported here are based on 1994 U.S. exports and tariffs reported in GATT, *Uruguay Round of Multilateral Trade Negotiations*, schs. I Australia - CXXIII Swaziland.

[64] For further information see USITC, *The Effects of Greater Economic Integration Within the European Community on the United States* (investigation No. 332-267), USITC publication 2204, July 1989, pp. 4-7 to 4-25, and USITC, *The Effects of Greater Economic Integration Within the European Community on the United States: First Follow-Up Report* (investigation No. 332-267), USITC publication 2268, Mar. 1990, pp. 4-3 to 4-7.

[65] U.S. industry representative, telephone interview by USITC staff, Mar. 1995.

[66] For further information see USITC, *The Effects of Greater Economic Integration Within the Economic* (continued...)

[66] (...continued)
Community on the United States: Fifth Follow Up Report (investigation No. 332-267), USITC publication 2628, Apr. 1993, pp. 38-86.

[67] U.S. industry representatives, telephone interviews by USITC staff, Mar. 1995.

[68] Ibid. For additional specific references to trade barriers see USTR, *1995 National Trade Estimate Report on Foreign Trade Barriers* (Washington, DC: GPO, 1995).

[69] USITC staff estimates based on the producer price index for durable goods published in Council of Economic Advisors, *Economic Indicators* (Washington, DC: GPO, 1995), p. 22.

[70] According to the National Bureau of Economic Research, the private organization that officially dates the beginning and end of recessions, this recession began in July 1990 and ended in March 1991.

Table 3
Office machines: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1989-94

Year	U.S. shipments[1]	U.S. exports	U.S. imports	Apparent U.S. consumption[1]	Ratio of imports to consumption[1]
	Million dollars				*Percent*
1989	9,428	1,762	4,269	11,935	36
1990	9,188	1,721	3,944	11,411	35
1991	8,579	1,953	3,960	10,586	37
1992	8,387	2,003	4,578	10,962	42
1993	8,614	1,770	5,052	11,896	42
1994	8,897	1,777	5,781	12,901	45

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

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

driven by growth in the express mail delivery industry. Also, calculating machine consumption rose by 27 percent as many mass merchandisers that use this equipment (e.g., Wal-Mart, Home Depot, Office Depot) expanded rapidly. Coin- and currency-handling machine consumption, which accounted for only 4 percent of total office machine consumption, grew by 11 percent, driven by the continued expansion of ATM networks. On the other hand, WP and typewriter consumption dropped by 55 percent because consumers increasingly switched to PCs for creating documents. As a result, WPs' and typewriters' share of U.S. office machine consumption dropped from 10 percent in 1989 to 4 percent in 1994 (see figures 6 and 7).

During 1989-94 U.S. imports' share of office machine consumption rose from 36 percent to 45 percent, driven by a 35-percent rise in U.S. imports and a small decline in U.S. producers' shipments of these products. Most notably, U.S. imports of lower end copiers rose as Xerox and Kodak expanded into the market for these products by sourcing their equipment from Japanese suppliers. Also, these firms and other major office machine producers cut back on their U.S. manufacturing, subcontracting more subassemblies, many of which were made abroad.[71]

[71] U.S. industry representatives, telephone interviews by USITC staff, Mar. 1995.

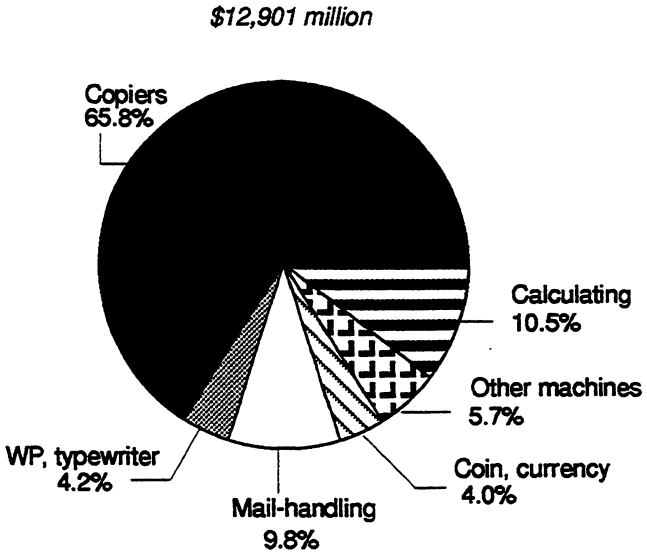
Production[72]

During 1989-94 U.S. shipments of office machines fell by half a billion dollars (6 percent) to $8.9 billion in nominal terms and by $1.5 billion (16 percent) to $8.0 billion in 1989-constant dollars.[73] Like U.S. consumption, U.S. office machine shipments decreased significantly during 1989-91 as the U.S. economy entered a recession and then rose during 1992-94 as the economy rebounded. The size of this swing in shipments was dampened by the industry's export performance. As U.S. office machine purchases fell in 1989-91, demand for U.S. exports of these machines in major foreign markets rose. Then as the U.S. economy recovered, this export demand slackened because economic growth in Japan and Western Europe slowed. Reflecting these swings in export demand, U.S. exports' share of U.S. office machine shipments

[72] The discussion in this section is based on U.S. shipment rather than production data because production data are unavailable. Shipment and production levels and trends in this industry are practically the same. Most office machine producers generally keep minimal parts and finished product inventories but are able to source parts in short order to meet additional demand. The industry's largest producer, for example, generally works only with suppliers that can guarantee deliveries within 8 hours. U.S. industry representative, telephone interview by USITC staff, Mar. 1995.

