AN ASSESSMENT OF THE IMPACT OF IMPORTS UNDER THE EDUCATIONAL, SCIENTIFIC, AND CULTURAL MATERIALS IMPORTATION ACT OF 1982, PUBLIC LAW 97-446, ON THE U.S. HEARING AID INDUSTRY

Report to the President on Investigation No. 332-215 Under Section 332 of the Tariff Act of 1930

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PREFACE

The Commission instituted the present investigation, An Assessment of the Impact of Imports Under the Educational, Scientific, and Cultural Materials Importation Act of 1982, Public Law 97-446, on the U.S. Hearing Aid Industry, investigation No. 332-215, on June 11, 1985, following receipt of a letter from the United States Trade Representative (USTR) at the direction of the President. 1/ In the letter, the USTR requested that the Commission institute a section 332 investigation under the provisions of the Tariff Act of 1930 (19 U.S.C. 1332(g)) to assess the conditions of competition between imported and domestically produced hearing aids. The purpose of the request is to provide the USTR with information that will assist the President in making a determination as to whether duty-free treatment provided for conventional (standard) hearing aids entering under Tariff Schedules of the United States (TSUS) item 960.15 has a significant adverse impact on a domestic industry (or portion thereof) producing a like or directly competitive article. Such imports enter duty free pursuant to the provisions of the Educational, Scientific, and Cultural Materials Importation Act of 1982, Public Law 97-446. Section 166(a) of that Act authorizes the President to narrow the scope of, or place conditions on, the duty-free treatment applicable to hearing aids under certain conditions. Applications for such action have been received by the USTR from two domestic producers of hearing aids.

Public notice of the investigation was given by posting copies of the notice at the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the Federal Register of June 19, 1985 (50 F.R. 25476). 2/ Questionnaires were prepared, approved by the Office of Management and Budget, and sent to all known firms in the United States that produced or imported hearing aids or components from 1981 to June 30, 1985, and to a sample of hearing aid dispensers. 3/

The information contained in this report was obtained from fieldwork by the Commission's staff, from the Commission's files, from other Government agencies, from responses to questionnaires, and from other sources.

1/ The request from the USTR is reproduced in app. A.

2/ The Federal Register notice of the institution of the Commission's investigation No. 332-215 is reproduced in App. B.

3/ The notice of the information collection, that was submitted to the OMB for review and published in the Federal Register (50 F.R. 25476), is also reproduced in App. B.

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Note.--The whole of the Commission's report may not be made public since it contains certain information that would result in the disclosure of the operations of individual concerns. This published report is the same as the report to the President, except that the above-mentioned information has been omitted. Such omissions are indicated by asterisks.

EXECUTIVE SUMMARY

Concern has been expressed to the United States Trade Representative by two U.S. producers of hearing aids that hearing aids imported duty free under the Educational, Scientific, and Cultural Materials Importation Act of 1982, Public Law 97-446, are eroding the competitive position in the U.S. market of U.S. made standard hearing aids. Hearing aids have been receiving duty-free treatment under temporary tariff provisions since February 1983. Under section 166(a) of Public Law 97-446, the President can place conditions on the duty-free entry of standard hearing aids if he determines that the U.S. industry producing a like or directly competitive hearing aid, or a portion thereof, has suffered a significant adverse impact as the result of such duty-free treatment. In order to make that determination, the President directed the United States Trade Representative to request that the U.S. International Trade Commission institute a section 332 investigation under the provisions of the Tariff Act of 1930 to assess the conditions of competition between imported and domestically produced hearing aids and to provide him with the information necessary to make his determination.

Although Public Law 97-446 expired on August 11, 1985, imports of hearing aids and parts (and other goods for the handicapped as well) may still be entered free of duty under a Customs Service determination pending further direction from Congress. Legislation may be forthcoming that would make duty-free treatment of goods for the handicapped retroactive to August 11, 1985 (see page 7).

The expanding U.S. market for hearing aids is undergoing a shift in demand from standard hearing aids to custom-made hearing aids. Many U.S. producers have responded by attempting to maintain their relative share in the growth market by reorienting production to that of improved custom-made hearing aids. Foreign producers, whose local markets are predominated by demand for standard hearing aids, have concentrated on refining standard behind-the-ear (BTE) hearing aids; however, several importers have established U.S. facilities primarily for producing custom-made hearing aids (p. 76).

1. Structure of the domestic and foreign industry

- o <u>The size of firms in the U.S. hearing aid industry varies from small to large, but the four largest account for over one-half of U.S. producers' shipments</u>.

Approximately 60 firms produce hearing aids in the United States. Of the 14 that produce standard hearing aids, 11 also produce custom-made hearing aids. Over 50 percent of producers' shipments in 1984 were accounted for by 4 producers; and 11 accounted for over 90 percent. Whereas there have been no new entries producing standard hearing aids since 1981, 9 of the leading 25 producers of custom-made hearing aids began production after that year because of the shift in demand to custom-made hearing aids and the relatively low capital investment required for such production. Producers in the Minneapolis, Minnesota, metropolitan area accounted for over half of U.S. producers' shipments of hearing aids in 1984 (p. 10).

- o Reflecting the demand in local markets, foreign manufacturers emphasize the production of standard BTE hearing aids.

The principal foreign producers of hearing aids are located in Denmark, West Germany, Switzerland, and Canada, with less prominent suppliers located in the United Kingdom, Austria, Japan, the Netherlands, Spain, and Italy. In these markets, with the exception of Canada and Italy, standard hearing aids reportedly supply over 90 percent of the demand. Reflecting this fact, the principal foreign producers have concentrated their research and development efforts on standard BTE hearing aids (the most widely used type of hearing aid) with respect to refining the product, providing more power, and reducing the costs of production (p. 66).

- o Among the affiliates of foreign manufacturers, three accounted for *** percent of U.S. producers' shipments of standard hearing aids in 1984, and seven accounted for 10 percent of U.S. shipments of custom-made hearing aids.

Two U.S. affiliates of manufacturers in West Germany and one affiliate of a producer in Switzerland accounted for over *** percent of U.S. producers' shipments of standard hearing aids in 1984. Furthermore, in order to participate in the growing custom-made segment of the market, five affiliates of producers in Denmark, Switzerland, and Japan have established manufacturing facilities in the United States since 1981. Combined with the two West German affiliates, they accounted for 10 percent of U.S. producers' shipments of custom-made hearing aids in 1984 (tables 33 and E-2).

2. Trends in U.S. shipments, inventories, exports, employment, profitability, and investment.

- o The trend of U.S. producers' shipments of hearing aids moved upwards during 1980-84.

U.S. producers' shipments of hearing aids, in terms of value, rose from $87 million in 1981 to $121 million in 1984, or by 39 percent. U.S. producers' shipments of standard hearing aids, however, fell from $49.0 million to $41.4 million, or by 16 percent. About 90 percent of total shipments of standard hearing aids consisted of BTE hearing aids. The value of custom-made hearing aids, on the other hand, grew from $38.0 million to $79.6 million, or by 63 percent. As a result, the share of producers' shipments accounted for by standard hearing aids fell from 56 percent to 34 percent during 1980-84. The downward trend in the value of U.S. producers' shipments of standard hearing aids is attributed in part to greater public acceptance of custom-made hearing aids. Production capacity for standard hearing aids dropped 10 percent during 1980-84, and capacity utilization fell from 84 percent to 73 percent during the period and to 62 percent in the first half of 1985 (p. 22).

- o U.S. producers' inventories of standard hearing aids climbed during 1980-84.

Since custom-made hearing aids are made to order, none were held in inventory during 1980-84. Inventories of standard hearing aids, however, rose by 47 percent during the period, from 29,000 units to 43,000 units. This buildup in inventories of standard hearing aids reflects, in part, the inability of many U.S. producers to anticipate the swiftness in the shift of demand toward custom-made hearing aids (p. 31).

- o U.S. exports of hearing aids and parts rose steadily during 1981-84, and then during January-June 1985, largely because of an increase in exports of hearing aid parts.

U.S. exports of hearing aids and parts increased by 66 percent in terms of value during 1981-84, from $15.2 million to $25.3 million. Exports of hearing aids and parts were 81 percent as large as total imports in 1984; however, based on questionnaire responses, exports accounted for 7.1 percent of U.S. producers' shipments in that year. Exports of parts accounted for *** percent of total exports in 1984, up from *** percent in 1981. Exports of parts go to U.S. subsidiaries and foreign firms in the principal producing countries. Since a manufacturer in the United States is the world's largest supplier of hearing aid components, a large portion of these parts reenter the United States as finished hearing aids (p. 48).

- o The overall number of production and related workers increased, but those involved in the manufacture of standard hearing aids declined.

In 1981-84, the average number of production and related workers at companies producing hearing aids grew from 1,557 to 2,092, or by one-third. However, during the period, the average number of workers engaged in the manufacture of standard hearing aids declined 23 percent, from 948 to 731, and hours worked fell by 20 percent, from 1.8 million to 1.4 million. The number of workers involved in the production of custom-made hearing aids grew by 123 percent, from 609 to 1,361, and hours worked rose by 164 percent, from 1.1 million to 3.0 million. The share of all hearing aid production workers involved in making standard hearing aids dropped from 61 percent to 35 percent during 1980-84 (p. 12).

- o Although hearing aid manufacturers, in aggregate, remained profitable during 1981-84 and January-June 1985, the ratio of operating income to net sales declined after 1983 for both standard and custom-made hearing aids, but for quite different reasons.

The ratio of operating income to net sales on standard hearing aid operations, after averaging 8.1 percent during 1981-83, dropped to 4.5 percent during January-June 1985. Similarly, the average markup per unit fell from 64 percent to 47 percent between 1983 and the January-June 1985 period as production costs per unit rose 12 percent and the average selling price rose only 2 percent in a period during which net sales fell 12 percent (1984) and 21 percent (January-June 1985). By contrast, net sales of custom-made hearing

aids expanded 39 percent in 1984 and 18 percent during January-June 1985. Yet the ratio of operating income to net sales dropped from 7 percent to 1.2 percent between 1983 and January-June 1985, and the markup per unit fell from 64 percent to 47 percent, reflecting a 21 percent rise in the production cost per unit against an increase in the average sales price of only 9 percent.

Lost economies of scale and reduced profits caused by rising costs, which the standard hearing aid industry is experiencing, are typical of an industry that manufactures a mature product. On the other hand, the custom-made hearing aid industry is experiencing difficulties typical of those of an industry manufacturing products in the early stages of their life cycle. Because of rapid entry, new firms must be able to recoup startup costs and continue improvements in componentry. Although these improvements generate increased sales, the higher production cost per unit reduces profitability. Also, production is not able to move very far along the learning curve before adjustments have to be made for further innovations. During this early stage of production, companies producing custom-made ITE hearing aids had to adjust to the introduction of the canal hearing aid, which was a major modification in that industry (p. 36).

- o Since 1981, U.S. producers have invested more than twice as much in their custom-made hearing aid operations as in their standard hearing aid operations ($19.5 million to $8.8 million).

Between January 1981 and June 1985, U.S. producers invested $12.9 million in capital expenditures on custom-made hearing aids compared with $6.2 million for standard hearing aids. Similarly, during the period, these producers invested $6.6 million on research and development for custom-made hearing aids compared with $2.6 million for standard hearing aids. Capital investment amounted to 3.1 percent of sales for standard hearing aids compared with 5.1 percent for custom-made hearing aids. Similarly, research and development expenses amounted to 1.3 percent of sales for standard hearing aids compared with 2.6 percent for custom-made hearing aids (p. 44).

3. The U.S. market

- o The U.S. market for hearing aids is in a period of transition from standard hearing aids to custom-made hearing aids.

The U.S. market has shifted from being *** percent standard hearing aids in 1981 (534,200 units out of *** units) to *** percent custom-made hearing aids in 1984 (*** units out of *** million units) and to *** percent custom-made hearing aids in the first half of 1985 (*** units out of *** units). The impetus for this change has been the further miniaturization of components, allowing the custom-made hearing aids to be made more powerful, thus permitting people with more severe hearing losses to be fitted with less cumbersome, less visible hearing aids. Market growth in this segment of the industry has also been assisted by improved education of dispensers (retailers) in administering and interpreting audiograms and in making ear molds for custom-made hearing aid shells. Furthermore, manufacturers have learned how to place the electronic components more effectively in the shells

and on the faceplates to improve the quality of sound available from custom aids. All this has served to improve the reputation of custom-made hearing aids among the hearing impaired. Consequently, in addition to appealing to first-time hearing aid users, current wearers of BTE and eyeglass hearing aids are switching to custom-made hearing aids (p. 78).

o While no U.S. producers of standard hearing aids have gone out of business during the study period, all but 2 of the 14 U.S. producers of standard hearing aids had entered the custom-made hearing aid market by June 1985.

Standard hearing aid manufacturers are faced with a remaining market in which the end consumer is likely to have a hearing loss too profound to be adequately assisted by the relatively small custom models. Therefore, a greater portion of the remaining standard hearing aid market requires high-powered BTE hearing aids, a market segment in which producers in Denmark, West Germany, Switzerland, and Canada are most competitive. To maintain overall market shares, standard hearing aid suppliers, including U.S. affiliates of foreign manufacturers, have had to add facilities for producing custom hearing aids (pp. 78-79).

o The value of U.S. consumption of hearing aids increased.

During 1981-84, the value of apparent U.S. consumption of hearing aids rose by *** percent, from *** million to *** million. Apparent U.S. consumption of standard hearing aids grew only slightly, from $59.5 million to $60.0 million; imports, however, constituted an increasing share of total U.S. consumption of standard hearing aids. With the increasing popularity of custom-made hearing aids, which were virtually all produced in the United States, apparent U.S. consumption of such aids increased *** percent, from *** million to *** million (p. 79).

o Ninety percent of hearing aids are sold through dispensers.

Hearing aid dispensers (usually small retailers that sell only hearing aids) account for approximately 80 percent of shipments of standard hearing aids by both U.S. producers and importers and nearly all shipments of custom-made hearing aids. These dispensers usually determine the brands and types of hearing aids from which the final customer will choose. Because final customers are usually willing to pay more for sophisticated, higher quality hearing aids from manufacturers with reputations for service and reliability, the dispensers' choice of lines to carry usually depends on which line they believe will generate the greatest return on their investment rather than strictly the lowest priced hearing aids available (p. 31).

o Federal Government purchases of hearing aids accounted for 5 percent of U.S. consumption in 1984; other non-profit institutions, 1 percent; and other hospitals and clinics, 7 percent.

Purchases by the Federal Government * * * accounted for 5 percent of both U.S. producers' domestic shipments and U.S. imports in 1984. However, sales to the Federal Government represented *** percent of U.S. producers' domestic

shipments of standard hearing aids in 1984, compared with 5 percent of U.S. imports. Furthermore, the Federal Government accounted for 3 percent of U.S. producers' domestic shipments of custom-made hearing aids, whereas it did not purchase any imported custom-made hearing aids (table 13). In 1984, the VA alone accounted for *** percent of U.S. consumption of standard hearing aids and *** percent of custom-made hearing aids. Imports supplied *** percent of the VA's purchases of BTE hearing aids in 1984, *** percent of its eyeglass hearing aids, and *** percent of its body aids. * * *.

Other non-profit institutions also purchased all of their custom-made hearing aids from U.S. producers in 1984, but 92 percent of their purchases of standard hearing aids were imported. Many questionnaire respondents asserted that it was impossible or impractical to discern the nonprofit status of their hospital and clinic customers. Imports sold to these organizations amounted to 10.5 percent of total imports of standard hearing aids in 1984. Only 0.9 percent of U.S. producers' domestic shipments of standard hearing aids were sold to hospitals and clinics. Imports accounted for 93 percent of the purchases of standard hearing aids by hospitals and clinics in 1984 and 2 percent of their purchases of custom-made hearing aids (table 13).

4. U.S. imports

o U.S. imports of standard hearing aids increased markedly.

The value of total U.S. imports of finished hearing aids increased by 33 percent during 1981-84, from $17.4 million to $23.1 million (p. 63). Standard hearing aids accounted for 99 percent of total U.S. imports of hearing aids (the value of imports of custom-made hearing aids amounted to *** in 1981 and *** in 1984). Imports of BTE hearing aids increased from $12.6 million to $20 million, or by 60 percent. Imports of eyeglass hearing aids increased from $360,000 to $459,000 and that of standard ITE hearing aids grew from $318,000 to $487,000. Of total imports in 1984, Denmark accounted for 43 percent; Switzerland, 20 percent; West Germany, 14 percent; Canada, 7 percent; and the United Kingdom, 6 percent. U.S. subsidiaries of foreign firms accounted for 71 percent of total imports in 1984. U.S. imports of parts for hearing aids increased from $3.0 million in 1981 to $8.2 million in 1984 (p. 51).

o Although imports of standard hearing aids increased by one-third after implementation of Public Law 97-446, other factors, including the shift in the market toward custom-made hearing aids, reported expanding quality differences between imported and domestically produced standard hearing aids, and exchange rate fluctuations, also contributed to the rise in imports and the decline in the performance of the portion of the U.S. industry producing standard hearing aids.

On the basis of quantity, the ratio of imports to apparent consumption by all U.S. purchasers for all types of hearing aids slipped from *** percent (*** v. *** units) in 1981 to *** percent (*** v. *** units) in 1984, and to *** percent (*** v. *** units) during January-June 1985 (table 34). For

standard hearing aids, however, imports made up 39 percent (209,000 v. 534,000 units) of apparent consumption of standard hearing aids in 1981 and 52 percent (261,000 v. 505.000 units) in 1984 (table 35). For purchases by commercial (for profit) establishments in 1984, imports accounted for 24 percent (250,000 v. 1,051,000 units) of U.S. consumption of all types of hearing aids and 53 percent (246,000 v. 466,000 units) of U.S. consumption of standard hearing aids (tables 13, 34, and 35).

Imports and the import to consumption ratio for standard hearing aids jumped in 1983 and then again in 1984, while U.S. shipments declined. While the shifts were coincident with the availability of duty-free treatment for all hearing aids under TSUS item 960.15, they were also coincident with significant changes in other market factors that influenced domestic shipments and trade.

One such factor was the market shift toward the increased consumption of custom-made hearing aids, from a *** percent increase in 1982 compared with consumption in 1981 (314,000 v. 271,000 units) to a 42-percent surge in 1983 over 1982 (*** v. *** units) and to a *** percent increase in 1984 over 1983 (*** v. *** units) (table 40). As the U.S. industry adjusted to this shift in demand, there were declines in U.S. production capacity for standard hearing aids (from 423,000 units in 1981 to 380,000 units in 1984) compared with increased capacity for custom-made hearing aids (from 379,000 units in 1981 to 821,000 units in 1984). As already mentioned, capital investment was also lower in standard hearing aid facilities than in the custom-made area (pp. 17 and 44).

Another factor in the import rise in 1983 and 1984 was the reportedly increased emphasis on improvements of standard BTE hearing aids by foreign manufacturers, as U.S. producers concentrated more effort on custom-made hearing aids. Thus, research and development expenditures as a share of sales by U.S. producers during the study period amounted to half as much for standard hearing aids as for custom-made hearing aids (p. 47). One indication of * * * comes from an examination of Veterans Administration purchases during the period. The Veterans Administration, reportedly the * * * of hearing aids, under competitive bidding * * * toward * * * production, reported that * * * BTE hearing aids increased their share of VA purchases from *** percent in 1981 to *** percent in 1984 (p. 92).

A final factor affecting import levels was the shift in exchange rates during the period of study between the dollar and currencies of the major supplying countries. Currencies of the two countries supplying the bulk of imported BTE hearing aids, Denmark and Switzerland, depreciated relative to the U.S. dollar by 24.8 percent and 26.8 percent, respectively (app. G). This percentage change provides an indication of the amount that the dollar prices of imported BTE hearing aids could have been reduced in the U.S. market without a reduction in the foreign profits if there were no dollar-denominated costs or contracts. There were dollar-denominated costs, however, to the extent that imported BTE hearing aids incorporated U.S.-made components (p. 11).

- o Imports under TSUS item 807.00 declined as duty-free imports under item 960.15 grew.

U.S. imports of hearing aids under TSUS item 807.00, whereby no duty is applied to the value of U.S.-made components contained in the imported article, fell from $12.9 million in 1981 when they accounted for 74 percent of total imports, to $2.6 million in 1984 (table 28). However, U.S. imports of hearing aids under item 960.15 amounted to $19.2 million in 1984, accounting for 82 percent of total imports in 1984 (such imports enter duty free pursuant to the provisions of Public Law 97-446) (table 30). If importers did not have duty-free treatment available to them through TSUS item 960.15, it is likely that the bulk of them would revert to importing their hearing aids under TSUS item 807.00.

5. Factors of competition

- o Dispensers indicated that quality, service, and reliability of the supplier are more important factors of competition than price in choosing suppliers of hearing aids.

In response to a Commission survey, dispensers most often cited quality of products as an extremely important factor in selecting a supplier, followed by service and reliability of supplier. Net price was considered less important than these factors. Since there are a number of suppliers among both domestic producers and importers with strong reputations for service and reliability with regard to standard hearing aids, neither of these can be considered as factors giving domestic or foreign producers an advantage.

Many industry executives interviewed asserted, however, that the leading importers had an advantage at least in the reputation of offering higher quality BTE hearing aids than are generally available from the U.S. industry. This tends to be borne out in that (1) a greater portion of imports than domestically produced standard hearing aids are sold to hospitals and clinics, (2) * * *, and (3) the leading importers tend to import BTE hearing aids with higher average unit values than those imported by firms less successful at penetrating the U.S. market. With regard to custom-made hearing aids, service considerations essentially dictate that manufacturers be physically located in the United States. Quality is an important factor in choosing among domestic suppliers of custom hearing aids (p. 83).

- o Promotional incentives, aimed at dispensers, may be an important factor of competition.

Nearly every industry representative interviewed reported that promotional incentives, particularly travel incentive programs, are the most important factor of competition among suppliers offering hearing aids of reasonably good quality. Typically, producers advertise these trips as educational tours that include discussions of technical developments in the industry as well as factory visits. Dispensers allegedly view them as free

vacations. 1/ In order to earn the trip, dispensers must order a certain volume of hearing aids in a given time period. Trips offered by foreign producers include Copenhagen, Berlin, Bavaria, Switzerland, Japan, and the Bahamas. U.S. producers have reportedly countered with trips to Acapulco, Las Vegas, Phoenix, and the Bahamas. All industry representatives with whom the issue was discussed claimed that the emergence of travel incentive programs gives certain foreign producers a distinct competitive advantage. Some representatives of foreign producers lamented the fact that once the incentive quota is filled, some dispensers begin ordering from other suppliers to build points toward a trip to another location (p. 98).

- o Price differences between imported and domestically produced standard hearing aids were often outweighed by other factors of competition.

Despite an average delivered price to retailers 6.6 percent above that of U.S. produced BTE hearing aids in 1984 ($177.50 compared with $166.50), U.S. imports of BTE hearing aids (91 percent of all imported standard hearing aids) increased by 26,500 units in 1984 over 1983 (by 13 percent), and U.S. producers' shipments fell by 24,300 units (by 9 percent). Imported BTE hearing aids continued to be priced higher to the retailer in the first two quarters of 1985; however, imports declined during that period by 21,000 units compared with those during the first 6 months of 1984 (by 18 percent). Producers' shipments also declined in the first half of 1985, by 17,200 units (by 14 percent) (pp. 22 and 55).

1/ The issue of promotional incentives (i.e., free trips) was not brought to the attention of the staff until after the questionnaires were mailed. Consequently, dispensers were not asked to judge the importance of that factor of competition.

THE EDUCATIONAL, SCIENTIFIC, AND CULTURAL MATERIALS IMPORTATION ACT OF 1982

Background

The Educational, Scientific, and Cultural Materials Importation Act of 1982 (the act) was intended to provide the basis for U.S. implementation of the Protocol to the so-called Florence Agreement on the Importation of Educational, Scientific, and Cultural Materials (7 U.S.T. 1837). The Protocol (97th Cong., 1st sess., Senate Treaty Document 97-2, p. 9), known as the Nairobi Protocol for its place of adoption, is a multilateral agreement sponsored by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and intended to expand the scope of duty-free treatment afforded under the earlier Florence Agreement to specified educational, scientific, and cultural materials (ESCM). Because some of the articles covered by the Protocol are dutiable under the Tariff Schedules of the United States (TSUS), domestic implementing legislation is required to give effect to certain provisions. A general overview of the Florence Agreement (which did not include articles for handicapped persons other than the blind) and of the Nairobi Protocol, together with a discussion of their implementation by the United States, illustrates their range and objectives.

The agreement

The Florence Agreement was adopted by the General Conference of UNESCO in July 1950, and entered into force for 10 countries on May 21, 1952. The agreement provides for the exemption from customs duties of specified publications, other information materials, and objects of cultural and artistic interest in order to promote the free exchange of ideas. The United States signed the agreement and an accompanying protocol of reservation in 1959, but implementing legislation was not approved until October 14, 1966. The agreement entered into force for the United States on November 3, 1966, upon issuance of Presidential Proclamation No. 3754; but duty-free treatment commenced on February 1, 1967.

The agreement obligated contracting parties to refrain from applying customs duties or other charges on enumerated classes of books, publications, and documents; on original works of art, hand-executed copies, and collector's pieces; on certain visual and auditory materials; and on limited categories of scientific instruments and articles for the blind, as well as on books and publications in Braille or other raised characters. Imports of ESCM for exhibit and reexport are also afforded free entry. Exceptions to these obligations can be made on grounds relating directly to national security, public order, or public morals. 1/ Conciliation and the referral of disputes to the Director-General of UNESCO were provided for in Articles VII and VIII.

In the U.S. legislation implementing the agreement, 2/ Congress adopted several new TSUS items covering certain books, toy books, periodicals, foreign

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1/ Agreement, art. V.

2/ Public Law 89-651 of Oct. 14, 1966, 80 Stat. 807.

tourist literature, music, maps, atlases, charts, works of art, and antiques, with duty rates of "free" for imports from any source. Additionally, specified articles imported by educational, scientific, and certain other institutions were granted free entry on a case-by-case basis, as approved by the Secretaries of Commerce and the Treasury. The importing institution must establish that no domestically produced article of equivalent scientific value can be substituted for the apparatus being imported; if such a showing is deemed insufficient by the above officials, appropriate duties must be paid. This procedure is detailed in headnote 6, part 4, schedule 8 of the TSUS.

The Protocol

The Nairobi Protocol, drafted between 1973 and 1976, was opened for signature on March 1, 1977, and represents both an extension of the agreement to additional categories of articles and an application of original provisions to new products. The Protocol has eight annexes. Four of these Annexes are mandatory for contracting parties, and cover groups of articles to receive duty-free treatment; a fifth annex has two versions, one broader than the other. The hearing aids subject to this investigation are covered by Annex E, one of the mandatory annexes.

Under the Protocol, a contracting party is obligated to exempt the following articles from customs duties and other charges: 1/

(1) printed books; printed publications and documents of a noncommercial character; microforms of all the foregoing; catalogs of visual and auditory material of an educational, scientific, or cultural nature; scientific maps and charts; architectural, industrial, or engineering plans; and bibliographical information for free distribution [Annex A];

(2) works of art and collectors' pieces of an educational, scientific, or cultural character [Annex B];

(3) scientific apparatus or instruments imported by approved public or private scientific or educational institutions, when articles of equivalent scientific value are not manufactured in the importing country; spare parts, components or accessories therefor; and tools for the maintenance, checking, gauging or repair of such apparatus or instruments (within specified requirements) [Annex D]; and

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1/ These "other charges" would not include internal taxes or charges not exceeding those assessed directly or indirectly on like domestic products, or fees and charges, other than customs duties, reflecting the cost of services rendered by the importing country's government and not representing either an indirect protection to domestic products or a revenue tax on imports.

(4) articles specially designed for the use or advancement of the blind or other physically or mentally handicapped persons, when the articles are imported by approved institutions concerned with the education of or assistance to such persons and when no equivalent objects are being manufactured in the importing country [Annex E--adopted by the United States without regard to the type of importer and with no equivalency restrictions].

Contracting parties also agree to extend such duty-free entry to either of the following:

(1) visual and auditory materials, including films (or negatives); sound recordings; patterns, models (except toy models), and wall charts of an educational, scientific, or cultural character; videotapes; holograms; multimedia kits; and other materials [Annex C.1--originally adopted by the United States 1/]; or

(2) the same materials, when limited to those of an educational, scientific, or cultural character [Annex C.2].

Parties can choose to grant free entry to sports equipment (Annex F), musical instruments and equipment (Annex G), and/or material and machines used for the production of books, publications, and documents (Annex H) under specified circumstances. The United States has not adopted these three annexes.

No duties or other charges can be assessed on any of the above articles upon export to another contracting party. Licenses and foreign exchange, or both, are to be provided by the parties to public and private organizations importing the printed, visual, and auditory materials mentioned above. Parties undertake to promote the free circulation of educational, cultural, or scientific materials, as well as knowledge and ideas, and to assist in handling imported materials for showing at public exhibition. The Protocol does not supersede any laws, regulations, or agreements relating to copyright, trademarks, or patents.

Restrictions on the importation or subsequent circulation of these articles can be applied if directly based on national security, public order, or public moral considerations. In addition, developing countries that are parties to the Protocol may suspend or limit any of their obligations when

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1/ In the 1982 act, the broad coverage of Annex C.1 was adopted with respect to the United States in the hope that other countries would also adopt it. However, in proposed legislation to amend some of the provisions of the 1982 act (H.R. 2885 and S. 1274), the United States would implement Annex C.2 with the potential of moving to Annex C.1 at a later date.

importation of an article causes or threatens serious injury to nascent indigenous industry. 1/ All such restrictive actions can be implemented only upon notification and in a nondiscriminatory manner. A dispute settlement mechanism is provided, calling for conciliation or ultimately for referral to the Director-General of UNESCO for an advisory opinion.

In ratifying the agreement, the United States was permitted to attach a reservation providing for the suspension of any obligation under the agreement should a product be imported in increased quantities and under such conditions as to cause serious injury to the domestic industry producing a like or directly competitive product. Notification and consultation under the auspices of UNESCO are required, except in critical circumstances, prior to such U.S. action pursuant to the reservation. Since the United States has not yet formally ratified the Protocol, no such provision now exists in relation to it; however, domestic legislation providing for certain safeguards to some articles does exist (discussed in the next section).

U.S. Implementation

After extensive interagency participation, including work by officials of the Commission, draft legislation to give effect to the Protocol was submitted to the Congress 1/ and was enacted as subtitle B, title I, of Public Law 97-446 (96 Stat. 2329, 2346, Jan. 12, 1983). The act, known as the Educational, Scientific, and Cultural Materials Importation Act of 1982, had two basic functions. First, it established new provisions in the TSUS to provide duty-free entry for specified ESCM, but these provisions would become effective only upon Presidential proclamation; it was intended that the United States delay permanent implementation in order to encourage other countries to ratify and implement the Protocol.

Thus, with that goal in mind, the second portion of the act directed the President to proclaim a temporary duty-free treatment for articles for the handicapped covered by the new permanent provisions and permitted him to do so for the remaining articles that would be covered by those tariff items during the 2-1/2-year period after enactment of the act. This temporary tariff treatment was provided in Presidential Proclamation No. 5021 of February 14, 1983 (48 F.R. 6883), and formally expired on August 11, 1985; items 960.10 to 960.80 were established in the Appendix to the TSUS for that purpose, along with two headnotes. The first note states that the temporary provisions prevail over any items in schedules 1 through 8. The second headnote sets forth a broad definition of the term "physically or mentally handicapped persons" for purposes of the three tariff items covering articles for such persons. Under the liberal interpretation desired by the U.S. Government, in order to assist handicapped persons, an enumeration of the articles to receive duty-free treatment was considered to be impossible.

The act also authorized the President to limit duty-free treatment applicable to articles for the handicapped and to tools for those scientific instruments and apparatus covered by the Florence Agreement (in general, tools

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1/ H.R. 6093 and S. 2685, 97th Congress.

not imported along with the instruments and apparatus). Accordingly, the President may, by proclamation, narrow the scope of, or place conditions upon, the duty-free treatment afforded to those articles, when such treatment (1) "has significant adverse impact on a domestic industry (or portion thereof) manufacturing or producing a like or directly competitive article" and (2) "is not provided for in the Florence Agreement or the Nairobi Protocol." 1/

U.S. TARIFF TREATMENT

Hearing aids and parts thereof are now provided for eo nomine in TSUS item 709.50, with a column 1 rate of duty 2/ of 4.7 percent ad valorem; this rate is scheduled to be reduced to 4.4 percent ad valorem in 1986 and to 4.2 percent ad valorem in 1987 and thereafter (table 1, app. C). Imports from least developed developing countries (LDDC's) 3/ are dutiable at a rate of 4.2 percent ad valorem, representing the final reduction in the column 1 rate of duty negotiated in the Tokyo round of the Multilateral Trade Negotiations (MTN). The column 2 rate of duty 4/ is 35 percent ad valorem. Hearing aids that are the product of designated beneficiary developing countries are

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1/ The second criterion effectively means that limitations on the duty-free treatment for imports of the two categories of articles covered by this safeguard provision can be imposed only to the extent that the United States has afforded duty-free entry on a scope broader than is required by the two agreements. Thus, for example, if an approved institution were importing a braille computer terminal--within the mandatory minimum coverage of Annex E--no limitation on the duty-free treatment for such an article would be permissible under the U.S. statute.

2/ The rates of duty designated as col. 1 rates are most-favored-nation (MFN) rates and are applicable to imported products from all countries except those Communist countries and areas enumerated in general headnote 3(f) of the TSUS. The People's Republic of China, Hungary, Romania, and Yugoslavia are the only Communist countries eligible for MFN treatment. However, MFN rates would not apply to products of developing countries if preferential tariff treatment is granted under the Generalized System of Preferences (GSP) or the Caribbean Basin Economic Recovery Act (CBERA), or under the LDDC's rate.

3/ The preferential rates of duty designated as LDDC rates reflect the full U.S. MTN concession rates implemented without staging for particular items and apply to covered products of the LDDC's, enumerated in general headnote 3(d) of the TSUS. When no rate of duty is designated as an LDDC rate for a particular item, the col. 1 rate of duty applies.

4/ The rates of duty designated as col. 2 rates apply to imported products from those Communist countries and areas enumerated in general headnote 3(f) of the TSUS.

Table 1.--Hearing aids and parts thereof: U.S. rates of duty, by TSUS items

(Percent ad valorem)

TSUS item No.1/	Description	Pre-MTN col. 1 rate of duty 2/	Staged col. 1 rate of duty effective with respect to articles entered on or after Jan. 1-- 3/			
			1980	1981	1982	1983
709.50A	Hearing aids and parts thereof-----	6%	5.8%	5.6%	5.3%	5.1%

TSUS item No.1/	Description	Staged col. 1 rate of duty effective with respect to articles entered on or after Jan. 1--Continued				Col. 2 rate of duty
		1984	1985	1986	1987	
709.50A	Hearing aids and parts thereof-----	4.9%	4.7%	4.4%	4.2%	35%

1/ The designation "A" means that all beneficiary developing countries are eligible for the GSP.

2/ Rate effective prior to Jan. 1, 1980.

3/ Rate negotiated in the Tokyo round of the Multilateral Trade Negotiations in Geneva, to be achieved through annual reductions, with the final reduction to be effective Jan. 1, 1987.

eligible for duty-free entry under both the GSP 1/ and the CBERA, 2/ regardless of the developing country concerned. Imports from Israel are likewise free of duty under the U.S.-Israel Free Trade Agreement Implementation Act.

1/ The GSP affords nonreciprocal tariff preferences to developing countries to aid their economic development and to diversify and expand their production and exports. The U.S. GSP, enacted in title V of the Trade Act of 1974 and renewed in the Trade and Tariff Act of 1984, applies to merchandise imported on or after Jan. 1, 1976, and before July 4, 1993. It provides duty-free entry to eligible articles imported directly from designated beneficiary developing countries.

2/ The 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 and implemented by Presidential Proclamation No. 5133 of Nov. 30, 1983, applies to merchandise entered, or withdrawn from warehouse for consumption, on or after Jan. 1, 1984; it is scheduled to remain in effect until Sept. 30, 1995. It provides duty-free entry to eligible articles imported directly from designated Basin countries.

To the extent that a foreign-produced hearing aid is imported for a "physically or mentally handicapped person," under the headnote definitions enacted in the 1982 act or proclaimed in relation to the temporary provisions of Presidential Proclamation No. 5021 (specifically, TSUS item 960.15), the article could receive duty-free entry under the terms of the Protocol. However, the duty suspension under TSUS item 960.15 formally expired on August 11, 1985, and the 1982 act has not been given effect by the President. Although legislation repealing the 1982 act and modifying the tariff treatment contemplated therein has been introduced, with the ultimate goal of U.S. ratification of the Protocol, and although the legislation would retroactively permit duty-free entry pursuant to the Protocol for all covered articles, duty-free treatment expired under present law on August 11. It is the understanding of the Commission staff that duty-free entry with the posting of suitable bond for the duties otherwise payable is being permitted by the Customs Service pending enactment of that legislation.

PRODUCT DESCRIPTION AND USES

A hearing aid is a miniature, portable sound amplifier for persons with impaired hearing to amplify sound before it reaches the receptor organ of the ear. In all hearing aids, the sound energy is converted into electrical energy, amplified, and converted back into sound energy. The two primary groups of hearing aids are standard (conventional) hearing aids and custom-made hearing aids.

Each standard and custom-made hearing aid has a volume control and an off/on switch (frequently in combination with the volume control), a battery compartment, battery (purchased separately from the hearing aid), and the following standard electronic components: (1) a microphone to convert sound energy into electrical energy, (2) an amplifier, and (3) a receiver to convert the electrical energy back into sound energy. In addition to the standard features, there are a host of optional electronic components that are intended primarily to refine the amplified sound. These include the following: (1) tone trimmer(s), to allow adjustments to low frequency gain (amplification); (2) gain trimmer(s), to provide fine adjustments of gain and for eliminating feedback; (3) a frequency dependent input compression trimmer, to minimize distortion and keep output below the user's discomfort level; and (4) a telephone coil (telecoil magnetic induction system) to convert electrical energy to sound energy.

The four types of standard hearing aids are as follows: (1) behind-the-ear (BTE), (2) eyeglass, (3) body, and (4) standard in-the-ear (ITE) (also referred to as a modular ITE). In BTE hearing aids, the miniaturized electronic components are contained in a plastic housing that is designed to fit snugly behind the ear (fig. 1). The electronic components of eyeglass hearing aids are housed in a specially styled eyeglass frame, and sound amplification can be directed to one or both ears (fig. 2). In body hearing aids, the components are contained in a plastic or metal case and such hearing aids are generally carried in the user's pocket (fig. 3). The components of standard ITE hearing aids are enclosed in a standard-size shell that is worn within the concha of the ear and extends partly into the ear canal (fig. 4).

Figure 1.--Standard behind-the-ear hearing aid.

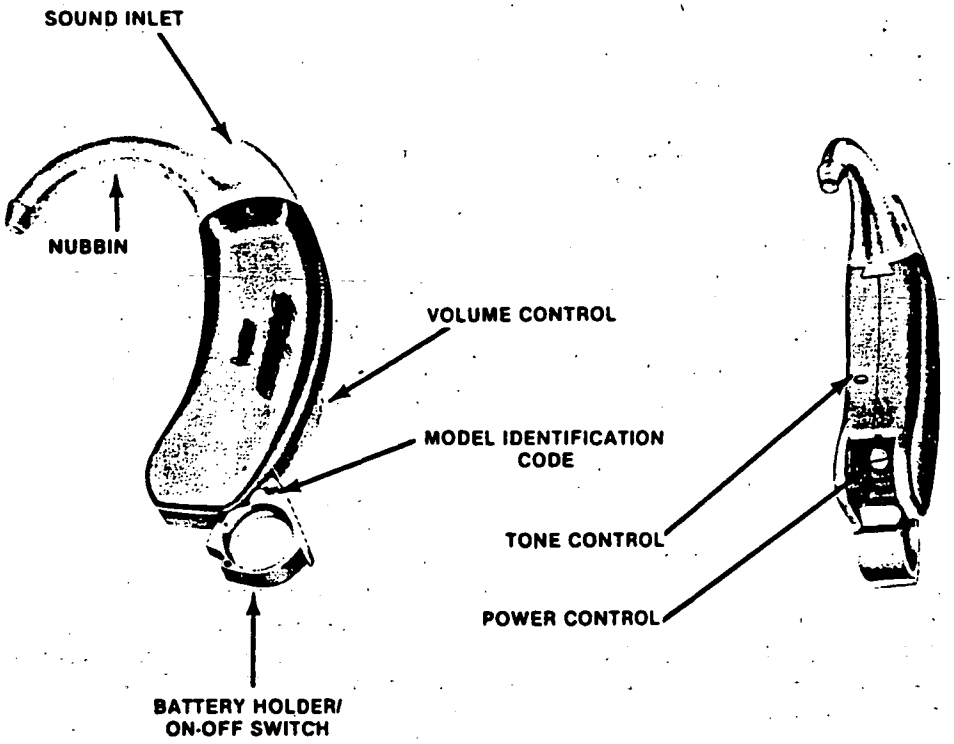


Figure 2.--Standard eyeglass hearing aid.

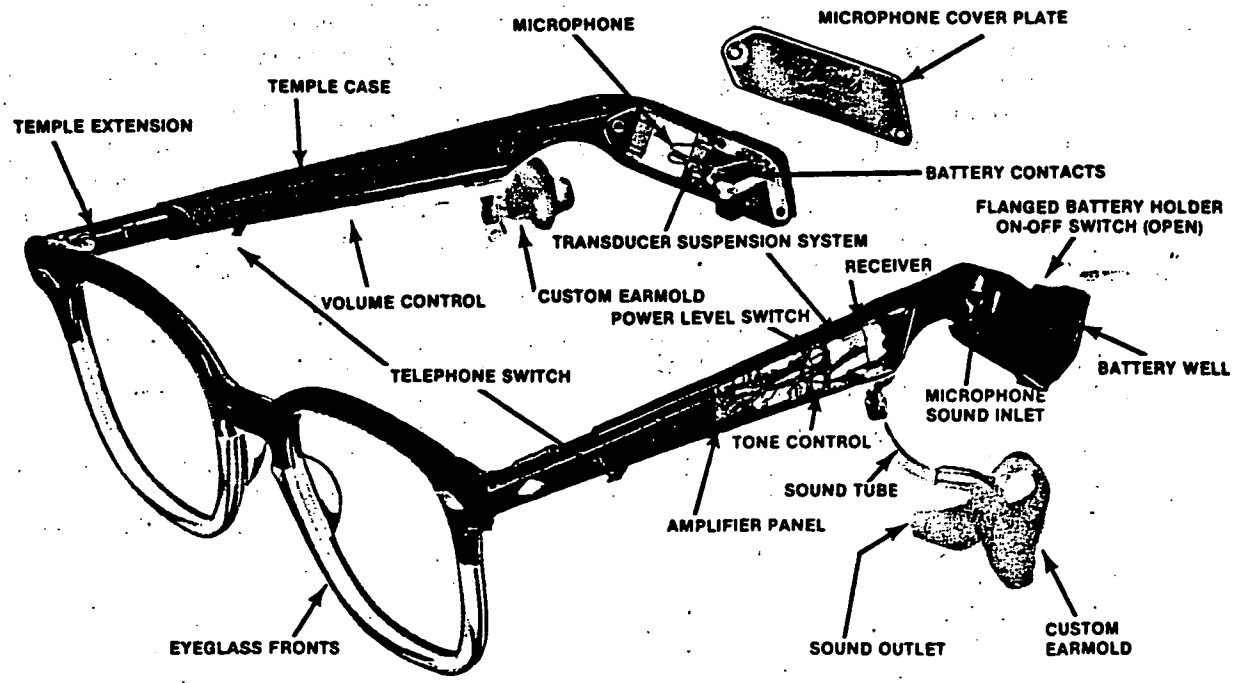


Figure 3.--Standard body hearing aid.