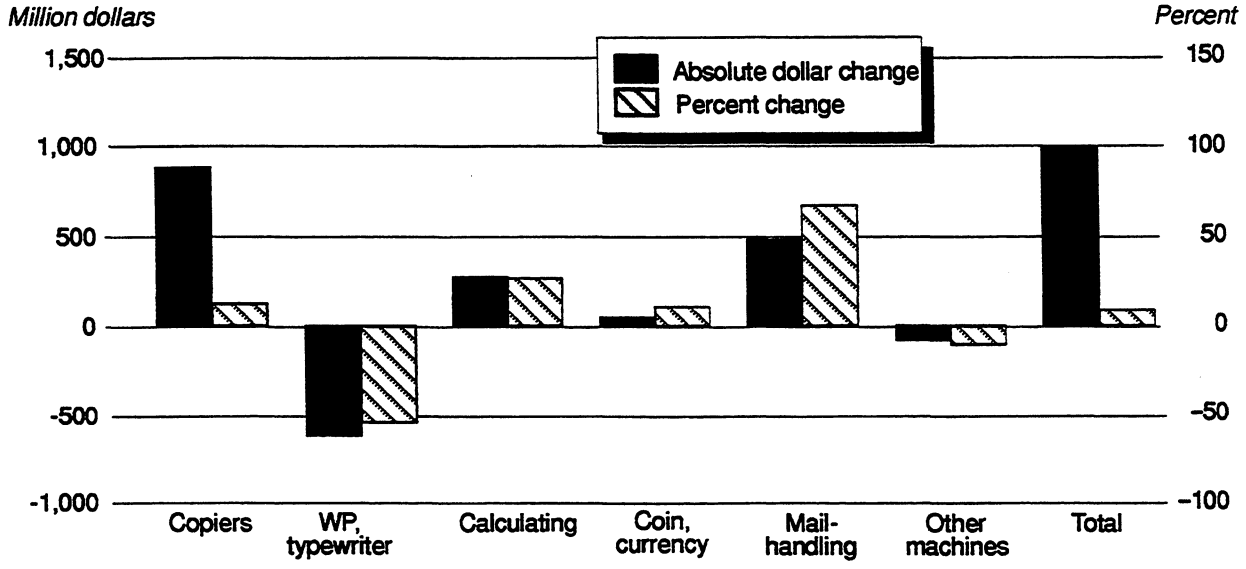
[73] USITC staff estimates based on the producer price index for durable goods published in Council of Economic Advisors, *Economic Indicators* (Washington, DC: GPO, 1995), p. 22.

Figure 6
Office machines: U.S. consumption, by product groups, 1994



Source: USITC staff estimates based on official statistics of the U.S. Department of Commerce and Elsevier Advanced Technology, Oxford, United Kingdom.

Figure 7
Office machines: Change in U.S. consumption, by product groups, 1989-94



Source: USITC staff estimates based on official statistics of the U.S. Department of Commerce and Elsevier Advanced Technology, Oxford, United Kingdom.

rose from 19 percent in 1989 to a high of 24 percent in 1992 but decreased to 20 percent by 1994.

In 1994, copiers accounted for just under two-thirds of all U.S. office machine shipments, and mail-handling equipment for 14 percent of these shipments. The remaining product groups accounted for 5 to 7 percent of these shipments (see figure 8). About half of the 1989-94 decline in U.S. office machine shipments resulted from cutbacks in the production of WPs and typewriters, and the remainder from declines in the production of copiers and calculating machines. As discussed previously, U.S. producers of these products reduced their U.S. manufacturing in favor of increased imports. U.S. production of WPs and typewriters also fell as PCs eroded the market for these products. These declines in shipments were in part offset by a 56-percent rise in shipments of mail-handling equipment and a 4-percent rise in shipments of coin- and currency-handling equipment. As noted previously, during 1989-94 U.S. producers of mail-handling and coin- and currency-handling equipment, which dominate the U.S. market for such equipment, benefitted from strong demand (see figure 9).

Imports

During 1989-94, U.S. imports of office machines increased by $1.5 billion (35 percent) to $5.8 billion (see table 4). This growth was particularly strong because Kodak and Xerox, respectively, turned to the Japanese firms Sharp and Canon to source their lower end product offerings.[74] Also, these and other U.S. office machine producers increasingly relied on foreign-made subassemblies and other lower end products. As discussed earlier, Japan is considered to be highly competitive in producing mid-range copiers, and the production of certain office machines and their parts is more economical in low-wage countries. The value of U.S. imports, particularly copiers, also increased after 1992 because of an appreciation of the yen.[75]

During 1989-94, copiers and calculating machines accounted for most of the growth in U.S. office machine imports. U.S. copier imports rose by $1.3 billion (54 percent) to $3.8 billion during this period and calculating machine imports grew by $175 million (21 percent). U.S. imports of WPs and typewriters, on the other hand, declined by $164 million (35 percent) during 1989-94. As discussed earlier, U.S. demand for WPs and typewriters decreased significantly during this period because PCs, which are good substitutes for these products, experienced marked price declines (see figures 10 and 11).

Japan was the leading source of U.S. office machine imports throughout the period, accounting for over half the value of these imports throughout 1989-94. During this period, such imports from Japan grew by 19 percent to $3.1 billion, a lower rate than the 35-percent increase in total U.S. office machine imports.

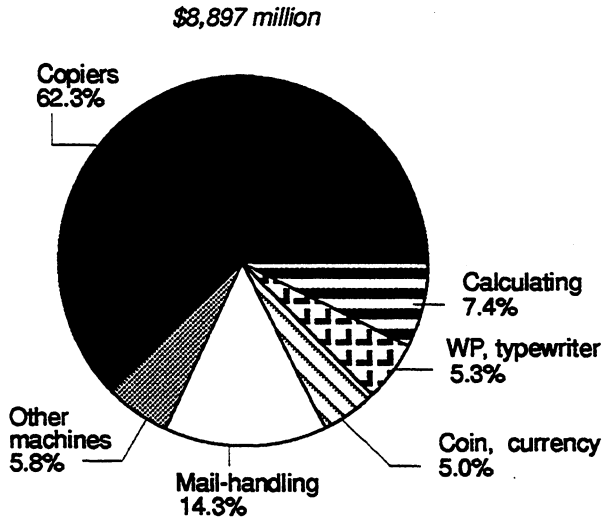
During the 1989-94 period, the mix of U.S. imports from Japan changed significantly. U.S. imports of WPs and typewriters from Japan fell by 90 percent. As a result, the share of total U.S. WP and typewriter imports held by Japanese imports fell from 49 percent in 1989 to 8 percent in 1994. Similarly, during this period U.S. imports of calculating machines from Japan fell by 51 percent, reducing their share of U.S. imports of such items from 49 percent in 1989 to 20 percent in 1994. On the other hand, U.S. imports of coin- and currency-handling machines from Japan rose by 145 percent during this period. As a result, these imports' share of total U.S. coin- and currency-handling machine imports rose from 26 percent in 1989 to 34 percent in 1994. This shift in product mix reflects Japanese producers' move from calculating machines, WPs, and other low-end products to higher end products such as ATM machines. The drop in U.S. imports of WPs from Japan may have also resulted in part from the imposition of antidumping duties discussed earlier.

During 1989-94 ASEAN countries, China, and Mexico became major U.S. office machine suppliers. Combined U.S. imports from these trading areas rose by $930 million to $1,214 million in 1994, which represents an average annual rate of growth of 34 percent. Together these areas accounted for 7 percent of U.S. office machine imports in 1989 and by 1994 they accounted for 21 percent of these imports. As discussed earlier, U.S.-, Japanese-, and European-based firms increased their production and subcontracting in these areas. These regions have good infrastructures for the production of electronic equipment and attractive wage rates for such production

[74] U.S. industry representatives, telephone interviews by USITC staff, Mar. 1995.

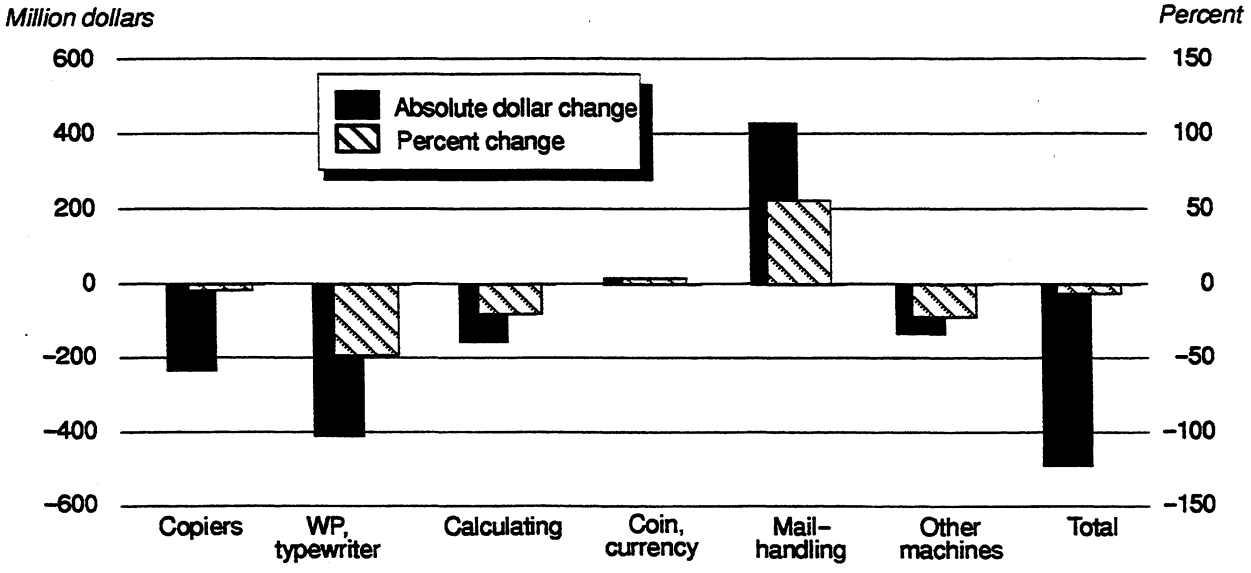
[75] BIS Strategic Decisions Inc., telephone interview by USITC staff, Mar. 1995.

Figure 8
Office machines: U.S. shipments, by product groups, 1994



Source: USITC staff estimates based on official statistics of the U.S. Department of Commerce and Elsevier Advanced Technology, Oxford, United Kingdom.

Figure 9
Office machines: Change in U.S. shipments, by product groups, 1989-94



Source: USITC staff estimates based on official statistics of the U.S. Department of Commerce and Elsevier Advanced Technology, Oxford, United Kingdom.

Table 4
Office machines: U.S. imports for consumption, by principal sources, 1989-94

(1,000 dollars)

Source	1989	1990	1991	1992	1993	1994
Japan	2,637,576	2,429,423	2,412,658	2,718,648	3,030,649	3,136,419
China	52,655	64,886	97,136	173,237	211,835	337,474
Taiwan	238,696	215,222	231,773	254,497	255,335	303,650
Mexico	34,021	35,076	61,129	81,958	119,667	260,189
Thailand	26,528	29,632	52,134	118,579	174,401	237,290
United Kingdom	175,502	153,725	116,815	132,329	185,346	210,275
Netherlands	177,101	161,291	164,683	150,741	135,061	190,058
Singapore	148,390	129,301	131,557	152,396	160,497	186,257
Canada	192,749	185,609	163,956	170,928	180,686	177,654
Malaysia	20,925	40,447	62,796	96,236	117,328	150,804
All other	564,546	499,142	465,798	528,473	481,206	590,720
Total	4,268,689	3,943,756	3,960,435	4,578,022	5,052,011	5,780,790
European Union[1]	545,609	517,870	463,515	518,727	515,896	604,460
ASEAN	195,852	206,714	256,042	379,478	472,411	615,916
South America	15,927	22,733	36,916	35,933	27,298	22,365

[1] Excludes Austria, Sweden, Finland, and the former East Germany. U.S. office machine imports from the European Union including these countries were as follows: $562,212 for 1989; $533,249 for 1990; $481,903 for 1991; $535,729 for 1992; $533,823 for 1993; and $627,992 for 1994.

Note.--Because of rounding, figures may not add to the totals shown.

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

Mexico, in particular, also benefits from proximity to the U.S. market and favorable tariff treatment. Figure 12 shows the growth in U.S. office machine imports from these regions and other major trading partners, by product segment.