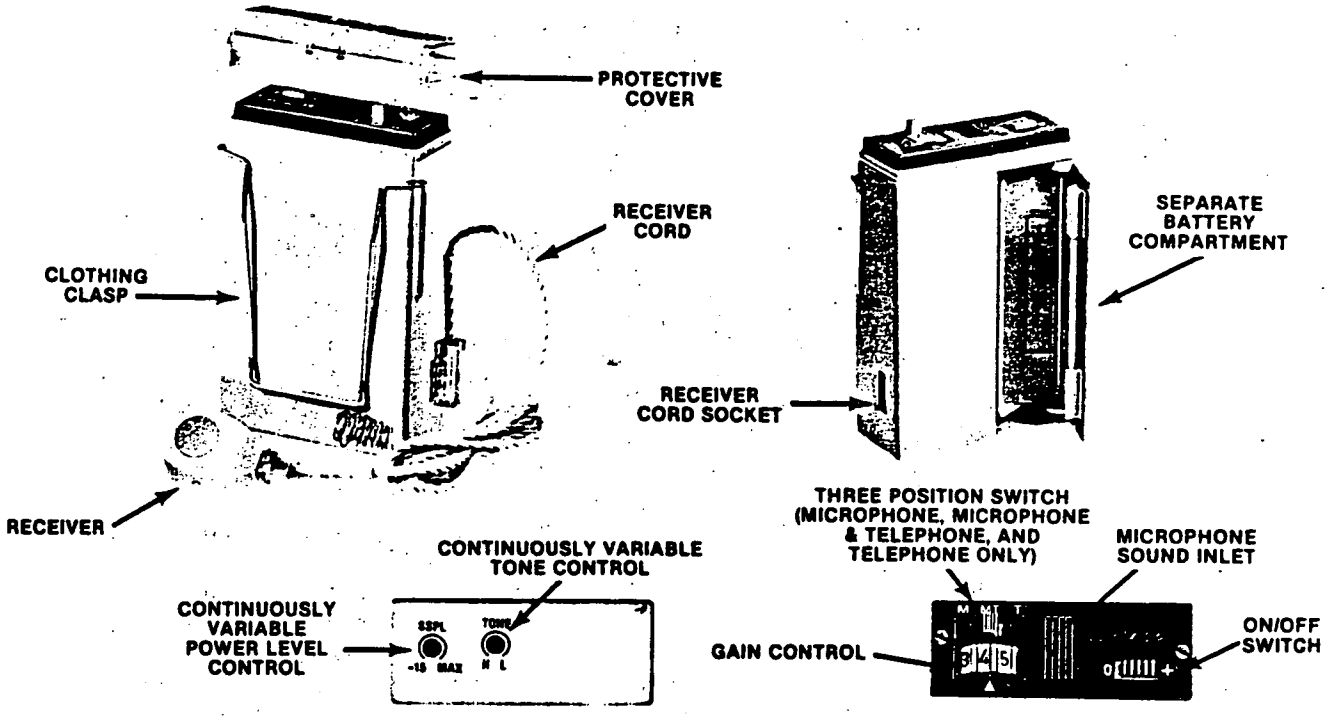
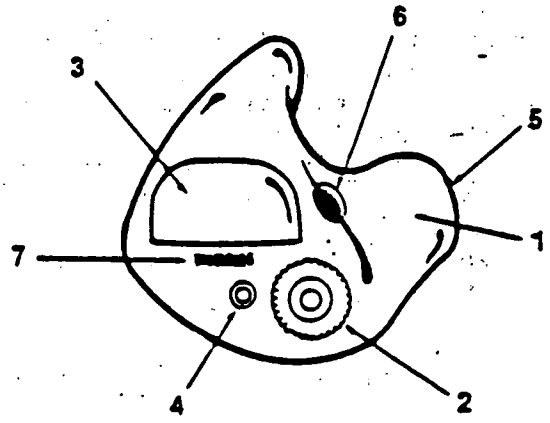
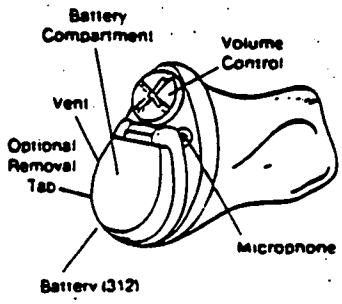


Figure 4.--Standard or custom-made in-the-ear hearing aid.



1. Custom molded case
2. Volume control
3. Battery compartment
4. Microphone
5. Receiver
6. Vent
7. Identification

Figure 5.--Custom-made canal hearing aid.



The two types of custom-made hearing aids are the ITE and the canal. The electronic components of custom-made ITE hearing aids are encased in a custom-made shell that is designed to fit the user's concha and ear canal (fig. 4). The components of a canal hearing aid are contained in a custom-made shell that fits into the user's ear canal (fig. 5).

The single most important factor that determines the type of hearing aid an individual may use is the degree of hearing loss. Hearing loss is measured in terms of hearing threshold level in decibels (dB's). The levels of such loss are generally categorized as follows: mild, up to 25 dB's; moderate, up to 45 dB's; moderate severe, up to 65 dB's; severe, up to 80 dB's; and profound, above 80 dB's. Standard hearing aids, with the exception of standard ITE hearing aids, can be designed to aid most individuals with a hearing loss from mild to profound. Because of the small size of standard ITE hearing aids, which limits the number, sophistication, and power of electronic components that can be embedded into the shell, such hearing aids are restricted to persons with mild to moderate hearing loss. Generally, manufacturers design and produce standard hearing aids that can aid individuals with certain degrees of hearing loss, such as mild to moderate, moderate to severe, or severe to profound, and stock various models with different fitting ranges and optional components to meet the demand for most requests. Consequently, some manufacturers produce and stock more than thirty models of BTE hearing aids, the most widely used type of standard hearing aid.

The market for custom-made ITE hearing aids is restricted to people with mild to moderate-severe hearing loss. (Custom-made ITE hearing aids can be made more powerful than standard ITE hearing aids.) Canal hearing aids can be used only by individuals with mild to moderate hearing loss. These constraints are due to the fact that the relatively small size of the shell limits the types of electronic components that can be encased in the hearing aid. People with small ear canals and those individuals with restricted finger dexterity who would have difficulty adjusting the tiny control elements are also excluded.

Because of the continuous miniaturization of electronic components in recent years, such as the development of a butterfly printed circuit board (which can be folded) and other innovations, manufacturers have been able to increase the amplification capabilities available in the ITE, BTE and canal hearing aids. Thus, people with profound hearing loss, which formerly could only be fitted with body-type hearing aids, can now be fitted with high-powered BTE or eyeglass types. In addition, custom-made hearing aids have acquired greater amplification so that 80 percent of people with some degree of hearing loss can now be fitted with such aids.

PROFILE OF THE U.S. INDUSTRY 1/

Number and Location of Producers

The U.S. hearing aid industry is made up of an estimated 60 firms, all but two of which manufacture custom hearing aids. Twelve, including 11 of the

1/ A profile of each significant U.S. producer may be found in app. E.

14 largest producers, produce both standard and custom-type hearing aids. Eight producers are affiliated with foreign manufacturers of hearing aids. Five firms * * *, rank in the top 10 U.S. producers of both standard and custom-made hearing aids. Fourteen producers are publicly held companies. By far the largest concentration of U.S. producers of hearing aids is in the Minneapolis, MN, area, where, in 1984, eight firms accounted for 53 percent of total U.S. production. The remaining leading producers are located in Illinois, New York, New Jersey, Florida, Texas, and Arizona.

Standard hearing aids

Standard hearing aids are manufactured by 14 firms in the United States: 2 of these producers are subsidiaries of major West German hearing aid manufacturers and another is an exclusive U.S. agent for one of the largest Swiss producers. The three leading manufacturers produced 50 percent of U.S. production of standard hearing aids in 1984, the next seven accounted for 43 percent. Most of the top 10 firms employ more than 100 workers each. The 10 leading manufacturers of standard hearing aids also accounted for 46 percent of U.S. producers' shipments of custom-made hearing aids in 1984.

Custom-made hearing aids

Approximately 58 firms manufacture custom-made hearing aids in the United States; 7 of these companies are subsidiaries or exclusive U.S. representatives of foreign hearing aid manufacturers which also produce hearing aids in the United States. The three largest producers accounted for 52 percent of producers' shipments in 1984; the next seven accounted for 38 percent of shipments of custom-made hearing aids. Several of the top 10 firms employ more than 100 workers each. Most of the remaining producers are small enterprises generally employing less than 10 workers. Attracted by the rapid growth of this segment of the hearing aid market, many establishments for the production of custom-made hearing aids opened since 1982. The capital investment required is less than $10,000. Most of the new entries market hearing aids on a regional basis. Because of intense competition, a large portion of the new entries reportedly go out of business within the first year of operation.

Parts for hearing aids

With the exception of the shell, or case, and certain printed circuit boards, the same components are used for both standard hearing aids and for custom hearing aids. The most important of these interchangable components are receivers, microphones, and amplifiers. Every supplier of hearing aids contacted by the Commissions staff, whether manufacturing in the United States or in foreign locations, purchases the bulk, if not all, of these three components from * * * , which has its principal factory in Illinois and a subsidiary facility in England. 1/ There are only a few alternative suppliers

1/ * * * also has a plant in Taiwan that makes * * * which are used in its own production of electronic components.

in Europe and Japan, and these are used as secondary sources to assure supply. The recent advances in miniaturization of electronic components in hearing aids have been chiefly the result of research and development by * * * for products not related to hearing aids. When * * * makes improvements in hearing aid components as a spin off from its other activities, all hearing aid producers throughout the world benefit. There are numerous domestic and foreign suppliers of other components such as trimmers, capacitors, potentiometers, volume controls, integrated circuit chips, and printed circuit boards. Two important suppliers of these components are located in Maine and Florida. These two U.S. companies export approximately *** of their production to foreign hearing aid manufacturers.

Employment, Hour Worked, and Wages

During 1981-84, the average number of production and related workers employed by producers of hearing aids in the United States grew by 34 percent, from 1,740 to 2,324 (table 2). However, the total number of man-hours worked by production workers engaged in the manufacture of hearing aids during 1981-84 increased 47 percent, from about 3.4 million hours in 1981 to 4.9 million hours in 1984 (table 3). Similarly, wages paid rose from $17.7 million in 1981 to $26.5 million in 1984, or by 50 percent (table 4). The average hourly wage during 1981-84 was $5.52, including fringe benefits. The growth in employment, hours worked, and wages was due primarily to the rise in production of custom-made hearing aids.

Standard hearing aids

From 1981-84, the average number of production workers engaged in the manufacture of standard hearing aids declined from 1,027 to 789 (23 percent), man-hours worked fell from 2 million to 1.6 million (21 percent), and wages paid decreased 11 percent, from $10.3 million to $9.2 million. The average hourly wage paid to such workers increased from $5.19 in 1981, to $5.90 in 1984, reflecting, in part, the retention of workers with the greatest seniority as this segment of the industry declined. However, the average hourly wage declined to $5.43 in early 1985.

Custom-made hearing aids

As production of custom-made hearing aids expanded during 1981-84, the average number of production and related workers engaged in the manufacture of such aids increased 115 percent, from 713 to 1,535. Concurrently, the number of man-hours worked grew by 146 percent, from about 1.4 million hours to 3.4 million hours, and wages paid increased from $7.4 million to $17.3 million, or by 134 percent. Combined, these data indicate that the average hourly wage paid custom workers declined from $5.38 in 1981 to $5.12 in 1984 and to $4.54 in 1985. In contrast to the adjustments necessitated by the industry segment producing standard hearing aids, as custom-made hearing aid producers expand, a larger proportion of their workforce is comprised of employees at entry level wages.

Table 2.--Average number of production and related workers in the hearing aid industry, by types, 1981-84, January-June 1984, and January-June 1985 1/

Item	1981	1982	1983	1984	January-June--	
					1984	1985
Production and related workers engaged in the production of:						
Standard:						
Behind-the-ear	882	843	704	702	666	608
Eyeglass	76	77	57	44	37	36
Body	***	***	***	***	***	***
ITE	***	***	***	***	***	***
Total, standard	1,027	976	810	789	742	688
Custom-made:						
ITE	713	848	991	1,325	1,320	1,319
Canal	-	-	98	210	193	274
Total, custom-made	713	848	1,089	1,535	1,513	1,593
Grand total	1,740	1,824	1,899	2,324	2,255	2,281

1/ Production and related workers include working supervisors and all nonsupervisory workers (including group leaders and trainees) engaged in fabricating, processing, assembling, inspection, receiving, storage, handling, packing, warehousing, shipping, maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), and recordkeeping and other services closely associated with the above production operations. Does not include supervisory employees above the working foreman level, their clerical staff, salesman, or general office workers. Respondents to the Commission's questionnaire accounted for approximately 90 percent of the industry, in terms of producers' shipments, compared with respondents responsible for data collected by the Hearing Industries Association.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 3.--Man-hours worked by production and related workers in the production of hearing aids, by types, 1981-84, January-June 1984, and January-June 1985 1/

(In thousand of hours)

Type	1981	1982	1983	1984	January-June-- 1984	January-June-- 1985
Man-hours worked by production and related workers:						
Standard:						
Behind-the-ear	1,748	1,560	1,382	1,401	675	662
Eyeglass	127	128	98	79	39	37
Body	***	***	***	***	***	***
ITE	***	***	***	***	***	***
Total, standard	1,979	1,777	1,565	1,556	752	754
Custom-made:						
ITE	1,364	1,666	2,044	2,750	1,309	1,546
Canal	-	-	200	627	282	594
Total, custom-made	1,374	1,666	2,244	3,377	1,591	2,140
Grand total	3,353	3,443	3,809	4,933	2,343	2,894

1/ Respondents to the Commission's questionnaire accounted for approximately 90 percent of the industry, in terms of producers' shipments, compared with respondents responsible for data collected by the Hearing Industries Association.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 4.--Wages paid to production and related workers engaged in the production of hearing aids, by types, 1981-84, January-June 1984, and January-June 1985 1/

(In thousand of dollars)

Type	1981	1982	1983	1984	January-June--	
					1984	1985
Standard:						
Behind-the-ear	9,111	8,819	8,761	8,364	4,209	3,609
Eyeglass	609	670	626	438	235	230
Body	***	***	***	***	***	***
ITE	***	***	***	***	***	***
Total, standard	10,267	9,938	9,806	9,176	4,644	4,091
Custom-made:						
ITE	7,390	8,300	12,143	14,483	6,578	7,855
Canal	-	-	1,359	2,808	1,370	1,858
Total, custom-made	7,390	8,300	13,502	17,291	7,948	9,713
Grand total	17,657	18,238	23,308	26,467	12,592	13,804

1/ Respondents to the Commission's questionnaire accounted for approximately 90 percent of the industry in terms of producers' shipments, compared with respondents responsible for data collected by the Hearing Industries Association.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Manufacturing Process

The production process for both standard and custom-made hearing aids is highly labor intensive. Because most electronic components are purchased from outside sources, production is essentially an assembly process. Automatic equipment is used on a limited basis, primarily by several of the leading companies, mostly in production of integrated circuit chips and in soldering discrete components onto the printed circuit boards.

According to industry sources, approximately 25 percent of the production workers are classified as highly skilled, and the remainder as skilled. In the hearing aid industry, highly skilled positions are those that require judgment and considerable experience, while skilled positions are those that generally only require about six months on the job training and experience. The production of custom-made hearing aids requires greater skill than does the production of standard hearing aids; reportedly, that is because some degree of judgment and experience is required in the placement of the various electronic components within the relatively small shells of different sizes, in order to prevent electrical interference and feedback and to effect maximum performance.

Standard hearing aids

The manufacture of plastic housings for standard hearing aids is generally contracted out, with the extrusion toolings being owned by the hearing aid manufacturers. Metal cases for body hearing aids are usually procured from outside sources. Printed circuit boards may be produced in-house or purchased externally. In most cases, however, the discrete electronic components are mounted manually onto a circuit board in-house, or are soldered automatically onto the board by one of various methods. Manual soldering is generally performed by placing the article under a microscope or powerful magnifying glass to enable the assembler to see the discrete components and wires and perform the soldering process. The actual assembly of standard hearing aids is done by assembly line process, and consists primarily of placing and securing the components in the housing, and interconnecting the components. Tests are performed during various assembly stages. After final assembly, each product is tested for performance requirements and inspected for workmanship. Two subsidiaries of foreign firms that produce standard hearing aids in the United States * * * .

Custom-made hearing aids

The shells for custom-made hearing aids are produced to order in-house, and are made by the following process: (1) a negative impression is formed in a reuseable gel from an ear impression that is supplied by the hearing aid dispenser, (2) a liquid plastic is poured into the negative impression, (3) after the plastic has solidified, the shell is cooked in a pressure cooker, and (4) two holes are drilled into the shell; one serves as a vent, the other as the receiver outlet. A faceplate for the opening of the shell is provided with an opening for the battery compartment, an on/off switch, volume control, and other adjustment knobs, as required.

Since each hearing aid is custom made, the type of components that are integrated into the hearing aid are either selected by a computer or by a highly skilled individual. The components to be selected include integrated circuit chips, which may be produced in-house or purchased from outside sources. After the shell has been made and the components selected, the production process includes, in part, the following: (1) attaching the integrated circuit chip to the underside of the faceplate, (2) interconnecting the various electronic components to the integrated circuit chip by soldering wires to the different components, (3) gluing the faceplate to the shell, (4) cutting and trimming the faceplate to the contour of the shell, and (5) sanding and buffing the final product. Thereafter, the completed product is tested to ensure performance quality and inspected for workmanship.

Custom-made hearing aids are usually assembled in a "batch-type" assembly process (certain functions of assembly are performed by a group of workers in an assembly line process). However, in some plants, the complete assembly of the custom-made hearing aid, including the initial testing, is performed by one individual.

Production, Capacity, Capacity Utilization, and Productivity

As shown in table 5, total U.S. production of hearing aids rose sharply from 631,200 units in 1981 to 900,900 units in 1984, or by 43 percent, and this growth continued into the first 6 months of 1985. The rise in production was solely because of a marked increase in the production of custom-made hearing aids. During 1981-84, practical capacity of this industry expanded from 801,700 units to about 1.2 million units, or by 50 percent (table 6). Data on capacity utilization by U.S. producers of hearing aids indicate that the rate of utilization declined from 77.3 percent of capacity in 1981 to 71.3 percent in 1983, but recovered to 75.8 percent during January-June 1985 (table 7). Capacity utilization in the production of custom-made hearing aids declined during 1981-83, from 72.6 to 70 percent, then expanded to 75.9 percent in 1984, and to 81.9 percent in January-June 1985.

Standard hearing aids

Whereas total U.S. unit production of hearing aids grew 43 percent during 1981-84, production of standard hearing aids fell 22 percent, from 356,200 units in 1981, to 277,900 units in 1984. This shift in composition reflects growing public acceptance and sales of custom-made hearing aids. Production of BTE hearing aids declined 20 percent, from 316,000 units to 253,400 units; eyeglass hearing aids 40 percent, from 25,100 units to 12,700 units, and body hearing aids *** percent, from *** units to *** units. Production of standard ITE hearing aids, increased irregularly from *** units in 1981 to *** units in 1984, or by *** percent. The production of BTE hearing aids averaged 91 percent of total production of standard hearing aids. This was primarily because of the technological advances that enable most of the hearing impaired, including those with profound hearing loss, to be fitted with such aids, and also because the control elements are more easily manipulated by individuals with finger dexterity problems. Although production declined by *** percent in the rest of the standard hearing aid industry during 1981-84, production by the three U.S. manufacturing affiliates of foreign producers rose *** percent, as they increased their share of U.S. production from *** percent to *** percent between 1981 and January-June 1985 (table 8, fig. 6).

Concurrent with the drop in production of standard hearing aids, production capacity declined 10 percent, from 422,700 units in 1981 to 380,100 units in 1984. This decline continued during January-June 1985. Capacity utilization declined steadily from 84.3 percent in 1981 to 62.3 percent during January-June 1985. After increasing moderately in 1982 over 1981 (from .227 to .238 units per man-hour worked), productivity dropped slightly in 1984 (to .228 units), then much more sharply in Janaury-June 1985 (to .196 units) reflecting, in part, lost economies of scale (table 8, fig. 7).