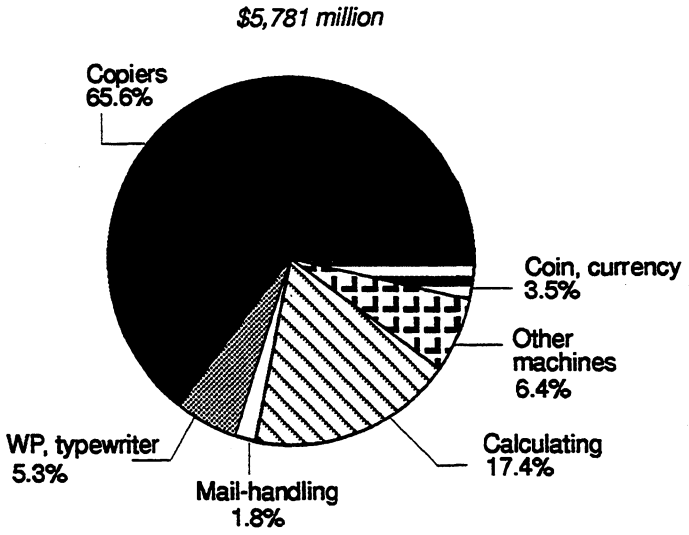
U.S. production of office machines generally does not compete directly with most U.S. imports.[76] This production generally consists of higher end products and requires advanced skills and proximity to suppliers and customers. U.S. imports, as discussed earlier, are generally lower end products whose production can be streamlined and requires less skilled labor.

During 1989-94 U.S. imports of office machines produced from U.S.-made parts often entered the United States under HTS subheadings 9802.00.60 and 9802.00.80. In 1993 these imports accounted for less than 2 percent of total U.S. office machine imports and were primarily from Mexico. These imports from Mexico accounted for about half of all U.S. office machine imports from Mexico and were mainly WPs and typewriters.

During 1989-94 U.S. office machine imports also entered under other trade preference programs, most notably the NAFTA and GSP. GSP imports of these machines, which in 1989 were only $25 million, rose to $288 million by 1994, accounting for 5 percent of U.S. office machine imports. Most of these GSP imports were calculators from Thailand and Malaysia. U.S. office machine imports entered under the NAFTA, which became effective in 1994, reached $310 million that year, accounting also for 5 percent of total U.S. imports of these machines. During this period U.S. office machine imports under the CBERA and U.S.-Israel Free Trade Area Implementation Act were negligible, accounting for less than 1 percent of all U.S. imports of these machines.

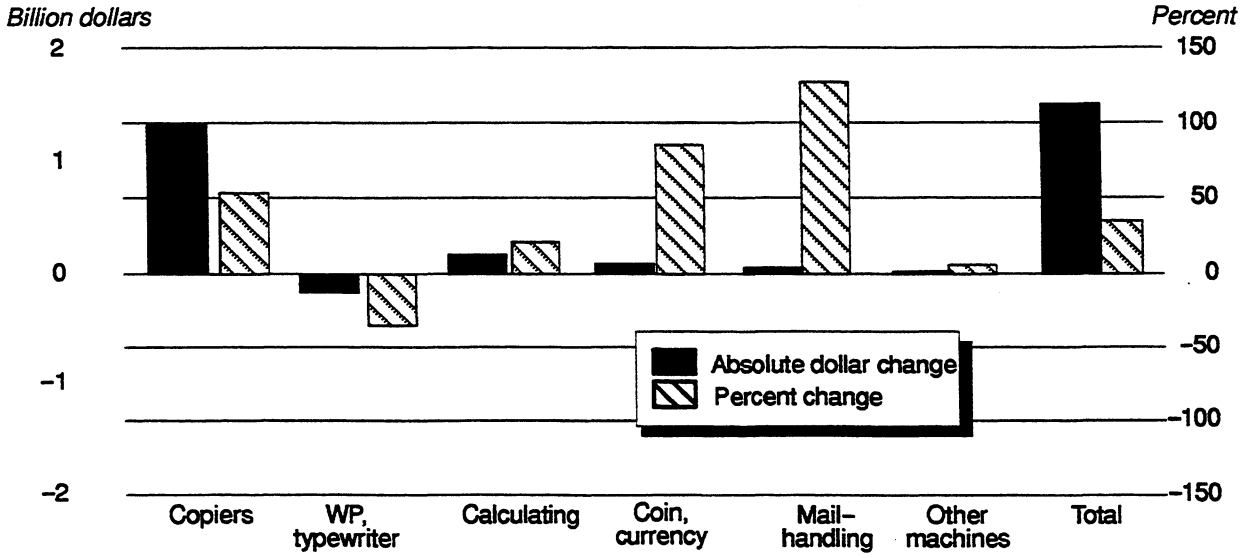
[76] U.S. industry representatives, telephone interviews by USITC staff, Mar. 1995.

Figure 10
Office machines: U.S. imports, by product groups, 1994



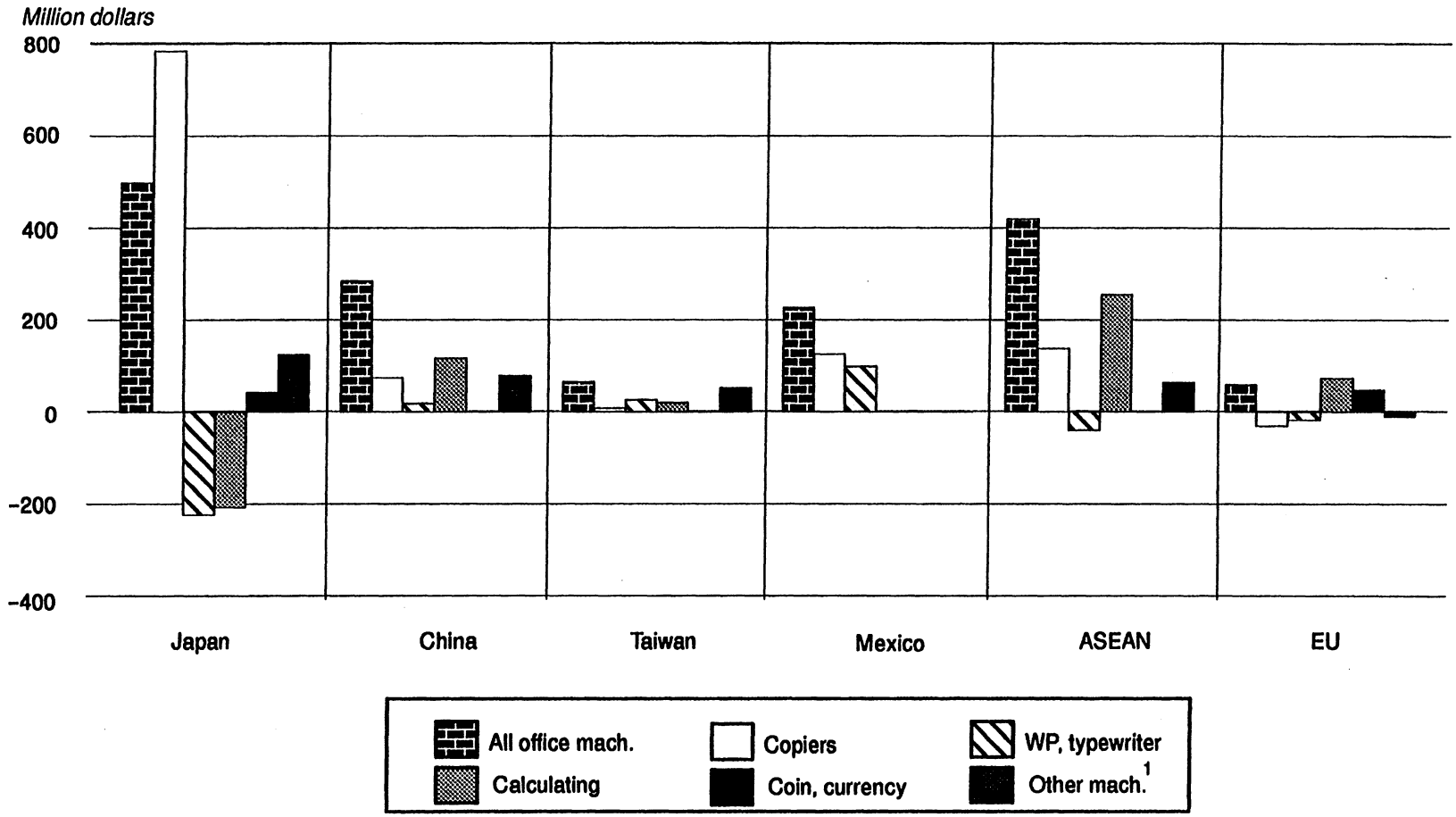
Source: USITC staff estimates based on official statistics of the U.S. Department of Commerce.

Figure 11
Office machines: Change in U.S. imports, by product groups, 1989-94



Source: USITC staff estimates based on official statistics of the U.S. Department of Commerce.

Figure 12
Office machines: Change in U.S. imports, by major trading partner and product groups, 1989-94



[1] Other office machines here include mail-handling machines.

Source: USITC staff estimates based on official statistics of the U.S. Department of Commerce.

FOREIGN MARKETS

Foreign Market Profile

Western Europe and Japan are the world's principal office machine markets after the United States. During 1989-94 on average Western Europe accounted for 33 percent of the world's office machine consumption, and Japan accounted for 13 percent of this consumption. During this period Western Europe consumed more office machines than it produced while Japan consumed less of these products than it produced. Overall, the world's remaining countries accounted for 12 percent of global office machine consumption and consumed less office machines than they produced.

U.S. firms compete in Western Europe and Japan principally through subsidiaries and joint ventures with domestic firms. High-end U.S. office machines are considered among the best in the world and are competitive in foreign markets. Mid-range U.S. office machines, particularly mid-range copiers, do not compete as well abroad because of strong competition from Japan.[77] The worldwide market for low-end office machines is served primarily by such newly industrialized countries as China, Taiwan, and ASEAN countries.

U.S. firms adapt their products to local conditions to compete successfully in foreign markets. For example, Xerox adapted its new high-end copier to handle thin rice paper and to operate on 50 or 60 cycle electric current because both are used in Japan. These modifications appear to have enhanced the demand for the new copier, and it is reported to have the largest share of the high-end copier market in Japan.[78] Similarly, U.S. producers of POS terminals and ATMs translate their products' labels, keyboards, and operating instructions to the languages used in the countries they serve.

U.S. Exports

U.S. office machine exports in 1994 were practically the same as in 1989 but fluctuated significantly between these years (see table 5). U.S. exports rose from $1.8 billion in 1989 to $2.0 billion in 1992, a 14-percent increase, and in 1993 and 1994 fell back to 1989 levels. This fall was due primarily to softening demand for U.S. office machine exports in the EU. The EU is the principal market for these exports and experienced a significant economic downturn, particularly during 1992-93. During 1989-94 U.S. exports to the EU dropped 45 percent from $759 million to $420 million.[79]

The drop in exports to the EU was offset partially by an increase in U.S. exports to Mexico and Latin America that grew from $219 million in 1989 to $549 million in 1994 at an annual rate of growth of 20 percent. U.S. exports to this region benefited from a low dollar and these regions' strong economic growth. U.S. exports to Mexico also rose as U.S. firms, particularly WP and typewriter parts manufacturers, increasingly exported such parts to Mexico for assembly. Parts and accessories account for about 55 percent of U.S. exports of office machines. Figure 13 shows U.S. exports by product for 1994.

While the level of U.S. exports did not change appreciably during 1989-94, the composition of these exports changed significantly. U.S. copier exports, which were the principal office machine export, increased by $192 million (29 percent) to $855 million during the period, as demand for high-end copiers rose, particularly in Canada, Mexico, and South America (see figure 14). Exports of U.S. coin- and currency-handling machines, primarily ATMs, more than doubled, rising to $124 million. Most of this rise was accounted for by Mexico, the EU, and South America, which expanded their financial retail networks. During this period U.S. exports of WPs and typewriters rose $45 million (24 percent) to $230 million. Most of this rise in exports was accounted for by parts sent to Mexico by Smith Corona, which moved its WP and typewriter assembly production there. These increases in U.S. exports were offset by a drop in U.S. calculating machine exports, which fell by $259 million (45 percent) to $317 million in 1994. This decline occurred primarily because AT&T GIS ceased exporting many subassemblies used to produce POS terminals and cash registers. The export of some of these parts was no longer needed when the firm moved some of its foreign manufacturing operations to the

[77] Ibid.