Custom-made hearing aids

During 1981-84, total production of custom-made hearing aids rose by 127 percent, from 275,000 units to 623,000 units, and this growth continued during January-June 1985. Production of custom-made ITE hearing aids

Table 5.--Hearing aids: U.S. production, by types, 1981-84, January-June 1984, and January-June 1985 1/

Type	1981	1982	1983	1984	January-June-- 1984	January-June-- 1985
	Quantity (1,000 units)					
Standard:						
Behind-the-ear	316.0	304.2	270.1	253.4	129.6	102.4
Eyeglass	25.1	24.6	19.2	12.7	6.7	4.6
Body	***	***	***	***	***	***
ITE	***	***	***	***	***	***
Total, standard	356.2	340.2	295.6	277.9	142.1	114.2
Custom-made:						
ITE	275.0	315.9	436.2	525.3	244.6	268.6
Canal	-	-	26.8	97.7	41.6	67.8
Total, custom-made	275.0	315.9	463.0	623.0	286.2	336.4
Grand total	631.2	656.1	758.6	900.9	428.3	450.6
	Percent (total units)					
Standard:						
Behind-the-ear	50.0	46.4	35.6	28.1	30.3	22.8
Eyeglass	4.0	3.7	2.5	1.4	1.6	1.0
Body	***	***	***	***	***	***
ITE	***	***	***	***	***	***
Total, standard	56.4	51.9	39.0	30.9	33.3	25.4
Custom-made:						
ITE	43.6	48.1	57.5	58.3	57.0	59.6
Canal	-	-	3.5	10.8	9.7	15.0
Total, custom-made	43.6	48.1	61.0	69.1	66.7	74.6
Grand total	100.0	100.0	100.0	100.0	100.0	100.0

1/ Respondents to the Commission's questionnaire accounted for approximately 90 percent of the industry in terms of producers' shipments, compared with respondents responsible for data collected by the Hearing Industries Association.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 6.--Hearing aids: U.S. production capacity, by types, 1981-84, January-June 1984, and January-June 1985 1/

(In thousands of units)

Type	1981	1982	1983	1984	January-June-- 1984	January-June-- 1985
Standard:						
Behind-the-ear	363.1	362.8	343.0	321.4	157.2	150.0
Eyeglass	35.4	37.1	31.8	25.0	19.9	13.5
Body	***	***	***	***	***	***
ITE	***	***	***	***	***	***
Total, standard	422.7	423.3	401.6	380.1	196.1	183.3
Custom-Made:						
ITE	379.0	444.8	628.2	737.6	347.5	350.0
Canal	-	-	33.5	83.4	39.0	61.0
Total, custom-made	379.0	444.8	661.7	821.0	386.5	411.0
Grand total	801.7	868.1	1,063.3	1,200.1	582.6	594.3

1/ Respondents to the Commission's questionnaire accounted for approximately 90 percent of the industry in terms of producers' shipments, compared with respondents responsible for data collected by the Hearing Industries Association.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 7.--Hearing aids: Capacity utilization by U.S. producers by types, 1981-84, January-June 1984, and January-June 1985

Type	1981	1982	1983	1984	January-June-- 1984	January-June-- 1985
Standard	84.3	80.4	73.6	73.1	72.5	62.3
Custom-made	72.6	71.0	70.0	75.9	74.1	81.9
Total	77.3	75.6	71.3	75.0	73.6	75.8

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 8.--Productivity in the U.S. hearing aid industry: Production, man-hours worked, and production per man-hour worked, by types and by affiliation of U.S. producers, 1981-84, and January-June 1985

(Production in units; man-hours worked in thousands; productivity in production units per man-hour)

Affiliation/type	1981	1982	1983	1984	January-June--1985
	Production				
Standard hearing aids:					
U.S. based	***	***	***	***	***
Foreign based 1/	***	***	***	***	***
Total	356,138	339,231	295,582	277,831	114,207
Custom hearing aids:					
U.S. based	***	***	433,704	561,373	290,311
Foreign based 2/	***	***	29,280	61,837	48,400
Total	275,022	308,855	462,984	623,210	338,711
	Man-hours worked				
Standard hearing aids:					
U.S. based	***	***	***	***	***
Foreign based	***	***	***	***	***
Total	1,571	1,424	1,241	1,216	584
Custom hearing aids:					
U.S. based	***	***	1,828	2,551	1,413
Foreign based	***	***	150	280	184
Total	1,147	1,474	1,978	2,831	1,597
	Productivity				
Standard hearing aids:					
U.S. based	***	***	***	***	***
Foreign based	***	***	***	***	***
Total	.227	.238	.238	.228	.196
Custom hearing aids:					
U.S. based	***	***	.237	.220	.205
Foreign based	***	***	.195	.221	.263
Total	.240	.210	.234	.220	.212

1/ * * *.

2/ * * *.

Source: Data compiled from responses to questionnaires of the U.S. International Trade Commission.

Figure 6.--Hearing aids: U.S. production, by affiliations of U.S. manufacturers and by types, 1981-84, and estimated 1985.

* * * * * * *

increased 91 percent, from 275,000 units in 1981 to 525,300 units in 1984. Canal hearing aids grew from 26,800 units in 1983 to 97,700 units in 1984, or by 265 percent (prior to 1983, no production of canal hearing aids was reported in the United States). The substantial growth in the production of custom-made hearing aids is due to greater public acceptance, in part for cosmetic reasons and in part because U.S. producers have improved the acoustical quality and sound amplification of these aids in recent years, thereby enabling a larger segment of the hearing impaired to be fitted with custom-made hearing aids.

Both U.S.-based producers and U.S. affiliates of foreign producers shared in this rapid growth as production by the former more than doubled during 1981-84, from *** units to 561,000 units, and production by the latter registered a 30-fold increase, from *** units to 62,000 units. The U.S. producers affiliated with foreign manufacturers increased their share of U.S. production of custom-made hearing aids from *** percent in 1981 to 14 percent in January-June 1985 (table 8, fig. 6).

As production of custom-made hearing aids increased during 1981-84, production capacity expanded by 116 percent, from 379,000 units to 821,000 units; production capacity continued to increase during January-June 1985. With the opening of new production facilities for custom-made hearing aids, capacity utilization declined during 1981-83, from 72.6 to 70 percent. However, the utilization ratio expanded to 75.9 percent in 1984, and to 81.9 percent during January-June 1985. The increase in production and capacity utilization was not matched by an increase in productivity, however. Productivity decreased from .234 units per man-hour worked in 1983 to .212 units in January-June 1985 (table 8, fig. 7). The contraction in productivity in that period for U.S. based producers (from .237 units to .205 units) compared with the increase for U.S. affilates of foreign manufacturers (from .195 units to .263 units) reflects the quicker move to more labor-intensive canal aids by the U.S.-based producers.

U.S. Producers' Shipments

The value of U.S. producers' shipments 1/ of hearing aids increased 39 percent, from $87 million in 1981 to $121 million in 1984, and this growth continued during January-June 1985 (table 9, fig. 8). However, the standard hearing aid share of total shipments of hearing aids by producers in the United States dwindled from 56 percent in 1981 to 34 percent in 1984, and reciprocally, the share of custom-made hearing aids grew from 44 percent in 1981 to 66 percent in 1984.

Standard hearing aids

Shipments of U.S.-made standard hearing aids declined by 23 percent during 1981-84, from 351,300 units to 270,400 units (from $49.0 million to

---

1/ U.S. producers' shipments include both domestic shipments and exports of U.S.-made hearing aids, whether or not the manufacturer is affiliated with a foreign producer. These hearing aids may incorporate imported components.

Figure 7.--Productivity in the U.S. hearing aid industry: Production per man-hour worked, by affiliations of U.S. producers and by types, 1981-84, and estimated 1985.

* * * * * * *

$41.4 million); the decline continued during January-June 1985 (table 10, fig. 9). During 1981-84, U.S. producers' shipments of BTE hearing aids fell by 21 percent, from 310,500 units to 246,800 units; eyeglass hearing aids declined by 49 percent, from 24,900 units to 12,600 units; and body hearing aids decreased by *** percent, from *** units to *** units. Standard ITE hearing aids declined irregularly by *** percent, from *** units to *** units.

Custom-made hearing aids

During 1981-84, U.S. producers' shipments of custom-made hearing aids increased by 119 percent, from 274,000 units to 600,400 units (from $38.0 million to $79.6 million); during January-June 1985, this trend continued (table 11, fig. 10). During the same period, such shipments of custom-made ITE hearing aids grew by 86 percent, from 274,000 units to 509,000 units (from $38 million to $62 million); shipments of canal hearing aids rose by 269 percent, from 24,800 units in 1983 to 91,400 units in 1984 (from $4.8 million in 1983 to $17.6 million). The 46 percent expansion in the value of shipments of canal hearing aids accounted for all of the 8 percent growth in the value of total shipments of custom-made hearing aids during Janaury-June 1985.

Parts for hearing aids

Because the majority of the electronic component parts for standard and custom-made hearing aids are interchangeable, separate data by type of hearing aid are not available. During 1981-84, total U.S. shipments of parts doubled, from *** million to *** million. This doubling reflected both the growth of the U.S. custom hearing aid market and the strength of foreign demand for high quality U.S.-made components, some of which return to the United States in the form of foreign assembled BTE hearing aids. The world's chief supplier of transducers, * * * , accounted for *** percent of producers' shipments of parts in 1984, *** percent of which were exported. U.S. shipments of parts for hearing aids are shown in the following tabulation:

Year	Value (1,000 dollars)
1981	***
1982	***
1983	***
1984	***
January-June	
1984	***
1985	***

Table 9.--Hearing aids: U.S. producers' shipments, by types, 1981-84, January-June 1984, and January-June 1985

Period	Standard	Custom	Total	Ratio of standard to total
	Quantity (1,000 units)			
1981	351.3	274.0	625.3	56.2
1982	339.9	314.7	654.6	51.9
1983	296.6	445.6	742.2	40.0
1984	270.4	600.4	870.8	31.1
January-June--				
1984	135.8	275.6	411.4	33.0
1985	118.9	345.1	464.0	25.6
Percentage change:				
1984 over 1981	-23	+119	+39	
	Value (1,000 dollars)			
1981	49,040	37,975	87,015	56.4
1982	48,436	42,185	90,621	53.4
1983	42,428	55,775	98,203	43.2
1984	41,409	79,595	121,004	34.2
January-June--				
1984	21,244	36,997	58,241	36.3
1985	17,701	39,849	57,550	30.8
Percentage change:				
1984 over 1981	-16	+110	+39	
	Average unit value (per hearing aid)			
1981	$139.60	$138.58	$139.16	
1982	142.50	134.03	138.44	
1983	143.05	125.17	132.31	
1984	153.14	132.57	138.96	
January-June--				
1984	156.44	134.24	141.57	
1985	148.87	115.47	124.03	
Percentage change:				
1984 over 1981	+10	-4	0	

1/ Respondents to the Commission's questionnaire accounted for approximately 90 percent of the industry in terms of producers' shipments compared with respondents responsible for data collected by the Hearing Industries Association.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Figure 8.--Hearing aids: U.S. producers shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1981-84.

* * * * * * *

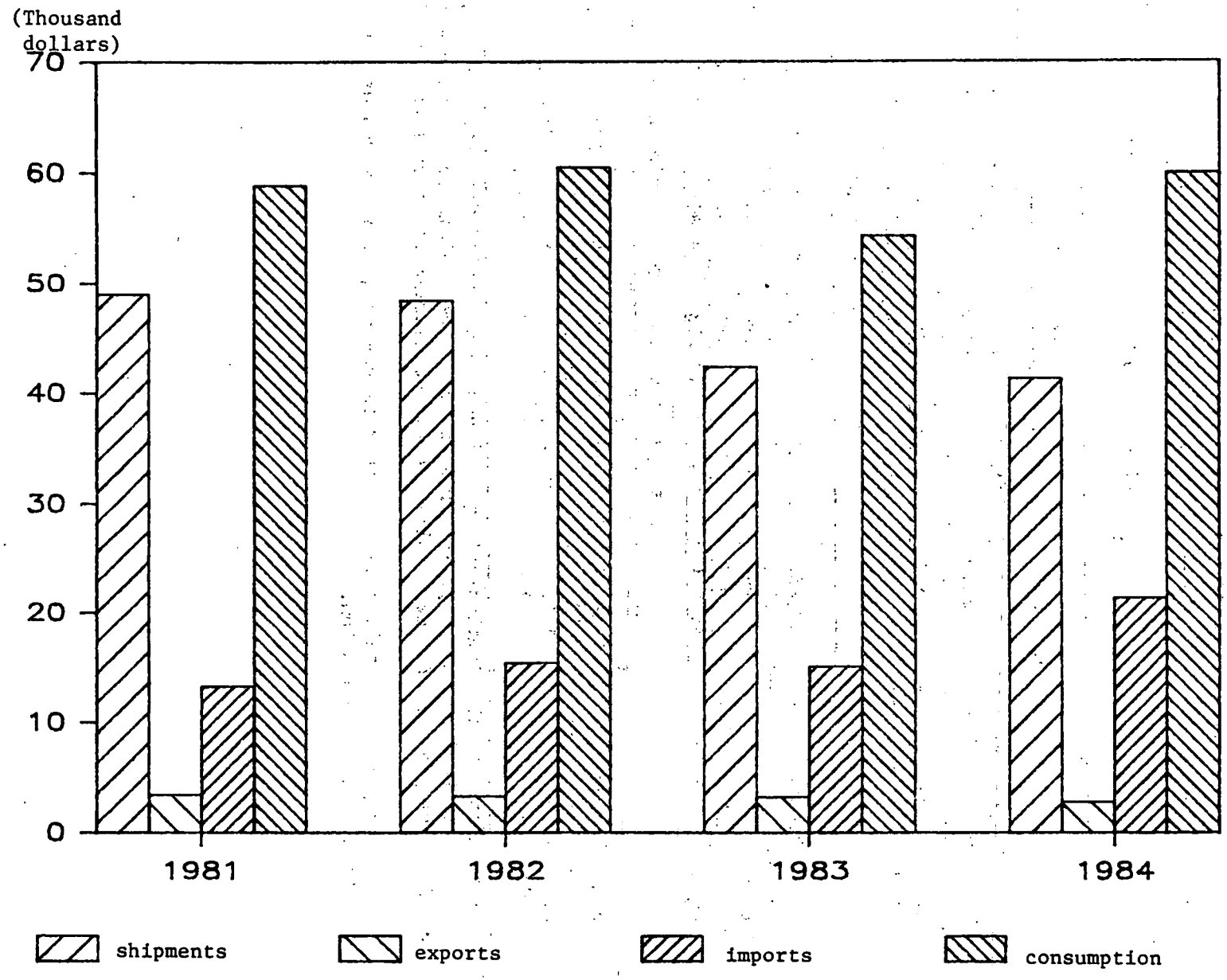
Table 10.--Standard hearing aids: U.S. producers' shipments, by types, 1981-84, January-June 1984, and January-June 1985 1/

Type	1981	1982	1983	1984	January-June-- 1984	January-June-- 1985
	Quantity (1,000 units)					
Behind-the-ear	310.5	304.4	271.1	246.8	124.3	107.1
Eyeglass	24.9	24.9	19.0	12.6	6.5	4.8
Body	***	***	***	***	***	***
Standard ITE	***	***	***	***	***	***
Total	351.3	339.9	296.6	270.4	135.8	118.9
	Value (1,000 dollars)					
Behind-the-ear	42,856	43,159	38,518	37,374	19,278	15,679
Eyeglass	3,947	3,762	3,014	2,169	1,136	833
Body	***	***	***	***	***	***
Standard ITE	***	***	***	***	***	***
Total	49,040	48,436	42,428	41,409	21,244	17,701
	Average unit value (per hearing aid)					
Behind-the-ear	$138.03	$141.77	$142.10	$151.42	$155.09	$146.46
Eyeglass	158.51	153.55	158.63	172.14	174.77	173.54
Body	153.29	160.54	148.84	161.29	158.00	165.00
Standard ITE	***	***	***	***	***	***

1/ Respondents to the Commission's questionnaire accounted for approximately 90 percent of the U.S. industry, in terms of producers' shipments compared with respondents responsible for data collected by the Hearing Industries Association.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Figure 9.--Standard hearing aids: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1981-84.



Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

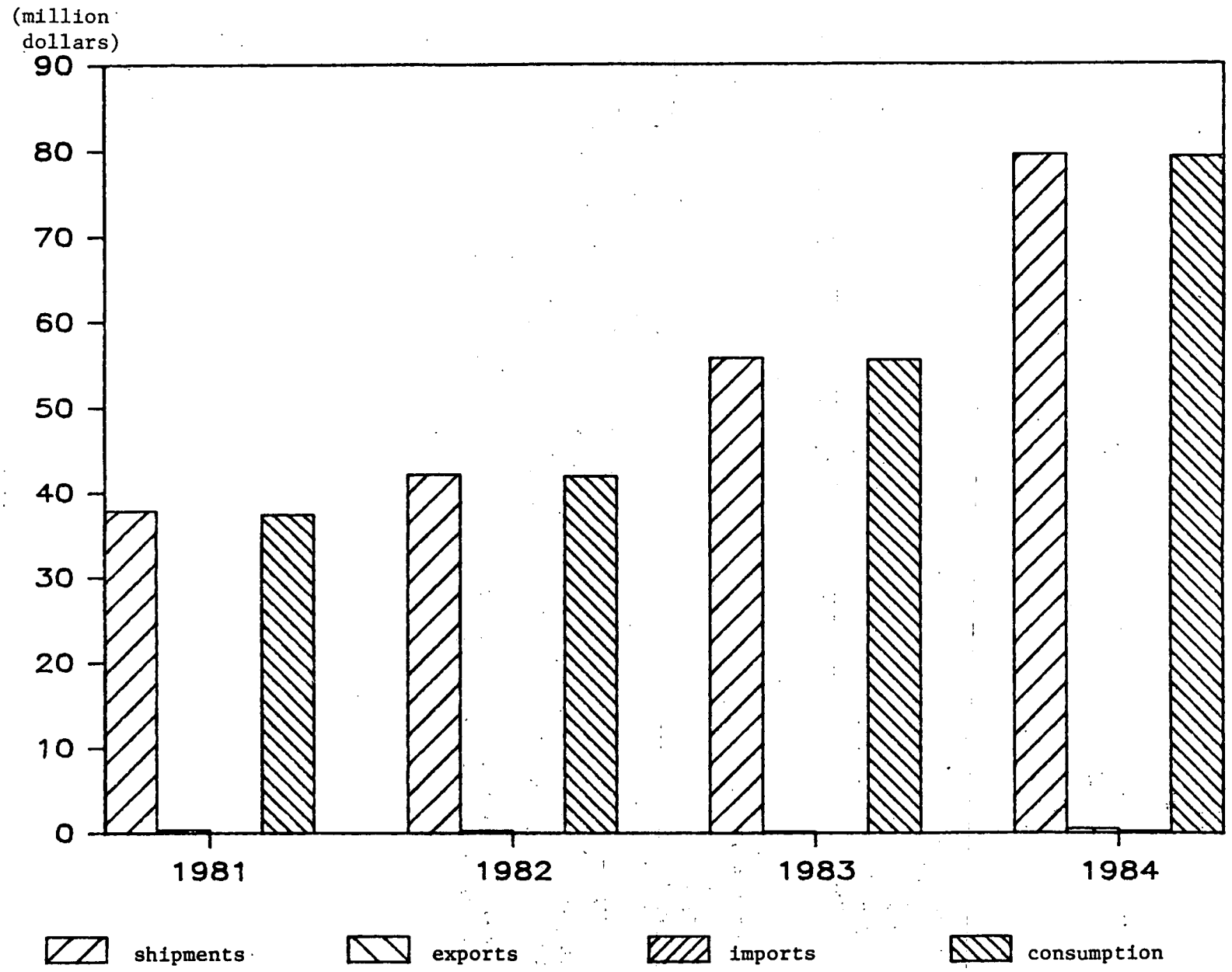
Table 11.--Custom-made hearing aids: U.S. producers' shipments, by types, 1981-84, January-June 1984, and January-June 1985 1/

Type	1981	1982	1983	1984	January-June-- 1984	January-June-- 1985
	Quantity					
Custom-made hearing aids:						
ITE	274.0	314.7	420.8	509.0	236.9	283.4
Canal	0	0	24.8	91.4	38.7	61.7
Total	274.0	314.7	445.6	600.4	275.6	345.1
	Value (1,000 dollars)					
Custom-made hearing aids:						
ITE	37,975	42,185	51,011	62,028	29,587	29,008
Canal	-	-	4,764	17,567	7,410	10,841
Total	37,975	42,185	55,775	79,595	36,997	39,849

1/ Respondents to the Commission's questionnaire accounted for approximately 90 percent of the U.S. industry in terms of U.S. producers' shipments compared with respondents responsible for data collected by the Hearing Industries Association.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Figure 10.--Custom-made hearing aids: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1981-84



Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Inventories

Because custom-made hearing aids are made to order, the discussion of inventories applies only to standard hearing aids.

Total U.S. producers' inventories of standard hearing aids rose from 29,000 units in 1981 to 43,000 units in 1984, or by 47 percent (table 12). The build up of inventories reflects the inability of many U.S. producers to anticipate how rapidly demand would shift to custom hearing aids. During 1981-84, inventories of BTE hearing aids rose by 46 percent; that of eyeglass hearing aids, 4 percent, that of body hearing aids, *** percent, and that of standard ITE hearing aids, by *** percent. The ratio of inventories to producers' shipments ranged from 8 percent in 1981 to 16 percent in 1984; the comparable ratio for all U.S. manufacturers was 12.6 percent in 1983, the latest year for which data are available.

Channels of Distribution

Domestic producers and importers utilize the same channels of distribution, although there are differences with respect to the extent to which they use each one (table 13, figs. 11 and 12). Both U.S. producers and importers sell hearing aids to independent dispensers, wholesalers, hospitals and clinics, the U.S. Government, and other nonprofit institutions.

No U.S. importers are classified as nonprofit institutions. However, nonprofit institutions are an important market for several importers. In 1984, approximately 4.7 percent of imports of standard hearing aids were sold to the U.S. Government (* * *) and 0.9 percent to other known nonprofit institutions. 1/ By comparison 10.0 percent of shipments of standard hearing aids by U.S. producers were sold to the U.S. Government in 1984 and 0.1 percent to other nonprofit institutions.

Most U.S.-made and imported hearing aids are sold directly to relatively small, independent hearing aid dispensers that carry more than one manufacturer's line of hearing aids. Only two domestic producers maintain exclusive franchise-type arrangements with their dealers; no imported hearing aids are distributed that way. According to industry sources, the independent multiline dispenser has a great deal of influence on the distribution system in his selection of particular types and brands of hearing aids to fit customers' hearing disabilities. Although quality, service, and reliability are the most important factors influencing the dispenser's decision to purchase a particular hearing aid, followed by price, other factors such as delivery time, return policies, and dealer incentives are also taken into consideration in making a sale (see discussion in section on factors of competition).

1/ Many questionnaire respondents asserted that it was impossible or impractical to discern the nonprofit status of their hospital and clinic customers. Imports sold to these organizations amounted to 10.5 percent of total imports of standard hearing aids in 1984. Only 0.9 percent of U.S. producers' shipments of standard hearing aids were sold to hospitals and clinics.

Table 12.--Standard hearing aids: Inventories, by types, 1981-84, January-June 1984, and January-June 1985 1/

(In units)

Type	1981	1982	1983	1984	January-June--	
					1984	1985
Behind-the-ear	27,551	32,892	30,492	40,385	30,066	29,232
Eyeglass	1,393	2,959	1,939	1,446	1,377	849
Body	***	***	***	***	***	***
Standard ITE	***	***	***	***	***	***
Total	29,233	36,240	32,749	43,088	32,452	31,300

1/ Respondents to the Commission's questionnaire accounted for approximately 90 percent of the industry in terms of producers' shipments compared with respondents responsible for data collected by the Hearing Industries Association.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 13.--Hearing aids: Percent allocation of channels of distribution used by U.S. producers and importers, 1984

(In percent)

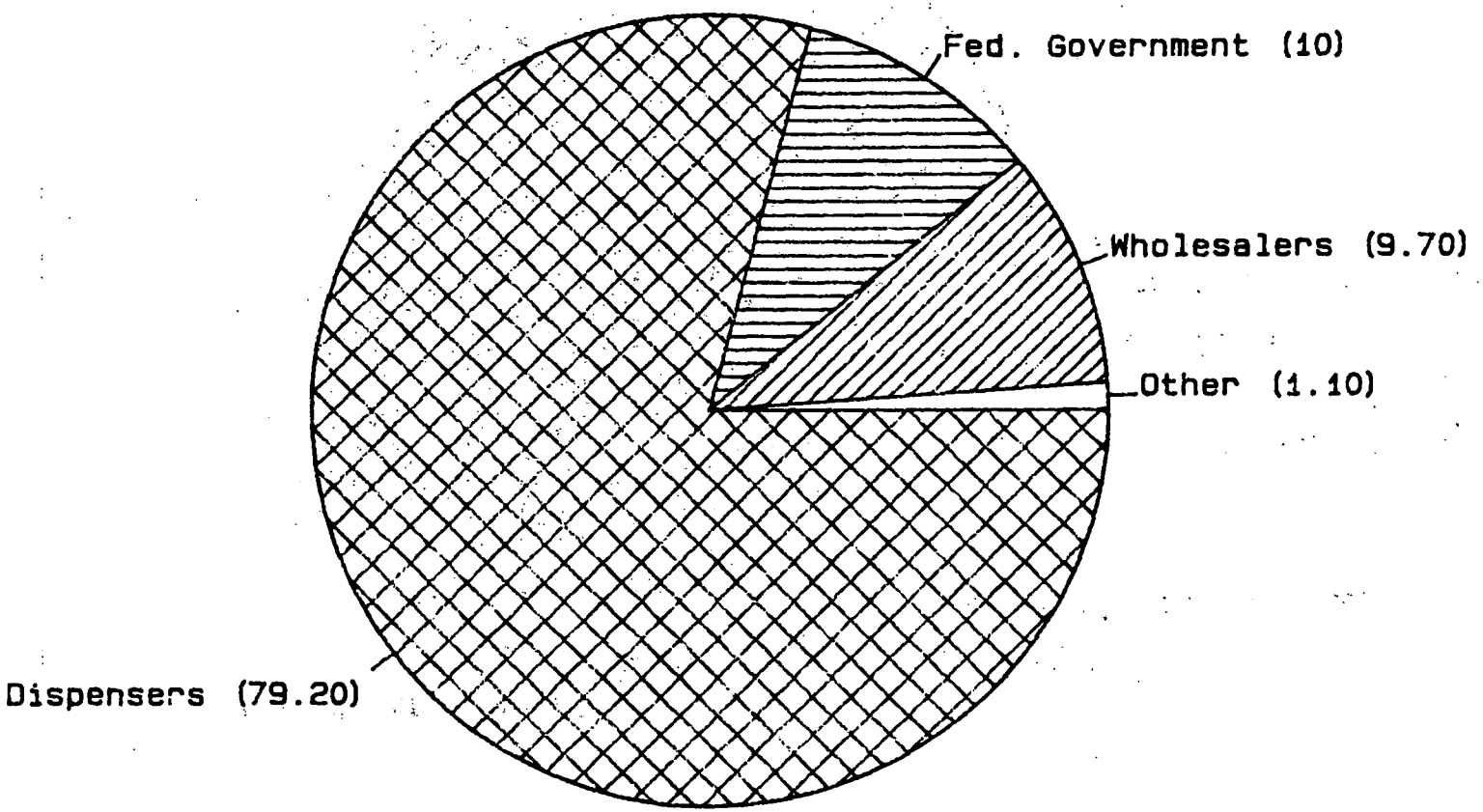
Channel of distribution	Standard		Custom	
	Producers	Importers	Producers	Importers
U.S. Government (* * *)	10.0	4.7	2.6	-
Other nonprofit institutions	.1	.9	.6	-
Dispensers (retailers)	79.2	68.0	87.8	71.1
Wholesalers	9.7	13.2	.1	1.2
Hospitals and clinics	.9	10.5	7.3	23.2
All other	.1	3.6	.2	4.6
Total	100.0	100.0	100.0	100.0

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

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

Figure 11.--Channels of distribution for standard hearing aids used by U.S. producers, 1984

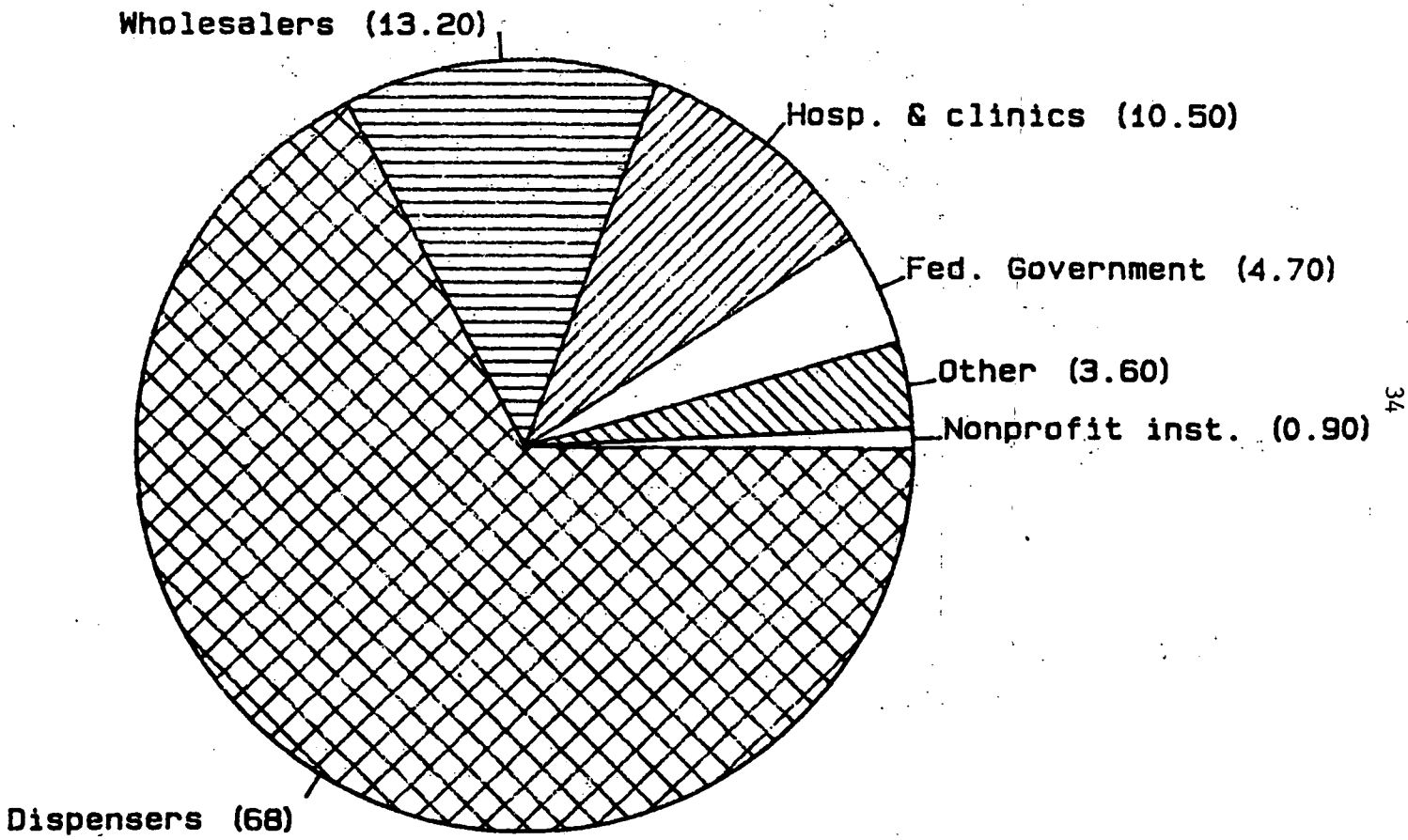
(In percent)



Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Figure 12.--Channels of distribution for standard hearing aids used by U.S. importers, 1984

(In percent)



Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

The VA is one of the largest single purchasers of hearing aids in the U.S. market. It has a bidding and evaluation process that enables it to select only aids that meet certain specified performance requirements. Under the process, the hearing aids of a number of different U.S.- and foreign-based producers have been selected. * * *. * * *. * * *. * * * U.S. Government purchasers of hearing aids include the Army and the Navy. Other nonprofit institutions also purchase hearing aids from domestic producers and importers, but do not generally play a significant part in the U.S. market.

Audiologists in hospitals and clinics have begun playing an increasingly important role as purchasers and dispensers of hearing aids in the domestic market (table 15). Major European producers were the first to actively court clinical audiologists, attempting to gain entry into the U.S. hearing aid market in the early 1960's by persuading audiologists to recommend specific hearing aids when referring patients to dispensers. This has resulted in a greater share of imported hearing aids being sold through hospitals and clinics than is the case for domestically produced hearing aids. Such outlets began selling hearing aids directly to patients in the 1970s. Domestic producers are, however, relying increasingly on hospitals and clinics for sales of custom-made hearing aids, as individuals desiring to wear these types of specially fitted aids prefer the services of a doctor or professional audiologist for the fitting. Audiologists, once only involved in the testing of hearing problems in clinics and in writing prescriptions for hearing aids, have become more involved in the sale of hearing aids. Many audiologists have left clinics to become independent dispensers. (In 1984, an industry survey indicated that 30 percent of all dispensers were also audiologists.)

Although wholesalers are commonly used by both U.S. producers and importers for the distribution of standard hearing aids, they are rarely used for the distribution of custom-made hearing aids (table 15). Importers rely upon this channel of distribution to a slightly greater extent than do domestic producers.

Several U.S. producers and importers sell some of their hearing aids under private label to a major U.S. retailing concern. Other channels of distribution account for less than 5 percent of total domestic shipments of imported hearing aids and almost none of the U.S. producers' shipments.

Because a fast delivery time by the producer is critical to maintain sales in the U.S. market, most custom-made hearing aids are supplied by domestic manufacturers or by the subsidiaries of foreign firms producing in the United States. Dealers are able to keep in stock a variety of types and brands of domestic and foreign-produced standard hearing aids to assist most hearing losses, so turn around time is not as much of a factor in the market for these hearing aids.

Financial Experience of U.S. Producers

*** firms 1/ which accounted for 63 percent of U.S. producers' shipments in 1984, provided usable financial data on overall establishment operations in which standard and/or custom-made hearing aids are assembled. These same *** firms furnished financial data on their operations that produce custom-made hearing aids (accounting for 62 percent of 1984 U.S. producers' shipments) and *** 2/ of the 14 firms that produce standard hearing aids provided financial information on their standard hearing aid operations (also accounting 62 percent of 1984 U.S. producers' shipments).

Overall establishment operations

Aggregate net sales of establishment operations grew 73 percent during 1981-84 and 12 percent in January-June 1985 over January-June 1984 (table 14). Throughout this period, establishment operations have generated operating profits. The average aggregate operating income of the *** producers during 1981-84 was $6.9 million, or 7.5 percent of aggregate net sales. Between 1981 and 1983 the industry's production costs (cost of goods sold) level to aggregate net sales declined while the level of operating expenses to aggregate net sales fluctuated. Therefore, the increased operating profit during the aforementioned period can be attributed to increased sales volume and a reduction in the level of production costs to aggregate net sales.

Standard hearing aids.--Aggregate net sales for the *** firms that assemble and sell standard hearing aids remained fairly stable between 1981 and 1983 averaging $34.6 million annually. In 1984, however, aggregate net sales decreased 12.0 percent to $30.3 million. In January-June 1985, they fell 20.8 percent compared with January-June 1984, to $12.3 million. Despite the recent downturn in sales, these firms realized aggregate operating profits throughout the period under review (table 15).

The standard hearing aid industry earned aggregate operating incomes averaging $2.7 million, or 8.1 percent of aggregate net sales, during 1981-84. Between the interim periods of 1984 and 1985, operating income declined 44.8 percent, from $999,000 to $551,000, respectively. The operating margins for the interim periods of 1984 and 1985 dipped from 6.4 percent to 4.5 percent, respectively.

Custom-made hearing aids.--The aggregate net sales for producers of custom-made hearing aids grew 176 percent during 1981-84, from $17.1 million to $47 million, and expanded 18 percent in January-June 1985 over January-June 1984, to $25.8 million. During that period, the *** representatives of the industry experienced increasing operating income (table 16) from 1981 to 1983;

1/ The *** firms are * * *.
2/ The *** firms are * * *.

Table 14.--Income-and-loss experience of *** U.S. producers 1/ on their establishment operations in which standard and custom-made hearing aids are produced, accounting years 1981-84, January-June 1984, and January-June 1985

Item	1981	1982 2/	1983 3/	1984 4/	January-June--	
					1984	1985 5/
Net sales------1,000 dollars--	66,504	83,788	99,734	115,102	54,204	60,972
Cost of goods sold------do----	43,396	53,064	62,756	75,937	35,170	40,376
Gross profit----------do----	23,108	30,724	36,978	39,165	19,034	20,596
General, selling, and administrative expenses-----do----	18,644	25,289	27,525	31,056	15,470	16,838
Operating income or (loss)----------do----	4,464	5,435	9,453	8,109	3,564	3,758
As a share of net sales:						
Cost of goods sold-percent--	65.3	63.3	62.9	66.0	64.9	66.2
Gross profit----------do----	34.7	36.7	37.1	34.0	35.1	33.8
General, selling, and administrative expenses----------do----	28.0	30.2	27.6	27.0	28.5	27.6
Operating income or (loss)----------do----	6.7	6.5	9.5	7.1	6.6	6.2
Number of firms reporting operating losses.	1	0	2	1	2	5

1/ U.S. producers are * * * who submitted usable data in responses to the questionnaires of the U.S. International Trade Commission.
2/ Includes the financial data of * * *.
3/ Includes the financial data of * * *.
4/ Includes the financial data of * * *.
5/ Includes the financial data of * * *.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 15.--Income-and-loss experience of *** U.S. producers 1/ on their operations producing standard hearing aids, accounting years 1981-84, January-June 1984, and January-June 1985

Item	1981	1982	1983	1984	January-June--	
					1984	1985
Net sales------1,000 dollars--	34,411	34,979	34,457	30,340	15,508	12,279
Cost of goods sold------do----	21,021	21,505	21,406	18,846	9,831	8,332
Gross profit----------do----	13,390	13,474	13,051	11,494	5,677	3,947
General, selling, and administrative expenses----------do----	10,605	10,853	10,057	8,994	4,678	3,396
Operating income or (loss) ----------do----	2,785	2,621	2,994	2,500	999	551
As a share of net sales:						
Cost of goods sold percent--	61.1	61.5	62.1	62.1	63.4	67.9
Gross profit-------percent--	38.9	38.5	37.9	37.9	36.6	32.1
General, selling, and administrative expenses----------do----	30.8	31.0	29.2	29.6	30.2	27.7
Operating income or (loss)----------do----	8.1	7.5	8.7	8.2	6.4	4.5
Indexes of net sales, cost and expense items:						
Net sales-------1981=100--	100.0	101.7	100.1	88.2	2/	2/
Cost of goods sold--do---	100.0	102.3	101.8	89.7	2/	2/
General, selling and administrative expenses 1981=100--	100.0	102.3	94.8	84.8	2/	2/
Number of firms reporting operating losses.	1	0	0	0	0	2

1/ U.S. producers are * * *, which submitted usable data in responses to the questionnaires of the U.S. International Trade Commission.

2/ Not applicable.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 16.--Income-and-loss experience of *** U.S. producers 1/ on their operations producing custom-made hearing aids, accounting years 1981-84, January-June 1984, and January-June 1985

Item	1981	1982 2/	1983 3/	1984 4/	January-June-- 1984	January-June-- 1985 5/
Net sales------1,000 dollars--	17,052	22,299	33,686	46,988	21,877	25,837
Cost of goods sold------do----	11,123	13,276	21,056	31,739	14,939	17,710
Gross profit ----------do----	5,929	9,023	12,630	15,249	6,938	8,127
General, selling, and administrative expenses----------do----	5,514	8,219	10,286	13,440	6,311	7,829
Operating income or (loss) ----------do----	415	804	2,344	1,809	627	298
As a share of net sales:						
Cost of goods sold percent--	65.2	59.5	62.5	67.6	68.3	68.6
Gross profit----------do----	34.8	40.5	37.5	32.4	31.7	31.4
General, selling, and administrative expenses----------do----	32.3	38.9	30.5	28.6	28.9	30.3
Operating income or (loss)----------do----	2.4	3.6	7.0	3.9	2.9	1.2
Indexes of net sales, cost and expense items:						
Net sales------1981=100--	100.0	130.8	197.5	275.6	6/	6/
Cost of goods sold--do---	100.0	119.4	189.3	285.3	6/	6/
General, selling and administrative expenses 1981=100--	100.0	149.1	186.5	243.7	6/	6/
Number of firms reporting operating losses	2	3	5	4	4	7

1/ U.S. producers are * * *, which submitted usable data in responses to the questionnaires of the U.S. International Trade Commission.
2/ Includes the financial data of * * *.
3/ Includes the financial data of * * *.
4/ Includes the financial data of * * *.
5/ Includes the financial data of * * *.
6/ Not applicable.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

however, operating income declined in 1984 and the erosion of profits continued throughout the interim period in 1985.

In 1984, the *** custom-made hearing aid industry representatives had aggregate net sales of $47.0 million, which was a 39.5-percent increase over 1983 aggregate net sales of $33.7 million. The growth in production costs exceeded the growth in aggregate net sales, which caused the ratio of production costs to aggregate net sales to increase. Operating expenses did not grow quite as rapidly as did aggregate net sales, consequently, the level of operating expenses to aggregate net sales declined in 1984. In 1983, the production costs level was 62.5 percent compared with 67.6 percent in 1984, and in 1983, the operating expenses level was 30.5 percent compared with 28.6 percent in 1984. The interaction of production costs with aggregate net sales volume resulted in $1.8 million of aggregate operating income, which amounted to 3.9 percent of aggregate net sales in 1984 compared with 7 percent in 1983.

Between the interim periods of 1984 and 1985, aggregate net sales increased from $21.9 million in 1984 to $25.8 million in 1985, or by 18.1 percent. Although production costs levels were stable, the operating expenses increased for the interim period of 1985 from 28.9 percent in 1984 to 30.3 percent in 1985. The industry's aggregate operating income of $627,000, or 2.9 percent of aggregate net sales in interim 1984, declined to aggregate operating income of $298,000 (1.2 percent of aggregated net sales) in interim 1985, as a result of the increase in the level of operating expenses in the interim period of 1985.

In 1981, 2 of the *** custom-made hearing aid producers reported operating losses. In 1982, three manufacturers sustained operating losses and this number increased to five manufacturers in 1983 and decreased to four producers in 1984. By the January-June 1985 interim period, seven producers reported operating losses.

Production costs

*** firms provided the production costs data that was requested in the Commission's questionnaire. This data is shown in tables 17 through 20 for standard and custom-made hearing aids, respectively. In the production of standard and custom-made hearing aids, production costs are the major cost or expense component. However, the relative importance of the components of total production costs varies between the two types of hearing aids, and the trend of production costs differs between the two types. These variances might be explained by examining the stage of each products' life cycle.

Standard hearing aids--*** of 14 producers 1/ provided financial data on their production costs that are associated with the production of standard hearing aids. These *** producers accounted for 58 percent of standard hearing aid shipments in 1984. Between 1981 and 1984, production costs increased slightly each year in their relationship with net sales, from

1/ The *** firms are * * *.

60.7 percent to 61.8 percent of net sales despite declines in the absolute values (from $19.1 million in 1982 to $16.9 million of 1984) of production costs (table 17). During the January-June interim period of 1984, production costs had increased well above historic levels to 62.7 percent of net sales, but by year end the 1984 production cost level had declined to within 0.6 percent of the 1983 level of 61.2 percent of net sales.

The behavior of sales and raw materials cost in 1982 might be considered an aberration, as the aggregated sales volumes of the four producers increased; at the same time raw material costs declined while direct labor and other factory costs increased. The increases of the latter two production cost items were higher than the increase in sales volume; consequently, production cost levels increased 0.3 percent from 60.7 percent to 61.0 percent of net sales in 1982.

Raw material and direct labor costs are variable costs; other factory costs include some variable costs, such as maintenance and repair costs and some fixed costs items, such as depreciation. Therefore, raw materials and direct labor costs should be expected to vary directly with changes in production volume. A better picture of what happened to the standard hearing aid industry from a financial point of view is gained when the aggregated costs figures in table 17 are converted to per unit costs. The per unit costs of the *** producers are shown in table 18.

Between 1981 and 1984, the *** producers 1/ experienced a 19.0 percent decline in unit shipments and a 18.6 percent reduction in production volume. In 1982 and 1983, the average unit sales price for the standard hearing aids produced by the *** firms increased from $155.45 in 1981 to $175.08 in 1983, representing an increase of 12.6 percent, and then declined 2.2 percent to $171.16 per unit in 1984 (table 18). Between 1981 and 1983, production costs per unit increased from $94.28 in 1981 to $107.11 in 1983, increasing 13.6 percent. To some extent the unit sales price increases allowed the companies to maintain their markups on this mature product above 63.5 percent despite losing some benefits of the companies' positions on a learning curve, i.e., product redesign and simplification, less costly distribution, and economies of scale, just to name a few benefits, as a result of declining production and shipment volumes. However, in 1984, the average unit sales price declined to $171.16 and, although production costs declined, the reduction in the average unit sales price caused the markup to decline to 61.9 percent in 1984. For the interim period in 1985, the average unit sales price had reached an alltime high for the period under review, but production costs per unit also reached a high, which caused the aggregate markup to fall to 47.7 percent. For the interim 1985 period, production that was down 30.6 percent and unit shipments, which were down 25.4 percent, were the cause of the increased production costs per unit.

1/ The *** firms are * * *.