[78] John Holusha, "Japan Is Tough, but Xerox Prevails," *New York Times*, Sept. 3, 1992, p. D1.

[79] A large portion of these exports to the EU are sent to the Netherlands and are believed to reflect intracompany transfers of products to central distribution locations there which are used to supply the principal markets in Europe.

Table 5
Office machines: U.S. exports of domestic merchandise, by principal markets, 1989-94

(1,000 dollars)

Market	1989	1990	1991	1992	1993	1994
Canada	243,973	337,223	326,723	369,779	368,737	340,340
Mexico	127,306	147,462	177,015	182,675	242,946	311,526
Netherlands	270,652	258,815	291,725	284,285	184,219	127,665
Japan	145,255	104,311	116,493	81,251	86,845	110,143
United Kingdom	163,416	150,056	167,104	151,694	102,648	108,548
Brazil	32,558	47,853	59,429	80,765	73,392	98,959
Germany	129,624	154,228	169,327	147,715	115,988	77,798
Argentina	9,495	9,714	21,113	33,623	37,878	45,579
France	93,594	94,525	137,397	140,295	57,729	42,759
Hong Kong	26,463	17,237	20,619	29,945	37,558	40,340
All other	519,713	399,333	466,094	501,184	462,248	473,106
Total	1,762,052	1,720,757	1,953,039	2,003,210	1,770,188	1,776,763
European Union[1]	759,359	737,806	857,828	807,427	517,424	419,533
ASEAN	103,232	66,531	52,397	70,813	69,263	70,990
South America	91,771	102,250	147,254	183,332	199,604	237,349

[1] Excludes Austria, Sweden, Finland, and the former East Germany. U.S. office machine exports to the European Union including these countries were as follows: $793,747 for 1989; $771,194 for 1990; $891,549 for 1991; $838,160 for 1992; $539,316 for 1993; and $435,005 for 1994.

Note.--Because of rounding, figures may not add to the totals shown.

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

United States. Also, the firm exported fewer of these parts because it increased its purchasing of locally-made parts in its European subsidiaries.[80]

U.S. TRADE BALANCE

From 1989 to 1994 the U.S. trade deficit in office machines grew from $2.5 billion to $4.0 billion (see table 6). The growth of this deficit was accounted for by a dramatic increase in U.S. imports coupled with scarcely any change in U.S. export levels. Most of the increase in U.S. imports came from Japan, ASEAN countries, China, Mexico, and Taiwan. The U.S. trade deficit in office machines was particularly high in 1992-94 because demand for office machines grew more in the United States than abroad.

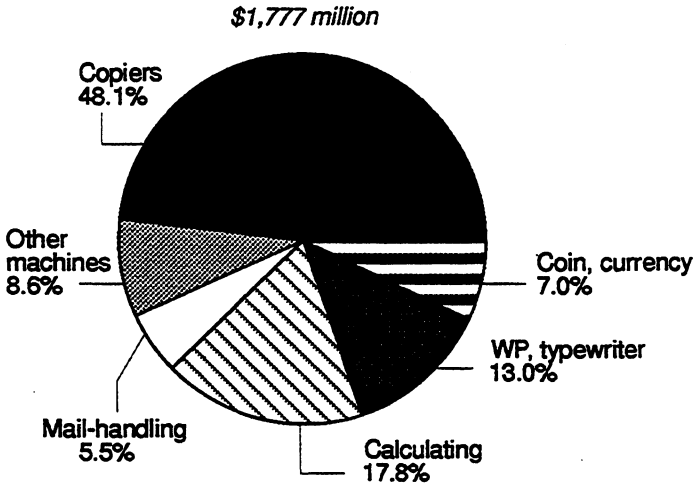
During 1989-94 the United States maintained its largest trade deficit in office machines with Japan, which in 1994 exported $3.0 billion more of these products to the United States than it imported from the United States. Japanese producers dominate the world's market for copiers, which account for two-thirds of the U.S. office machine market. However, starting in 1991 the yen rose significantly against the dollar. Taking the exchange rate into account, the U.S. deficit with Japan decreased by about 10 percent from 1989-94.

The United States also had large deficits with the ASEAN countries, China, and Taiwan during 1989-94. These countries' electronics industries specialize in the export of office machines, particularly calculating machines that are generally low-end products whose manufacture in the United States is not competitive.

During 1989-94 the United States generally maintained positive and growing trade balances with South America, Canada, and Mexico. From 1989 to 1994 the combined U.S. trade surplus with these regions grew from $220 million to $429 million. These regions are highly dependent on imports of office machines as they do not have large indigenous office machine industries.