Table 17.--Aggregated production cost data of *** U.S. producers 1/ of standard hearing aids, 1981-84, January-June 1984, and January-June 1985

Item	1981	1982	1983	1984	January-June--	
					1984	1985
Net Sales------1,000 dollars--	30,626	31,276	30,802	27,301	13,819	10,945
Raw material----------do----	7,583	7,331	7,913	7,031	3,578	2,914
Direct labor----------do----	2,572	2,675	2,735	2,515	1,305	1,095
Other factory costs-----do----	8,420	9,054	8,195	7,313	3,790	3,402
Total production costs--do----	18,575	19,060	18,843	16,859	8,673	7,411
As a share of net sales:						
Raw materials------percent--	24.8	23.4	25.7	25.8	25.9	26.6
Direct labor----------do----	8.4	8.6	8.9	9.2	9.4	10.0
Other factory costs---do----	27.5	29.0	26.6	26.8	27.4	31.1
Total production costs do----	60.7	61.0	61.2	61.8	62.7	67.7
Indexes of nets sales and production cost:						
Net sales---------1981=100--	100.0	102.1	100.6	89.1	2/	2/
Raw material----------do----	100.0	96.7	104.4	92.7	2/	2/
Direct labor----------do----	100.0	104.0	106.3	97.8	2/	2/
Other factory costs---do----	100.0	107.5	97.3	86.9	2/	2/

1/ The *** U.S. producers are * * *. Their 1984 shipments of standard hearing aids were 78 percent of total 1984 shipments of standard hearing aids.

2/ Not applicable.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 18.--Aggregated production cost per unit of *** U.S. producers 1/ of standard hearing aids, 1981-1984, January-June 1984, and January-June 1985

Item	1981	1982	1983	1984	January-June--	
					1984	1985
Production----------units--	200,610	194,116	179,656	163,251	84,275	58,459
Unit shipments----------do----	197,010	184,882	175,929	159,502	82,516	61,562
Avg unit sales price-dollars--	155.45	164.71	175.08	171.16	167.47	177.79
Raw material costs per unit dollars----	38.49	38.61	44.98	44.08	43.36	47.33
Direct labor costs per unit dollars----	13.06	14.09	15.55	15.77	15.82	17.79
Other factory costs per unit dollars----	42.74	47.68	46.58	45.85	45.93	55.26
Total production costs per unit------dollars----	94.28	100.38	107.11	105.70	105.11	120.38
Gross profit per unit---do----	61.17	64.33	67.97	65.46	62.36	57.41
Markup----------percent--	64.9	64.1	63.5	61.9	59.3	47.7
As a share of average unit sales price:						
Raw materials costs per unit----------percent--	24.8	23.4	25.7	25.8	25.9	26.0
Direct labor cost per unit percent--	8.4	8.6	8.9	9.2	9.4	10.0
Other factory costs per unit----------percent--	27.5	29.0	26.6	26.8	27.4	31.1
Total production costs per unit----------percent--	60.7	61.0	61.2	61.8	62.7	67.7

1/ The *** U.S. producers are * * *.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Custom-made hearing aids--*** producers 1/ of custom-made hearing aids provided detailed production costs information on their custom-made hearing aid operations. The *** producers' total shipments in 1984 accounted for 49 percent of the custom-made hearing aids that were shipped in 1984. Custom-made hearing aids are undergoing a period of continued technological improvement and miniaturization; therefore, the product can be described as

1/ The *** U.S. producers are * * *.

being in a developmental product life cycle stage. This is exemplified by the experience of production costs. The level of production costs to aggregate net sales for the *** producers has been erratic from 1981 to 1984. The level of raw material costs to net sales declined from 25.1 percent in 1981 to 21.2 percent in 1983 and increased to 23.8 percent in 1984 (table 19). Direct labor declined to 11.7 percent of aggregate net sales in 1982, then increased above its 1981 level (12.1 percent of aggregate net sales) in 1983 to 12.6 percent, and increased again in 1984 to 13.3 percent of aggregate net sales. Other factory costs followed a pattern similar to that of direct labor costs; declining from 27.3 percent of aggregate net sales in 1981 to 24.3 percent in 1982, increased to 27.4 percent in 1983, and increased again in 1984 to 30.6 percent of aggregate net sales.

Reviewing these costs on a unit cost basis in concert with production and shipment volumes is informative. From 1981 to 1984, shipments increased by 144.0 percent, from 119,564 units to 291,687 units. Over the same period, production volume increased from 119,993 units to 292,909 units, representing an increase of 144.1 percent. The number of units produced and shipped for January-June 1985 exceeded the number of units produced and shipped during the corresponding period in 1984. As production and shipment volumes increase, production cost per unit can be expected to decline because of the experience factor or movement on a learning curve; however, this has not been the case with custom-made hearing aids cost per unit. In each one of the three major production costs categories shown in table 20, per unit production costs in 1984 were higher than in 1981, despite increases in production and shipment volumes of 144.0 and 144.1 percent, respectively. This behavior in per unit costs is typical of products in the early stages of their life cycle. Introduction of new parts and subassemblies that arise from attempts to improve reception and amplification coupled with the introduction of smaller parts and subassemblies does not allow a company to move very far along a learning curve before a new situation is encountered. Therefore, cost reductions do not materialize, but in the case of custom-made hearing aids, unit costs increase as new, more expensive parts are incorporated, and workers spend more time on assembly because of unfamiliarity with a part.

Unlike the markup on the standard hearing aid, which was fairly stable for 3 years, the markup on the custom-made hearing aid has changed substantially each year. In 1981, the aggregate markup on custom hearing aids was 54.9 percent; in 1982, the markup was 71.4 percent; however, in 1983, the decline began, and the 1983 markup was 63.6 percent; and in 1984, the markup was 47.7 percent. This deterioration continued into January-June 1985, when the markup stood at 47.2 percent. Not only were canal aids introduced in 1983, bringing with it additional expenses due to the higher man-hours required per unit produced, but the number of new entries in the market escalated sharply beginning in 1983. In addition to start up costs, the industry experienced intense price competition after 1983.

Capital expenditures

*** U.S. firms supplied information on their capital expenditures for land, buildings, and machinery and equipment used in the production of custom-made hearing aids, and *** U.S. producers of standard hearing aids

Table 19.--Aggregated production cost data of *** U.S. producers 1/ of custom-made hearing aids, 1981-84, January-June 1984, and January-June 1985

Item	1981	1982	1983	1984	January-June	
					1984	1985
Net sales------1,000 dollars--	14,784	19,887	29,781	40,074	18,612	21,217
Raw material----------do----	3,712	4,447	6,305	9,540	4,510	4,852
Direct labor----------do----	1,793	2,331	3,745	5,336	2,589	2,695
Other factory costs-----do----	4,036	4,824	8,155	12,266	5,579	6,865
Total production costs--do----	9,541	11,602	18,205	27,142	12,678	14,412
As a share of net sales:						
Raw materials------percent--	25.1	22.4	21.2	23.8	24.2	22.9
Direct labor----------do----	12.1	11.7	12.6	13.3	13.9	12.7
Other factory costs---do----	27.3	24.3	27.4	30.6	30.0	32.4
Total production costs do----	64.5	58.4	61.2	67.7	68.1	68.0
Indexes of nets sales and production cost:						
Net sales---------1981=100--	100.0	134.5	201.4	271.1	2/	2/
Raw material----------do----	100.0	119.8	169.9	257.0	2/	2/
Direct labor----------do----	100.0	130.0	208.9	297.6	2/	2/
Other factory costs---do----	100.0	119.5	202.1	303.9	2/	2/

1/ The *** U.S. producers are * * *.
2/ Not applicable.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 20.--Aggregated production cost per unit of *** U.S. producers 1/ of custom-made hearing aids, 1981-1984, January-June 1984, and January-June 1985

Item	1981	1982	1983	1984	January-June--	
					1984	1985
Production----------units--	119,993	153,195	232,518	292,909	136,788	151,32
Unit shipments----------do----	119,564	152,592	231,552	291,687	136,279	151,42
Avg unit sales price-dollars--	123.65	130.33	128.61	137.39	136.57	140.1
Raw material costs per unit dollars----	31.05	29.14	27.23	32.71	33.09	32.0
Direct labor costs per unit dollars----	15.00	15.28	16.17	18.29	19.00	17.8
Other factory costs per unit dollars----	33.76	31.61	35.22	42.05	40.94	45.3
Total production costs per unit----------dollars----	79.81	76.03	78.62	93.05	93.03	95.1
Gross profit per unit---do----	43.84	54.30	49.99	44.34	43.54	44.9
Markup----------percent--	54.9	71.4	63.6	47.7	49.5	47.2
As a share of average unit sales price:						
Raw materials costs per unit----------percent--	25.1	22.4	21.2	23.8	24.2	22.9
Direct labor cost per unit percent--	12.1	11.7	12.6	13.3	13.9	12.7
Other factory costs per unit----------percent--	27.3	24.3	27.4	30.6	30.0	32.4
Total production costs per unit----------percent--	64.5	58.4	61.2	67.7	68.1	68.0

1/ The *** U.S. producers are * * *.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

furnished data on their capital expenditures for land, buildings, and machinery and equipment used in the production of standard hearing aids. Capital expenditures on custom-made hearing aids increased each year from 1981 to 1984, but there was a decline in capital expenditures for January-June 1985 compared with the corresponding period in 1984. Capital expenditures on standard hearing aids increased between 1981 and 1983, then declined in 1984, and continued to decline for the interim period of 1985. Over the entire period under study, expenses for capital investment as a share of sales amounted to 3.1 percent for standard hearing aids compared with 5.1 percent for custom-made hearing aids.

Aggregate capital expenditures on standard and custom-made hearing aids by reporting firms are shown in the following tabulation (in thousands of dollars):

Period	Standard 1/	Custom 2/	Total
1981----------	1,128	1,266	2,394
1982----------	1,133	1,629	2,762
1983----------	1,982	2,662	4,644
1984----------	1,118	5,026	6,144
January-June			
1984----------	991	2,984	3,975
1985----------	830	2,361	3,191

1/ The *** firms are * * *.
2/ The *** firms are * * *.

Research and development expenses

*** custom hearing aid producers and *** standard hearing aid producers furnished data on their research and development expenses that related to the different products. However, *** producers were not able to segment total research and development expenses between custom-made and standard hearing aids. Therefore, their combined research and development expenses on standard and custom-made hearing aids are provided in the tabulation. * * *. This information is included in the tabulation. Whereas the miniaturization of components is attributable to research by * * *, research and development by hearing aid assemblers with respect to the use of flexible circuit boards and the placement of discrete components has also helped to give BTE, ITE, and canal hearing aids (each with case or shell size limitations) greater power to assist the hearing impaired. Some research and development expenses are also directed towards reducing labor costs.

The research and development expenses on custom-made hearing aids increased each period during the periods under review. Research and development increased from $864,000 in 1981 to $1.9 million in 1984. Research and development expenses amounted to $748,000 and $1.0 million (an increase of 34.6 percent) during the interim periods of 1984 and 1985, respectively.

For standard hearing aids, research and development expenses decreased from $626,000 in 1981 to $506,000 in 1984. Standard hearing aids research and development expenses amounted to $144,000 and $191,000 (increasing by 32.6 percent) during the interim periods of 1984 and 1985, respectively. Over

the entire period under study, research and development expenses as a share of sales amounted to 1.3 percent for standard hearing aids compared with 2.6 percent for custom hearing aids.

Aggregate research and development expenses on hearing aids by reporting firms are shown in the following tabulation (in thousands of dollars):

Research and development expenses

	Custom 1/	Standard 2/	Subtotal	Combined 3/	Grand total
1981	$864	$626	$1,490	$239	$1,729
1982	1,171	591	1,762	260	2,022
1983	1,582	649	2,231	269	2,500
1984	1,939	506	2,445	170	2,615
January-June					
1984	748	144	892	95	987
1985	1,007	191	1,198	130	1,328

1/ The *** firms are * * *.
2/ The *** firms are * * *.
3/ Research and development expenses of * * *.

U.S. INTERNATIONAL TRADE

U.S. Exports

U.S. exports of hearing aids and parts increased by 66 percent during 1981-84, from $15.2 million to $25.3 million (table 21). This trend continued during January-June 1985, compared with the corresponding period of 1984, as exports increased by 22 percent, from $11.8 million to $14.4 million. As a share of producers' shipments, based on questionnaire responses, exports decreased from 8.4 percent in 1981 to 7.1 percent in 1984, and were 7.3 percent in the first half of 1985.

Questionnaire responses also indicate that exports of parts accounted for *** percent of all exports in 1984, up from *** percent in 1981 (table 22, fig. 13). According to industry executives interviewed by the staff, the establishment of U.S. subsidiaries abroad has facilitated the growth of exports of parts. Since many of the same components may be used in both standard and custom hearing aids, U.S. exporters can not discern which types of hearing aids their components are being used to produce.

Table 21.--Hearing aids and parts: U.S. exports of domestic merchandise, by principal markets, 1981-84, January-June 1984, and January-June 1985

(In thousands of dollars)

Market	1981	1982	1983	1984	January-June--	
					1984	1985
Canada	4,544	4,293	5,464	5,949	2,549	3,113
United Kingdom	1,350	1,567	2,531	3,695	1,670	1,959
Denmark	2,471	3,295	2,704	2,468	1,353	1.094
France	217	415	1,106	2,161	692	1,911
Australia	554	737	931	1,989	654	176
West Germany	1,321	1,232	1,496	1,907	1,096	1,436
Japan	701	760	896	1,128	583	614
Switzerland	316	548	473	1,109	650	534
All other	3,720	3,786	3,625	4,853	2,565	3,588
Total	15,194	16,633	19,225	25,290	11,811	14,426

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

Table 22.--Hearing aids and parts: U.S. exports, by types, 1981-84, January-June 1984, and January-June 1985

(In thousands of dollars)

Type	1981	1982	1983	1984	January-June--	
					1984	1985
Standard	3,458	3,341	3,246	2,812	1,447	1,139
Custom-made	405	307	212	538	212	306
Parts	***	***	***	***	***	***
Total	***	***	***	***	***	***

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Figure 13.--Hearing aids and parts: U.S. exports, by types, 1981-84 and estimated 1985

* * * * * * *

Questionnaire responses also show that exports of standard BTE hearing aids represented 26 percent of the total value of exports of hearing aids and parts in 1984; that of eyeglass and standard ITE hearing aids, *** percent * * *; and that of body hearing aids, less than *** percent of the total (table 23). Exports of custom-made ITE and canal hearing aids accounted for 4 percent and *** percent, respectively, of total exports of hearing aids and parts in 1984. (According to field interviews with several manufacturers, the bulk of the custom-made hearing aids were shipped to Canada).

The leading export markets for U.S.-made hearing aids and parts during 1981-84 were Canada, the United Kingdom, Denmark, and France. Canada accounted for almost one-fourth of such exports in 1984. A significant portion of the exports to the Canadian market consisted of exports of U.S.-made components to a major Canadian producer of hearing aids and to subsidiaries of three U.S.-based firms producing in Canada. * * *.

U.S. Imports and Trends in Import Penetration

U.S imports of hearing aids slipped by 14 percent during 1981-83, from 253,000 aids to 218,000 aids ($17.4 million to $16.3 million), then climbed 47 percent in 1984 to 321,000 units ($23.1 million), for an overall growth during the period of 27 percent (table 24). However, imports decreased by 10 percent during January-June 1985 compared with the corresponding period of 1984, falling from 154,000 aids to 140,000 aids (from $11.3 million to $9.87 million). The share of apparent consumption accounted for by imports was fairly stable throughout the 1981-84 period, averaging 27 percent annually, then decreased to 19 percent in January-June 1985 (table 24 and fig. 14).

Imports of hearing aid parts nearly tripled during 1981-84, from $3 million to $8.2 million, and rose by 47 percent in January-June 1985 compared with January-June 1984, from $3.5 million to $5.1 million (table 25). The growth in imports of parts, especially in 1984 and 1985, reflects the purchase of electronic subassemblies and faceplates from parent companies by subsidiaries of foreign manufacturers for their U.S. production of custom-made hearing aids. Most of the imported electronic subassemblies contain transducers produced by * * * either in Illinois or in England.

Denmark was the leading supplier of hearing aids and parts in 1984, accounting for 41 percent of total imports, followed by Switzerland (18 percent), West Germany (15 percent), the United Kingdom (8 percent), and Canada (6 percent) (tables 24 and 25). The average unit value of these imported hearing aids in 1984 ranged from $39.69 for Spain and $43.00 for Taiwan to $82.76 for Denmark and $80.69 for Canada (table 24). The relatively high unit values for Denmark and Canada while maintaining strong market positions are indicative of the reputations for good quality that manufacturers in each country enjoy.

Table 23.--Hearing aids: U.S. exports of domestic merchandise, by types, 1981-84, January-June 1984, and January-June 1985

Type	1981	1982	1983	1984	January-June--	
					1984	1985
	Quantity (1,000 units)					
Standard:						
BTE	23.2	25.3	26.2	23.8	12.2	10.9
Eyeglass	1.8	1.8	1.6	1.0	.5	.3
Body	***	***	***	***	***	***
ITE	***	***	***	***	***	***
Subtotal	26.3	28.8	29.1	25.8	13.2	11.6
Custom-made:						
ITE	2.9	1.8	1.7	3.7	1.1	1.8
Canal	-	-	1/	1.0	.6	.9
Subtotal	2.9	1.8	1.7	4.7	1.7	2.7
Total	29.2	30.6	30.8	30.5	14.9	14.3
	Value (1,000 dollars)					
Standard:						
BTE	3,063	2,955	2,943	2,581	1,329	1,054
Eyeglass	250	216	188	122	63	37
Body	***	***	***	***	***	***
ITE	***	***	***	***	***	***
Subtotal	3,458	3,341	3,246	2,812	1,447	1,139
Custom-made:						
ITE	405	307	211	400	126	188
Canal	-	-	1	138	86	118
Subtotal	405	307	212	538	212	306
Total	3,863	3,648	3,458	3,350	1,659	1,445
	Unit value (per hearing aid)					
Standard:						
BTE	$131.87	$116.74	$112.48	$108.38	$109.01	$96.28
Eyeglass	135.28	118.03	115.91	119.26	123.53	109.14
Body	***	***	***	***	***	***
ITE	***	***	***	***	***	***
Average	131.48	116.01	111.55	108.99	109.62	98.19
Custom-made:						
ITE	137.52	170.18	127.49	109.20	114.96	106.03
Canal	-	-	142.86	134.24	152.75	130.97
Average	137.52	170.18	124.71	114.47	124.71	113.33
Average all hearing aids	132.29	119.22	112.27	109.84	111.34	101.05

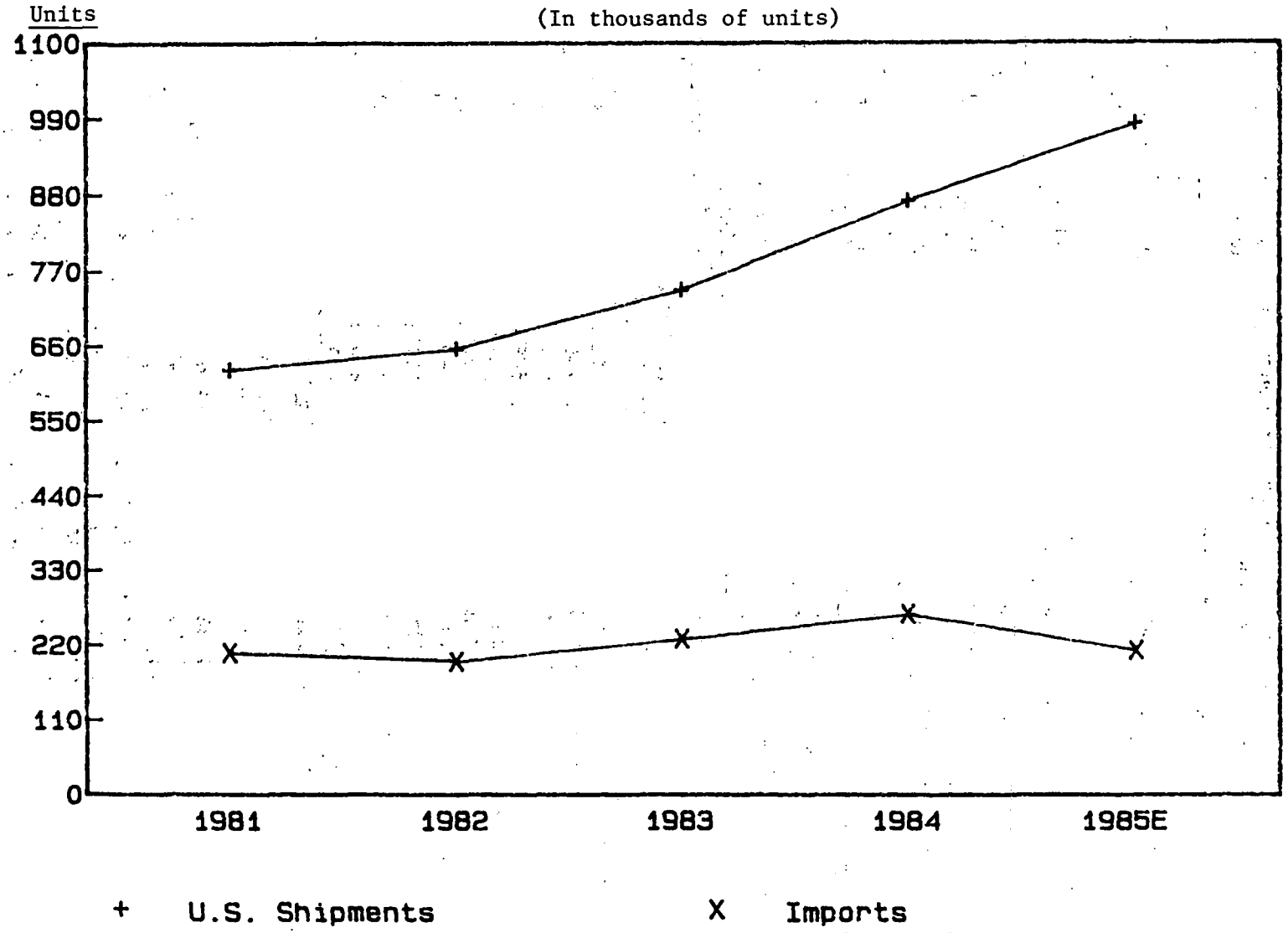
Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 24.--Hearing aids: U.S. imports for consumption by principal sources, 1981-84, January-June 1984, and January-June 1985

Source	1981	1982	1983	1984	January-June--	
					1984	1985
	Quantity (1,000 units)					
Denmark	101.8	95.3	69.6	120.4	60.0	46.2
Switzerland	39.5	36.2	35.6	66.2	28.4	26.2
West Germany	45.4	32.7	48.3	47.8	24.6	27.4
Canada	21.8	22.4	20.4	21.2	10.6	12.6
United Kingdom	7.8	9.0	9.5	25.7	10.0	8.7
Japan	7.0	7.5	11.1	17.0	8.4	7.9
Spain	9.2	6.6	4.2	7.8	4.9	1.5
Netherlands	4.0	4.0	2.8	4.9	2.3	1.6
Austria	10.3	15.6	10.0	3.7	3.3	2.9
Taiwan	0.0	1.0	4.7	3.0	1.0	.5
All other	6.3	4.7	2.0	3.7	.8	4.1
Total	253.1	235.0	218.2	321.3	154.3	139.6
	Value (1,000 dollars)					
Denmark	7,316	7,230	5,782	9,964	4,997	3,971
Switzerland	2,910	2,459	2,702	4,571	2,188	1,836
West Germany	3,068	2,439	3,524	3,278	1,656	1,526
Canada	1,573	1,633	1,588	1,710	859	1,070
United Kingdom	401	486	511	1,428	558	423
Japan	440	517	750	957	424	400
Spain	488	356	231	309	148	97
Netherlands	316	267	152	230	143	63
Austria	648	1,036	651	205	191	146
Taiwan	-	21	280	129	45	32
All other	226	287	119	285	61	266
Total	17,386	16,728	16,290	23,066	11,270	9,830
	Unit value (per hearing aid)					
Denmark	71.88	75.84	83.07	82.76	83.21	85.91
Switzerland	73.58	68.00	75.98	69.05	77.03	70.06
West Germany	67.54	74.56	72.96	68.55	67.33	55.62
Canada	72.02	72.75	77.92	80.69	81.37	84.96
United Kingdom	51.73	54.12	53.70	55.63	56.04	48.44
Japan	62.47	68.55	67.49	56.33	50.78	50.55
Spain	53.06	54.10	54.64	39.69	30.04	62.58
Netherlands	78.76	65.99	54.62	47.33	63.57	38.23
Austria	63.05	66.41	64.83	56.10	57.89	49.93
Taiwan	-	21.04	59.68	43.00	45.00	63.00
All other	35.87	60.42	59.50	76.63	76.25	64.88
Total	68.69	71.19	74.65	71.79	73.02	70.41

Source: Official statistics of the U.S. Department of Commerce.