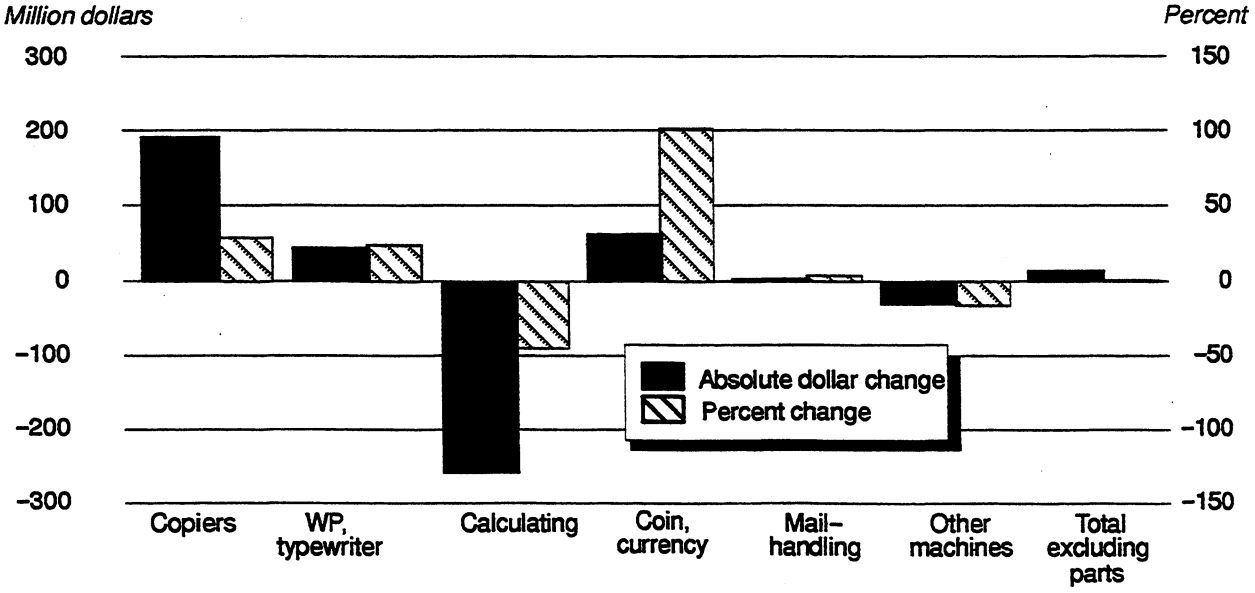
[80] U.S. industry representative, telephone interview by USITC staff, Mar. 1995.

Figure 13
Office machines: U.S. exports, by product groups, 1994



Source: USITC staff estimates based on official statistics of the U.S. Department of Commerce.

Figure 14
Office machines: Change in U.S. exports, by product groups, 1989-94



Source: USITC staff estimates based on official statistics of the U.S. Department of Commerce.

Table 6

Office machines: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected country and country group, 1989-94[1]

(Million dollars)

Item	1989	1990	1991	1992	1993	1994
U.S. exports of domestic merchandise:						
Japan	145	104	116	81	87	110
China	3	4	7	6	12	15
Taiwan	15	12	17	19	17	30
Mexico	127	147	177	183	243	312
Thailand	5	9	7	9	7	14
United Kingdom	163	150	167	152	103	109
Netherlands	271	259	292	284	184	128
Singapore	76	46	37	49	53	36
Canada	244	337	327	370	369	340
Malaysia	7	5	4	6	4	10
All other	705	648	803	845	691	674
Total	1,762	1,721	1,953	2,003	1,770	1,777
European Union[2]	759	738	858	807	517	420
ASEAN	103	67	52	71	69	71
South America	92	102	147	183	200	237
U.S. imports for consumption:						
Japan	2,638	2,429	2,413	2,719	3,031	3,136
China	53	65	97	173	212	337
Taiwan	239	215	232	254	255	304
Mexico	34	35	61	82	120	260
Thailand	27	30	52	119	174	237
United Kingdom	176	154	117	132	185	210
Netherlands	177	161	165	151	135	190
Singapore	148	129	132	152	160	186
Canada	193	186	164	171	181	178
Malaysia	21	40	63	96	117	151
All other	565	499	466	528	481	591
Total	4,269	3,944	3,960	4,578	5,052	5,781
European Union[2]	546	518	464	519	516	604
ASEAN	196	207	256	379	472	616
South America	16	23	37	36	27	22
U.S. merchandise trade balance:						
Japan	-2,492	-2,325	-2,296	-2,637	-2,944	-3,026
China	-49	-61	-90	-167	-200	-323
Taiwan	-224	-203	-215	-235	-238	-274
Mexico	93	112	116	101	123	51
Thailand	-21	-21	-46	-110	-167	-223
United Kingdom	-12	-4	50	19	-83	-102
Netherlands	94	98	127	134	49	-62
Singapore	-72	-84	-95	-103	-108	-150
Canada	51	152	163	199	188	163
Malaysia	-13	-36	-59	-90	-113	-141
All other	140	148	337	316	210	84
Total	-2,505	-2,223	-2,007	-2,575	-3,282	-4,004
European Union[2]	214	220	394	289	2	-185
ASEAN	-93	-140	-204	-309	-403	-545
South America	76	80	110	147	172	215

[1] Import values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

[2] Excludes Austria, Sweden, Finland, and the former East Germany. See footnote 1 of tables 4 and 5 for data including these excluded countries.

Note.--Because of rounding, figures may not add to the totals shown.

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

APPENDIX A
TARIFF AND TRADE AGREEMENT TERMS

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In the Harmonized Tariff Schedule of the United States (HTS), chapters 1 through 97 cover all goods in trade and incorporate in the tariff nomenclature the internationally adopted Harmonized Commodity Description and Coding System through the 6-digit level of product description. Subordinate 8-digit product subdivisions, either enacted by Congress or proclaimedby the President, allow more narrowly applicable duty rates; 10-digit administrative statistical reporting numbers provide data of national interest. Chapters 98 and 99 contain special U.S. classifications and temporary rate provisions, respectively. The HTS replaced the Tariff Schedules of the United States (TSUS) effective January 1, 1989.

Duty rates in the general subcolumn of HTS column 1 are most-favored-nation (MFN) rates, many of which have been eliminated or are being reduced as concessions resulting from the Uruguay Round of Multilateral Trade Negotiations. Column 1-general duty rates apply to all countries except those enumerated in HTS general note 3(b) (Afghanistan, Cuba, Kampuchea, Laos, North Korea, and Vietnam), which are subject to the statutory rates set forth in column 2. Specified goods from designated MFN-eligible 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 rate of duty column 1 or in the general notes. If eligibility for special tariff rates is not claimed or established, goods are dutiable at column 1-general rates. The HTS does not enumerate those countries as to which a total or partial embargo has been declared.