Figure 14.--Hearing aids: U.S. producers' shipments and imports for consumption, 1981-84 and estimated 1985



Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 25.--Parts of hearing aids: U.S. imports for consumption, by principal sources, 1981-84, January-June 1984, and January-June 1985

(In thousands of dollars)

Source	1981	1982	1983	1984	January-June--	
					1984	1985
Denmark	611	889	1,424	2,910	1,264	2,164
West Germany	743	760	1,008	1,509	566	1,083
United Kingdom	968	864	563	1,135	558	532
Switzerland	426	1,129	736	901	344	476
Austria	23	36	90	814	280	410
Netherlands	116	95	78	424	226	76
Italy	1/	30	90	141	96	3
Canada	35	30	39	111	55	17
Australia	-	-	10	109	45	207
Spain	63	111	69	72	33	23
All other	44	246	42	32	5	99
Total	3,029	4,190	4,149	8,158	3,472	5,090

1/ Less than $500.

Source: Official statistics of the U.S. Department of Commerce.

Questionnaire responses allow a comparison of U.S. shipments of each type of domestically produced hearing aid with U.S. shipments by importers which do not produce in the United States. The average unit value of importers' shipments for each type of standard hearing aid except standard ITE hearing aids was consistently below the average unit value of U.S. producers' shipments during 1981-84 and the first half of 1985 (tables 26 and 27). The margin of difference averaged $8.06 for BTE hearing aids, $16.00 for eyeglass hearing aids, $68.75 for body hearing aids, and *** for standard ITE hearing aids. On average, shipments of imported custom-made ITE and canal hearing aids had unit values *** and ***, respectively, above shipments of equivalent U.S.-made hearing aids.

Prior to enactment of Public Law 97-446, most imports of hearing aids took advantage of TSUS item 807.00 whereby no duty is applied to the value of U.S.-made components contained in the imported article. Reflecting the reliance by foreign hearing aid producers on * * *, 71 percent of the hearing aids imported in 1981 and 1982 entered under item 807.00 (table 28). However, in 1983, Public Law 97-446 allowed all imports of hearing aids to enter free of duty under TSUS item 960.15. By 1984, only 10 percent of imported hearing aids entered under TSUS item 807.00. Only Canada continued to enter the bulk of its exports through this provision in 1985. 1/

1/ * * *.

Table 26.--Hearing aids: Average unit value of U.S. shipments of imported 1/ and domestically produced products, by types, 1981-84, January-June 1984, and January-June 1985

Type	1981	1982	1983	1984	January-June--	
					1984	1985
Behind-the ear:						
U.S.-made	138.03	141.77	142.10	151.42	155.09	146.46
Imported	130.60	132.18	137.61	137.86	140.44	141.20
Eyeglass:						
U.S.-made	158.20	153.69	158.26	171.72	173.62	174.01
Imported	138.89	144.38	156.22	143.28	153.93	153.11
Body aid:						
U.S.-made	153.78	159.26	150.41	162.20	163.45	169.09
Imported	80.46	85.80	85.25	96.44	92.99	103.04
Standard in-the-ear:						
U.S.-made	***	***	***	***	***	***
Imported	131.65	107.69	138.51	146.36	146.88	142.56
Custom in-the-ear:						
U.S.-made	138.58	134.03	121.22	121.86	124.91	102.34
Imported	***	***	***	***	***	***
Custom canal:						
U.S.-made	-	-	192.00	192.12	191.62	175.84
Imported	-	-	-	***	-	***

1/ The average unit value of U.S. shipments of imported hearing aids includes only those importers that did not also manufacture hearing aids in the United States.

Source: Compiled from responses to questionnaires of the U.S.International Trade Commission.

Table 27.--Hearing aids: Ratio of the average unit value of shipments of imported products 1/ compared with shipments of U.S.-made products, by types, 1981-84, January-June 1984, and January-June 1985

Type	1981	1982	1983	1984	January-June--	
					1984	1985
BTE	94.6	93.2	96.8	91.0	90.6	96.4
Eyeglass	87.8	93.9	98.7	83.4	88.7	88.0
Body aid	52.3	53.9	56.7	59.5	56.9	60.9
Standard in-the-ear	***	***	***	***	***	***
Custom in-the-ear	***	***	***	***	***	***
Custom canal	-	-	-	***	-	***

1/ Includes only shipments by importers which do not produce hearing aids in the United States.

Source: Compiled from responses to questionnaires of the U.S.International Trade Commission.

Table 28.--Hearing aids: U.S. imports for consumption under TSUS item 807.00, by principal sources, 1981-84, January-June 1984, and January-June 1985

Source	1981	1982	1983	1984	January-June--	
					1984	1985
	Quantity (1,000 units)					
Canada	21.8	22.4	20.1	20.3	9.8	12.4
Denmark	95.9	89.7	37.5	11.5	7.4	.0
Switzerland	25.1	19.4	17.0	.4	.2	.1
Austria	10.3	15.6	8.4	.0	.0	.0
West Germany	24.6	11.3	3.0	.0	.0	.0
Netherlands	3.2	4.0	1.6	.0	.0	.0
United Kingdom	.1	.6	.1	.0	.0	.0
Sweden	2.0	.0	.0	.0	.0	.0
Total	183.0	163.0	87.7	32.2	17.4	12.5
	Value (1,000 dollars)					
Canada	1,573	1,633	1,557	1,625	796	3,971
Denmark	6,962	6,934	3,083	905	567	-
Switzerland	1,784	1,468	1,458	38	20	8
Austria	648	1,036	551	-	-	-
West Germany	1,548	731	186	-	-	-
Netherlands	255	267	98	-	-	-
United Kingdom	4	37	2	-	-	-
Sweden	141	-	-	-	-	-
Total	12,915	12,106	6,935	2,568	1,383	3,979

Source: Official statistics of the U.S. Department of Commerce.

The only significant supplier of hearing aids to enter its exports to the United States free of duty under the Generalized System of Preferences is Taiwan. Total imports under the GSP amounted to 4,973 hearing aids in 1983 and 3,001 in 1984, or 2 percent and 1 percent of total imports in each year, respectively (table 29).

Imports of hearing aids entering duty-free under TSUS item 960.15 amounted to *** units (*** million) in 1984 and *** units (*** million) in January-June 1985 (table 30). These figures composed *** percent of total imports in 1984, as reported by questionnaire respondents, and *** percent of the total in January-June 1985. Similarly, 85 percent of total imports of parts entered duty-free under TSUS item 960.15 in 1984 and 82 percent in January-June 1985. 1/

1/ During field interviews with the Commission's staff, a few importers stated that they were unaware of the provisions under TSUS item 960.15 until being contacted by the Commission and that each had subsequently instructed their respective customs brokers to pursue duty-free treatment of their imports of hearing aids and parts.

Table 29.--Hearing aids: U.S. imports for consumption under the Generalized System of Preferences, by principal sources, 1981-84, January-June 1984, and January-June 1985

Source	1981	1982	1983	1984	January-June--	
					1984	1985
	Quantity (units)					
Taiwan	0	1,000	4,698	3,000	1,000	500
Yugoslavia	0	0	275	1	0	0
Israel	0	0	0	0	0	50
Brazil	0	0	0	0	0	18
Korea	2,400	0	0	0	0	0
Total	2,400	1,000	4,973	3,001	1,000	568
	Value (dollars)					
Taiwan	-	$21,043	$280,359	$128,522	$45,040	$31,500
Yugoslavia	-	-	6,999	2,333	-	-
Israel	-	-	-	-	-	14,145
Brazil	-	-	-	-	-	17,342
Korea	8,640	-	-	-	-	-
Total	8,640	21,043	287,358	130,855	45,040	62,987

Source: Official statistics of the U.S. Department of Commerce.

Table 30.--Hearing aids and parts: U.S. imports for consumption entering duty-free under TSUS Item 960.15, by types, 1983-84, January-June 1984, and January-June 1985

Type	1983	1984	January-June--	
			1984	1985
	Quantity (1,000 units)			
Standard hearing aids:				
BTE	137.3	209.5	100.5	84.8
Eyeglass	1.4	4.6	2.4	1.0
Body	***	***	***	***
ITE	***	***	***	***
Subtotal	143.8	226.0	108.3	91.3
Custom-made hearing aids:				
ITE	1/	***	***	***
Canal	0.0	***	0.0	***
Subtotal	1/	***	***	***
Total	143.8	***	***	***
	Value (1,000 dollars)			
Standard hearing aids:				
BTE	7,976	17,959	7,413	7,223
Eyeglass	114	328	167	81
Body	***	***	***	***
ITE	***	***	***	***
Subtotal	8,292	18,891	7,780	7,601
Custom-made hearing aids:				
ITE	***	***	***	***
Canal	-	***	-	***
Subtotal	***	***	***	***
Total	***	***	***	***
Parts of hearing aids	2,512	3,670	1,520	2,280

1/ * * *.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

The share of total imports accounted for by imports upon which the full duty was paid fell from 91 percent in 1981 to 12 percent in 1984 (table 31). Similarly, the full duty was paid on 99 percent of the imports of parts in 1981, but only 15 percent in 1984.

According to questionnaire responses, standard hearing aids represented *** percent of total imports for consumption in 1984 (table 32). 1/ BTE

1/ Imports by respondents to questionnaires of the U.S. International Trade Commission accounted for 82 percent of official U.S. imports for consumption in 1984.

Table 31.--Complete hearing aids and parts: U.S. imports for consumption, by duty status as a percent of total, 1981-84

(In percent)

Year	Dutiable			Duty-free				Total
	TSUSA item 709.5020/40	TSUS item 807.00	Subtotal	TSUS item 807.00	GSP	TSUS item 960.15	Subtotal	
Complete:								
1981	45	46	91	9	1/	0	9	100
1982	50	42	92	8	1/	0	8	100
1983	21	30	51	6	1	42	49	100
1984	3	9	12	2	1	85	88	100
Parts:								
1981	96	3	99	1	0	0	1	100
1982	71	25	97	3	0	0	3	100
1983	28	6	33	1	0	65	67	100
1984	15	1/	15	1/	0	85	85	100

1/ Less than 0.5 percent.

Source: Derived from official statistics of the U.S. Department of Commerce and from data submitted in response to questionnaires of the U.S. International Trade Commission.

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

Table 32.--Hearing aids: U.S. imports for consumption, by types, 1981-84, January-June 1984, and January-June 1985

Period	Standard					Custom-made			Total
	BTE	Eyeglass	Body	ITE	Subtotal	ITE	Canal	Subtotal	
	Quantity (thousands)								
1981	189.8	5.0	9.7	4.3	209.2	***	0	***	***
1982	181.1	5.6	8.9	0.6	196.2	***	0	***	***
1983	210.4	4.3	8.8	4.5	228.0	***	0	***	***
1984	236.9	5.8	10.1	7.6	260.6	***	***	***	***
Jan.-June:									
1984	117.1	3.1	5.1	5.1	130.3	***	0	***	***
1985	96.1	1.3	4.7	1.5	103.6	***	***	***	***
	Value (1,000 dollars)								
1981	12,615	360	618	318	13,946	***	-	***	***
1982	14,308	466	646	39	15,459	***	-	***	***
1983	14,119	272	495	269	15,155	***	-	***	***
1984	20,236	430	459	487	21,412	***	***	***	***
Jan.-June:									
1984	8,665	222	215	261	9,363	***	-	***	***
1985	8,016	102	231	105	8,454	***	***	***	***
	Unit value (per hearing aid)								
1981	$66.46	$72.43	$63.92	$74.20	$66.66	***	-	***	***
1982	78.99	83.89	72.59	66.10	78.80	***	-	***	***
1983	67.10	62.72	56.01	60.35	66.40	***	-	***	***
1984	84.56	73.53	45.28	63.68	82.17	***	***	***	***
Jan.-June:									
1984	74.02	71.35	42.39	51.47	71.85	***	-	***	***
1985	83.92	79.75	48.82	71.67	81.63	***	***	***	***

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

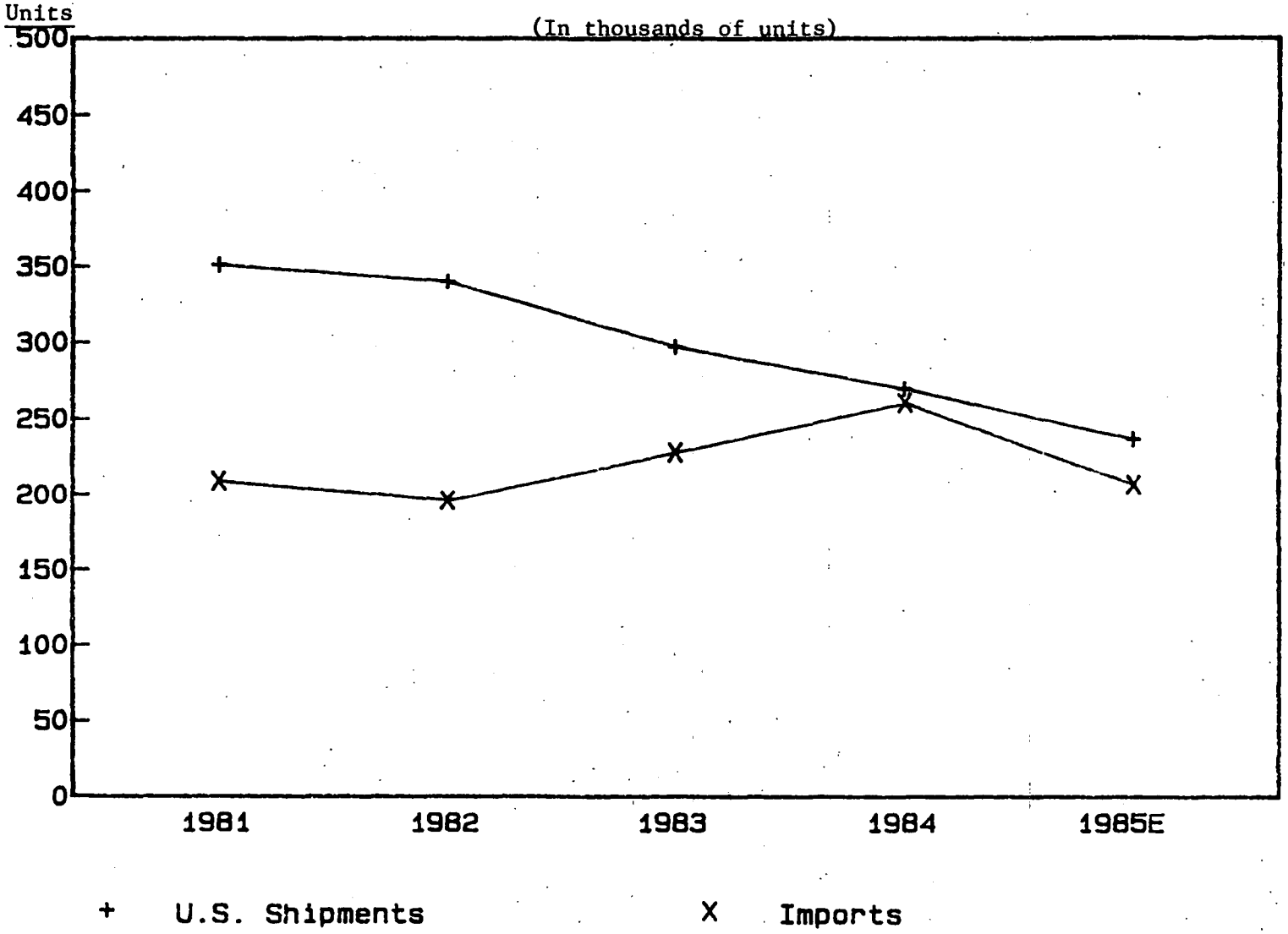
hearing aids alone accounted for 89 percent of the imports of all finished hearing aids in 1984. Imports of standard hearing aids rose by 25 percent during 1981-84, from 209,000 units to 261,000 units (from $13.9 million to $21.4 million) (table 32, fig. 15). In January-June 1985, however, imports of standard hearing aids fell from 130,000 units to 104,000 units (from $9.4 million to $8.5 million) compared with those in the corresponding period of 1984. The share of consumption of standard hearing aids accounted for by imports expanded from 39 percent in 1981 to 52 percent in 1984 reflecting aggressive marketing of usually high-quality BTE hearing aids by affiliates of foreign producers, but fell to 49 percent in January-June 1985 as the market for all types and grades of standard hearing aids contracted in favor of custom hearing aids. The average unit value of imported standard hearing aids increased by 22 percent between 1981 and January-June 1985, from $66.66 to $81.63, whereas the average unit value of shipments of domestically produced standard hearing aids increased by 7 percent, from $139.60 to $148.87.

Imports of BTE hearing aids climbed 25 percent during 1981-84, from 190,000 units to 237,000 units (from $12.6 million to $20 million) (table 32). All of the increase occurred in 1983 and 1984 reflecting agressive marketing by U.S. affilates of foreign manufacturers while U.S.-based producers concentrated their promotional efforts on custom hearing aids. In January-June 1985, imports of BTE hearing aids decreased by 18 percent compared with January-June 1984, from 117,000 units to 96,000 units (from $8.7 million to $8 million) as the market for BTE hearing aids contracted sharply in favor of custom hearing aids. The share of consumption of BTE hearing aids accounted for by imports rose from 40 percent in 1981 to 52 percent in 1984 and 50 percent in January-June 1985. The average unit value of imported BTE hearing aids increased by 27 percent between 1981 and January-June 1985, from $66.46 to $84.56, whereas the average unit value of shipments of domestically produced BTE hearing aids rose by 10 percent, from $138.03 to $151.42.

Eyeglass hearing aids represented 2 percent of total imports of hearing aids in 1984. Imports of eyeglass hearing aids rose by 16 percent during 1981-84 from 5,000 units to 5,800 units (from $360,000 to $430,000), as U.S. multiline producers placed more emphasis on custom-made hearing aids allowing imports to move into the breach (table 32). In 1984, however, advances in miniaturization improved the power of custom-made ITE hearing aids to the extent that a significant portion of eyeglass hearing aid wearers could switch to custom-made models. Consequently, imports of eyeglass hearing aids dropped by 58 percent in January-June 1985 compared with those in the corresponding period of 1984, from 3,100 units to 1,300 units (from $222,000 to $102,000). With the 49-percent decrease in producers' shipments of eyeglass hearing aids during 1981-84, the increase in imports resulted in an escalation of the share of consumption accounted for by imports from 18 percent in 1981 to 33 percent in 1984, but it contracted to 22 percent in January-June 1985. The average unit value of imported eyeglass aids increased by 10 percent between 1981 and January-June 1985, from $72.43 to $79,75; the average unit value of U.S. producers' shipments also rose by 10 percent, from $158.20 to $174.01.

Imports of body hearing aids increased by 4 percent during 1981-84, from 9,700 units to 10,100 units (from $618,000 to $459,000), but slipped by 8 percent in January-June 1985 compared with January-June 1984, from 5,100 units to 4,700 units (from $215,000 to $213,000) (table 32). The relative

Figure 15.--Standard hearing aids: U.S. producers' shipments and imports for consumption, 1981-85



Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

stability in the imports of body aids contrasted with the decline in producers' shipments during 1981-84 (59 percent) and January-June 1985 (8 percent). As a result, imports increased their share of consumption from 58 percent in 1981 to 79 percent in 1984 and 83 percent in January-June 1985. The average unit value of imported body aids decreased by 24 percent between 1981 and January-June 1985, from $63.92 to $48.82, whereas the average unit value of producers' shipments rose by 10 percent, from $153.78 to $169.09.

Standard ITE hearing aids have not been well received in the marketplace despite their relatively low price because the concha in each persons' ear has a unique shape. Therefore, a standard ITE is not likely to be as comfortable as a custom-made ITE. Imports of standard ITE hearing aids dropped from 4,300 units in 1981 to 600 units in 1982. However, technical advancements that improved the performance and fit allowed imports to grow to 7,600 units in 1984. Imports fell by 71 percent in January-June 1985 compared with imports in the comparable period of 1984, from 5,100 units to 1,500 units (from $261,000 to $105,000) (table 32). The share of consumption of standard ITE hearing aids accounted for by imports expanded from 36 percent in 1981 to 51 percent in 1984, but slid to 21 percent in January-June 1985, as imports shrank more quickly than producers' shipments. The average unit value of imported standard ITE hearing aids slipped by 3 percent during 1981 and January-June 1985, from $74.20 to $71.67 and the average unit value of producers' shipments climbed 33 percent, from $129.83 to $172.32.