Although the Generalized System of Preferences (GSP) expired at the close of July 31, 1995, provisions relating thereto continue to appear in the HTS pending possible Congressional renewal. The GSP afforded 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 for 10 years and extended three times thereafter, applied to merchandise imported on or after January 1, 1976 and before the close of July 31, 1995. Indicated by the symbol "A" or "A*" in the special subcolumn, the GSP provided duty-free entry to eligible articles the product of and imported directly from designated beneficiary developing countries, as set forth in general note 4 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 diversify 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. Indicated by the symbol "E" or "E*" in the special subcolumn, the CBERA provides duty-free entry to eligible articles, and reduced-duty treatment to certain other articles, which are the product of and imported directly from designated countries, as set forth in general note 7 to the HTS.

Free rates of duty in the special subcolumn followed by the symbol "IL" are applicable to products of Israel under the United States-Israel Free Trade Area Implementation Act of 1985 (IFTA), as provided in general note 8 to the HTS.

Preferential nonreciprocal duty-free or reduced-duty treatment in the special subcolumn followed by the symbol "J" or "J*" in parentheses is afforded to eligible articles the product of designated beneficiary countries under the Andean Trade Preference Act (ATPA), enacted as title II of Public Law 102-182 and implemented by Presidential Proclamation 6455 of July 2, 1992 (effective July 22, 1992), as set forth in general note 11 to the HTS.

Preferential or free rates of duty in the special subcolumn followed by the symbol "CA" are applicable to eligible goods of Canada, and rates followed by the symbol "MX" are applicable to eligible goods of Mexico, under the North American Free Trade Agreement, as provided in general note 12 to the HTS and implemented effective January 1, 1994 by Presidential Proclamation 6641 of December 15, 1993. Goods must originate in the NAFTA region under rules set forth in general note 12(t) and meet other requirements of the note and applicable regulations.

Other special tariff treatment applies to particular products of insular possessions (general note 3(a)(iv)), goods covered by the Automotive Products Trade Act (APTA) (general note 5) and the Agreement on Trade in Civil Aircraft (ATCA) (general note 6), articles imported from freely associated states (general note

10), pharmaceutical products (general note 13), and intermediate chemicals for dyes (general note 14).

The General Agreement on Tariffs and Trade 1994 (GATT 1994), annexed to the Agreement Establishing the World Trade Organization, replaces an earlier agreement (the GATT 1947 [61 Stat. (pt. 5) A58; 8 UST (pt. 2) 1786]) as the primary multilateral system of disciplines and principles governing international trade. Signatories' obligations under both the 1994 and 1947 agreements focus upon 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, antidumping and countervailing duties, dispute settlement, and other measures. The results of the Uruguay Round of 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.

Pursuant to the Agreement on Textiles and Clothing (ATC) of the GATT 1994, member countries are phasing out restrictions on imports under the prior "Arrangement Regarding International Trade in Textiles" (known as the Multifiber Arrangement (MFA)). Under the MFA, which was a departure from GATT 1947 provisions, importing and exporting countries negotiated bilateral agreements limiting textile and apparel shipments, and importing countries could take unilateral action in the absence or violation of an agreement. Quantitative limits had been established on imported textiles and apparel of cotton, other vegetable fibers, wool, man-made fibers or silk blends in an effort to prevent or limit market disruption in the importing countries. The ATC establishes notification and safeguard procedures, along with other rules concerning the customs treatment of textile and apparel shipments, and calls for the eventual complete integration of this sector into the GATT 1994 over a ten-year period, or by Jan. 1, 2005.

Rev. 3/14/96

APPENDIX B
U.S. OFFICE MACHINES: SHIPMENTS, BY PRODUCT GROUP AND PRINCIPAL PRODUCT, 1992

U.S. office machines: Shipments, by product group and principal product, 1992[1]

SIC product code	Product group and products	Shipments	Percent of total
		Million dollars	
38612	**Copiers**	**5,000**	**59.6**
	Convenience	2,600	31.0
	Personal	1,750	20.9
	High-end	650	7.7
	Mail-handling machines	**1,149**	**13.7**
3579534	Forms-handling equipment	820	9.8
3579537	Postage-franking and other mailing machines	175	2.1
3579543	Envelop-handling machines	100	1.2
3579548	Addressing and collating machines	53	0.6
	Calculating machines	**588**	**7.0**
3578455	Point-of-sale terminals	520	6.2
3578459	Cash registers	48	0.6
3578459	Calculators	20	0.2
	Word processors and typewriters	**458**	**5.5**
3579200	Word processors	418	5.0
3579995	Typewriters	40	0.5
	Coin- and currency-handling machines	**397**	**4.7**
3578454	Automatic teller machines and other funds transfer devices	312	3.7
3578416	Coin-sorting and dispensing machines	67	0.8
3578416	Coin- and currency-counting and wrapping machines	13	0.2
3578416	Money changing machines	5	0.1
	Other office machines	**460**	**5.5**
3579933	Time-recording and stamping machines	99	1.2
3579931	Check-handling machines	75	0.9
3579945	Non-electric perforating or stapling machines	45	0.5
3579995	Ticket-issuing and counting machines	36	0.4
3579944	Paper cutters and shredders	31	0.4
3579995	Dictating machines	9	0.1
3579932	Electric stapling machines	9	0.1
3579995	Voting, short-hand writing, and other office machines	155	1.8
3579A	**Parts**	**336**	**4.0**
	Total	**8,387**	**100.0**

[1] These data are for 1992 because that is the last year for which data on U.S. shipments of most office machines are available.

Note.–Due to rounding, percentages may not add to 100.

Source: Compiled by USITC staff based principally from information contained in *Computers and Office and Accounting Machines*, Current Industrial Report MA35R(92), U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, October 1993, *Medical Instruments; Ophthalmic Goods; Photographic Equipment; Clocks, Watches, and Watchcases*, 1992 Census of Manufactures MC92-I-35F(P), U.S. Department of Commerce, Bureau of the Census, Oct. 1994; *Office and Computing Machines*, 1992 Census of Manufactures MC92-I-38B(P), U.S. Department of Commerce, Bureau of the Census, Nov. 1994. Some of these shipments are also based on information contained in Elsevier Science Publishing Ltd., *Yearbook of World Electronics Data* (Oxford, England: Elsevier, 1992-94).