Logistics discourage imports of custom-made hearing aids. As a result, imports of custom-made hearing aids accounted for only *** percent of total imports (table 31) and *** percent of U.S. consumption of custom-made hearing aids in 1984 (table 32). Imports of custom-made hearing aids rose from *** units in 1981 to *** units in 1984 (from *** to ***) and increased by *** percent during January-June 1985 compared with imports in January-June 1984, from *** units to *** units (from *** to ***). The average unit value of imported custom-made hearing aids fell by *** percent between 1981 and January-June 1985, from *** to ***. Meanwhile the average unit value of U.S. producers' shipments of custom-made aids dropped 17 percent, from $138.58 to $115.47.

Custom-made ITE hearing aids decreased from 100 percent of imported custom-made hearing aids in 1981, to *** percent in 1984, and *** percent in January-June 1985, as technological improvements enhanced the attractiveness of canal hearing aids. Imports of custom-made ITE hearing aids grew from *** units to *** units (from *** to ***) during 1981-84, and by *** percent in January-June 1985 compared with imports in January-June 1984, from *** units to *** units (from *** to ***) (table 32). The average unit value of imported custom-made ITE hearing aids fell *** percent between 1981 and January-June 1985, from *** to ***. The average unit value of U.S. producers' shipments decreased 26 percent, from $138.58 to $102.34.

Canal hearing aids were first imported in 1984 when they accounted for only *** percent of consumption of such hearing aids in that year and *** percent in the first half of 1985. Imports rose from *** units in 1984 to *** units in January-June 1985, from *** to *** (table 32). The average unit value of imported canal hearing aids climbed by *** percent between 1984 and

January-June 1985, from *** to ***, and the average unit value of U.S. producers shipments dropped 8 percent, from $192.12 to $175.84.

MAJOR FOREIGN COMPETITORS

Before World War II, the U.S. industry was the dominant supplier of hearing aids to the world. However, when the war cut off the supply of hearing aids from the United States, many former importers in foreign countries began producing their own hearing aids. In Western Europe, particularly, the successful establishment of a hearing health industry was aided by the growing interest in social welfare that emerged after the war. According to industry sources, U.S. manufacturers, satisfied with the profitability of their domestic franchise networks, gave less emphasis to the European market and concentrated more on the domestic market. Not having the benefit of the franchises then prevalent in the U.S. industry, European producers reportedly placed more emphasis on research and development for a competitive advantage than did U.S. producers. In time, European-made hearing aids acquired a reputation in the world for their power, reliability, and sophistication of design. In the past few years, when U.S. producers began placing more effort on developing high-quality in-the-ear and canal hearing aids, the European producers continued to earmark their research and development expenditures for further improvements and refinements in BTE hearing aids, which continue to find acceptance in the European marketplace. Whereas, the U.S. industry is highly regarded for the quality of its custom-made hearing aids, the European hearing aid industry has maintained its reputation in the power and reliability of its standard BTE and body aids.

Total production of hearing aids in the world is estimated to be from 3 million to 3.2 million units annually, with U.S. production accounting for about 35 percent of that total. The most significant foreign competitors of the U.S. hearing aid industry include Denmark, Switzerland, West Germany, Canada, and the United Kingdom. There are also suppliers to the U.S. market located in Japan, the Netherlands, Austria, and Spain.

Denmark

Industry profile

There are seven producers of hearing aids in Denmark; the three largest firms account for 95 percent of production. It is estimated that Danish production of about 680,000 units annually accounts for 20 to 25 percent of world production. 1/ All types of standard and custom-made hearing aids are produced; however, the Danish manufacturers concentrate primarily in the production of standard behind-the-ear and body hearing aids.

According to company executives interviewed by the Commission's staff, hearing aids produced by the Danish industry, particularly the standard BTE

1/ Report from the U.S. Embassy in Copenhagen, Denmark, dated October 4, 1985.

types, are generally regarded in the industry as among the finest in terms of design, reliability, and power. The Danish industry is consequently a leading exporter of hearing aids to other parts of the world, including the U.S. market which accounts for 20 to 25 percent of Danish exports. 1/ Danish companies have established manufacturing facilities in the United States and in 12 other foreign countries to produce custom-made canal and in-the-ear hearing aids for those markets. * * *.

Approximately 90 percent of the sales of hearing aids in the Danish market are made through Government institutions, which put out bids for contracts. The three largest firms have enjoyed an almost monopoly position with respect to their Government sales. 2/ However, a fully competitive nongovernment market exists that includes imported products. Although no U.S. firm has ever won a bid, *** Swiss firms have won contracts. Since custom-made in-the-ear and canal hearing aids are beginning to gain popularity in Denmark, sales of these hearing aids are limited to the smaller commercial market existing in Denmark. * * * U.S. * * * set up production facilities in Denmark to produce these custom-made hearing aids.

Components

U.S.-manufactured components reportedly account for well over 25 percent of the total cost of the components in Danish-manufactured hearing aids. 3/ These U.S.-made components include microphones, receivers, capacitors, transistors, and trimmers. According to Danish industry sources, a large number of the circuits used in Danish hearing aids are supplied by * * * Canadian * * *. Danish hearing aid producers, however, are beginning to produce more of their own components. *** Danish * * *, which previously relied heavily on * * * U.S. * * * of transducer components, has begun manufacturing its own microphones and receivers. * * * producing * * * amplifiers. * * * Danish hearing aid producers make their own faceplates and plastic housing. Telecoils are purchased from other Danish firms.

Capital

* * * Danish producer of hearing aids is owned by a nonprofit foundation dedicated to helping the hearing impaired and receives financial support from the foundation. Another producer is the subsidiary of a large publicly owned Danish-based multinational corporation. Danish industry officials indicate that because the three major firms are now operating at full capacity, new investmentin building and land will increase considerably in the near future. 4/

1/ Report from the U.S. Embassy in Copenhagen, Denmark, dated October 4, 1985.
2/ Ibid.
3/ Ibid.
4/ Ibid.

Labor

Labor costs for workers in the Danish hearing aid industry are slightly higher than those for U.S. workers. Fringe benefits in Denmark are divided among so-called mandatory benefits covering vacation pay, holiday pay, unemployment, retirement, and insurance. Such fringe benefits can amount for up to 25 percent of total net pay. Although, the assembly of hearing aids in Denmark is primarily a labor-intensive process, one Danish official indicated that an attempt is being made by Danish firms to cut labor costs by utilizing more automation, particularly in the assembly of electronic componentry.

Technology level

The level of technology in the Danish hearing aid industry is above average compared with the levels reached in other countries, including the United States. Danish firms employ thick and thin film technology for etching electronic components onto substrates to complete printed circuits. 1/ These firms reinvest a significant portion of their profit for research and development and have produced powerful and reliable standard behind-the-ear and body hearing aids, which are highly competitive not only in the Danish and European markets, but in the United States and Japan as well. According to U.S. industry sources, the emphasis of the Danish hearing aid industry on developing and improving the performance of standard hearing aids has not been extended to custom-made canal and in-the-ear hearing aids for which the U.S. industry retains a position of leadership.

Switzerland

Industry profile

Switzerland has three major hearing aid manufacturers. Production is estimated at *** units per year, mostly behind-the-ear types. 2/ *** U.S. * * * reported that * * * recently established * * * in Switzerland to produce custom-made in-the-ear and canal aids. *** privately held Swiss * * * developed * * * powerful, albeit expensive, hearing * * * to assist people with a profound hearing loss. U.S. industry sources indicated that, in general, standard hearing aids produced by the Swiss industry are equivalent in terms of power and reliability to those produced in Denmark. However, *** of the Swiss firms * * * worldwide * * * of lower priced standard hearing aids of slightly less quality than those made by most European, and U.S. manufacturers. Even though the world's first custom-made canal hearing aid was produced in Switzerland, this type of aid has not received as much attention as have the standard behind-the-ear models in the Swiss marketplace. According to Swiss industry sources, free hearing aids are provided to children and workers; adults who are not working must purchase their aids in the private market. The tendency of government agencies in

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1/ Report from the U.S. Embassy in Copenhagen, Denmark, dated October 4, 1985.

2/ Report from U.S. Embassy in Bern, Switzerland, dated August 30, 1985.

Switzerland has been to purchase standard behind-the-ear and body models, leaving the custom-made canal and in-the-ear hearing aids for private distribution and consumption.

Components

Although imports of U.S.-made components, particularly microphones, amplifiers, and receivers, account for up to 30 percent 1/ of the material costs of Swiss hearing aids, some competitors to the major U.S. suppliers of these components are appearing in Switzerland. *** privately held Swiss * * * reported that * * * designs * * * own integrated circuits and printed circuit boards and makes * * * own plastic parts and trimmers. However, the other *** * * * still purchase most of * * * components from U.S. producers. Plastic casings and housings for Swiss hearing aids are purchased primarily from other Swiss suppliers specializing in injection molding.

Capital

Two of the Swiss hearing aid manufacturers are publicly held corporations. The other major hearing aid producer is privately held.

Labor

Swiss producers employ approximately *** people in the local manufacture of hearing aids. 2/ According to Swiss industry representatives, the production of some of the electronic componentry may be considered to be more or less capital intensive. The assembly of hearing aids in Switzerland is generally a very labor-intensive process and employs skilled laborers. Labor costs are in general equivalent to or slightly higher than the average costs for U.S. workers. Mandatory fringe benefits can account for 18 to 22 percent of total net pay for the Swiss worker, and hourly wages average slightly more than $9 per hour.

Technology level

Switzerland has lower borrowing costs and tax breaks for companies that reinvest profits for research and development. Because the assembly of hearing aids in Switzerland is still principally a labor-intensive process, * * * Swiss * * * reported that * * * attempting to cut * * * relatively high labor costs by converting some of * * * assembly operations to a black box encapsulation process that utilizes robotics. Industry sources indicated that, except for * * * that mass * * * hearing aids for sale in the lower price range and * * * relatively little of * * * profits to research and development, the Swiss hearing aid industry has developed powerful and

1/ Report from U.S. Embassy in Bern, Switzerland, dated August 30, 1985.
2/ Ibid.

reliable standard hearing aids that include a variety of adjustment controls. The industry has acquired a reputation for precision miniaturization. Swiss hearing aids are also attractively finished, and * * * main Swiss producers actively promote color selection as a marketing tool.

West Germany

Industry profile

There are 12 to 15 hearing aid producers in West Germany. 1/ The three largest firms account for about 50 percent of total production. Plants producing hearing aids are scattered throughout West Germany. * * * producers are located in Erlangen and in Berlin and *** in Hamburg. Although, all types of standard and custom-made hearing aids are produced, West German firms concentrate on the production of standard, particularly behind-the-ear hearing aids. * * * U.S. * * * that * * * purchased * * * West German * * * of BTE hearing aids and introduced production of custom-made hearing aids there for the West German market.

Standard hearing aids, including BTE and body aids made by * * * producers, are considered by both U.S. and foreign industry sources to be of slightly better quality in terms of power and reliability and somewhat higher priced than most equivalent U.S. hearing aids. Most West German exports of hearing aids to the United States consist of these types of aids. However, * * * low-cost BTE hearing aids to several customers in the United States. Although custom-made in-the-ear and canal hearing aids now account for about 10 percent of the West German market, according to a representative of a West German producer, a significant portion of such aids are manufactured by the West German * * * U.S. * * * of custom-made hearing aids. Custom-made hearing aids have not received the same attention in the West German marketplace as they have in the United States, and therefore, West German producers have not commited as significant an amount of resources to the development of these types of aids as they have to the standard behind-the-ear and body hearing aids.

Hearing aids are covered by the West German Government health plans. The health insurance plan pays for the full amount of each hearing aid prescribed by a West German personal physician to remedy an individual's particular hearing disability. Normally, however, a physician is restricted to prescribing only hearing aids that are included on a list negotiated between the Association of German Physicians and the health insurance agency. 2/ Although some U.S.-produced hearing aids are included on the approved list, there has been a resistance to approving custom-made in-the-ear and canal aids by dispensers because of (1) the difficulty of justifying to the Government the purchase of items that cannot be produced or inspected in a standardized

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1/ Report from the U.S. Embassy in Bonn, West Germany, dated August 5, 1985.
2/ Ibid.

manner, and (2) because behind-the-ear hearing aids require more adjustments than do custom-made aids, which only government-licensed dispensers can perform.

Components

According to U.S. importers, the largest West German hearing aid manufacturers produce many of their own plastic components, including the ear mold, faceplate, and other housing components. Most of the plastic components not manufactured by the hearing aid producers are purchased from other West German contractors. A substantial portion of the electronic components of West German hearing aids are imported from the United States and represent from 30 to 50 percent of the material cost of each hearing aid. These imported components include microphones, amplifiers, receivers, resistors, capacitors, and trimmers for adjusting output, volume, frequency, and tone. Some integrated circuits are imported from the United States and Canada, but most printed circuit boards are produced in-house or purchased from other West German suppliers.

Capital

* * * manufacturers are owned by West German-based multinational firms that own a number of subsidiaries throughout the world producing a variety of medical, electronic, and other products.

Labor

Hourly wages and fringe benefits are believed to be slightly higher than the average labor costs for U.S. workers. Mandatory fringe benefits, retirement contributions, unemployment, and insurance amount to from 20 to 25 percent of total net pay for the West German worker and contribute partly to the slightly higher average costs of a hearing aid made in West Germany compared with that produced in the United States. The assembly of hearing aids in West Germany is principally a labor-intensive process utilizing skilled and semiskilled workers. An attempt is being made by West German firms to cut labor costs by employing more automated production processes using capital-intensive equipment, particularly in connection with the assembly of the electronic parts of the standard hearing aids.

Technology level

Because of the relationship of the larger West German producers of hearing aids to much larger electronic manufacturing conglomerates, greater amounts of resources for research and development are available to them than is typical for the average U.S. firm according to U.S. industry sources. As in the Danish hearing aid industry, West German expenditures for research and development have focused on technical improvements in standard hearing aids, particularly behind-the-ear models, resulting in a standard hearing aid that has acquired a reputation in European and U.S. markets for power and reliability.

Canada

Industry profile

The Canadian hearing aid industry is dominated by one large Canadian producer and subsidiaries of three U.S. and two European firms; these six firms produce custom-made ITE and canal hearing aids. Officials of a U.S. subsidiary of the Canadian company indicate that it supplies about *** percent of the Canadian hearing aid market and exports the remainder of its production * * * to the United States and Europe. It is about to begin production of custom-made hearing aids in the * * * to facilitate distribution in that market. Another Canadian company, which is a leading manufacturer of electronics components, is a leading supplier of integrated circuits to the U.S. and European hearing aid industries.

Although the major Canadian manufacturer produces custom-made in-the-ear and canal hearing aids, it has a niche in the hearing aid market for high-powered BTE models, which accounted for *** percent of its sales, in terms of quantity, in 1984. The company also specializes in compression hearing aids with automatic gain control. The Canadian company does very well in the child market because the BTE aids are so powerful they permit children to use behind-the-ear models instead of the more cumbersome body-worn aids. Custom hearing aids are increasing their share of the Canadian market and now account for about 35 percent of sales. These aids are supplied by the Canadian producer and the facilities of the major U.S. and European-based companies producing in Canada. The Canadian market is also supplied by imports of behind-the-ear and other standard hearing aids from Europe.

According to representatives of the large Canadian producer, provincial authorities control the distribution of free hearing aids in Canada. In Quebec, a contract is let out to bid by suppliers. In Saskatchewan, the provincial health insurance department supplies free hearing aids. In British Columbia, half of the market is covered by free hearing aids through health insurance and half by distribution through commercial channels.

Components

A representative of * * * reported that a substantial portion of the components for Canadian-produced hearing aids are imported. Imports from the United States, including transducers, capacitors, resistors, and ear hooks, account for *** to *** percent of the production costs of Canadian hearing aids. Certain trimmers for controlling volume and tone control, and for turning the hearing aid on and off, are purchased from Denmark. Other components are imported from West Germany and Switzerland. Integrated circuits are purchased primarily from * * * Canadian electronics * * *, but are also bought from major electronics producers in West Germany and the Netherlands. Metal stampings and molded rubber parts are purchased in Canada, and shells are made in Canada by contract toolers.

Labor

Industry officials indicated that labor costs, including fringe benefits, in the Canadian hearing aid industry are roughly equivalent to those in the United States but lower on the average than costs in European countries. The assembly of hearing aids in Canada, as in other countries, is a labor-intensive process, although an attempt is being made by the major Canadian manufacturer to increase automation in the assembly of certain electronic components in its hearing aids.

Technology level

The Canadian Government has reportedly helped establish * * * Canadian * * * of hearing aids by subsidizing a portion of * * * initial research and development expenses. 1/ * * * Canadian * * * the most advanced manufacturing technology in the industry. * * * also * * * a flexible printed circuit board and flexible tape in * * * in-the-ear models. * * * Canadian * * * well regarded in the industry for the quality of * * * precision engineering, which has enabled * * * to produce some of the most reliable and powerful behind-the-ear hearing aids in the world.

United Kingdom

Industry profile

The bulk of hearing aids available in the United Kingdom are imported or produced by foreign firms in the country. Production in the United Kingdom is estimated to be 250,000 to 300,000 units. The major part of this production is accounted for by subsidiaries of Danish, Swiss, Dutch, and German firms operating in the United Kingdom. 2/ * * * U.S. * * * established * * * in the United Kingdom for the manufacture of custom-made canal and in-the-ear hearing aids. * * * U.S. * * *, that * * * of transducers and other electronic components for hearing aids in the world, * * * also established manufacturing facilities in the United Kingdom to facilitate distribution of such components to the European hearing aid industry. However, according to one U.S. importer, an increasing number of hearing aids are now being produced by * * * United Kingdom * * *, which also * * * low-cost BTEs to a number of customers in the United States. Behind-the-ear models account for 84 percent of the United Kingdom market for hearing aids, body worn aids account for another 9 percent, custom-made in-the-ear and canal aids for 6 percent, and eyeglass hearing aids for less than 1 percent of sales in the United Kingdom. 3/

Industry sources reported that hearing aids are provided free in the United Kingdom through the Department of Health and Social Services (DHSS). In its purchases of hearing aids, the Department gives preference to bidders

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1/ Field interview with an industry representative on July 12, 1985.
2/ Report from the U.S. Embassy in London, England, dated August 28, 1985.
3/ Ibid.

with local production facilities. This and the relatively large market for hearing aids in the United Kingdom account for the large number of foreign companies with manufacturing facilities in the country. About 90 percent of the hearing aids purchased by the DHSS for free distribution are behind-the-ear types and the remaining 10 percent are body hearing aids for persons with profound hearing loss. Although custom-made in-the-ear and canal hearing aids are not distributed by the Department, these types of hearing aids represent 50 percent of hearing aid sales in the private market. However, the presence of a free alternative keeps the price of custom-made hearing aids down in the United Kingdom according to a representative of one major U.S. importer.

Components

According to U.S. industry sources, a substantial portion of the electronic components of hearing aids produced in the United Kingdom are manufactured by * * * local * * * of * * * U.S.-based * * * responsible for supplying most of the international hearing aid industry's demand for transducer components. Integrated circuits are imported principally from Canada, and some trimmers are purchased from * * * in the United States. Other plastic components are produced in the United Kingdom or are imported from the parent companies of foreign subsidiaries producing in that country.

Capital

Several of the foreign-owned firms manufacturing in the United Kingdom are subsidiaries of large publicly owned multinational corporations that finance the operations of their facilities in the United Kingdom.

Labor

Hourly wages and fringe benefits in the United Kingdom are generally equivalent or slightly lower than those earned by workers in the United States. The assembly of hearing aids is primarily a labor-intensive process according to industry sources.

Technology level

U.S. industry officials indicated that the level of technology of the hearing aid industry in the United Kingdom may be considered to be average, or slightly below average, when compared with the level existing in other countries, but varies from company to company depending to a considerable degree upon the levels of technology reached by the individual foreign-based firms producing in the country. *** large Swiss * * * that * * * established extensive manufacturing facilities in the United Kingdom, mass * * * aids in the lower price range and * * * very little of its resources to research and development. Most research and development done by other foreign firms operating in the United Kingdom is conducted by their parent firms in their home countries and cannot be attributed to the United Kingdom industry.

Japan

Industry profile

There are *** manufacturers of hearing aids in Japan. * * * supplies approximately 50 percent of the Japanese market. About 50 percent of hearing aid sales consist of behind-the-ear models, 40 percent of body-type aids, and the remainder of other standard and custom-made hearing aids according to * * *. The Japanese market is also supplied by imports of Canadian, Danish, and German-made behind-the-ear hearing aids. Japan imports more hearing aids than it exports.

Components

U.S. importers indicated that U.S.-made components account for a significant portion of the cost of components in Japanese-produced hearing aids and include microphones, receivers, and volume controls. Capacitors, faceplates, and presentation cases are made in Japan. * * * Japanese * * * also * * * some of * * * own lower grade transducer components.

Capital

*** of the *** Japanese producers are subsidiaries of larger Japanese multinational corporations involved in the production of a variety of electronic products and, therefore, have no difficulty obtaining financing for their capital needs. * * *.

Labor

Labor costs for the Japanese hearing aid industry, including fringes, are slightly lower than equivalent U.S. and European costs. As in other countries, the production of hearing aids in Japan is primarily a labor-intensive process, especially in the assembly of certain electronic components.

Technology level

* * * * * * *

Profile of U.S. Subsidiaries of Foreign Firms and Other Importers

U.S. subsidiaries of foreign firms accounted for 93 percent of total imports of hearing aids and 37 percent of imports of parts in 1984 (table 33). Of the 13 subsidiaries, 8 of them make hearing aids in the United States, 7 make custom ITE hearing aids, *** make BTE hearing aids, *** makes body hearing aids. 1/ Producers' shipments by these 8 firms amounted to $13.5 million in 1984, or 11 percent of the domestic industry total. Imports of hearing aids by these 8 firms amounted to $15.5 million in 1984, or 71 percent of total U.S. imports. Four U.S. producers not affiliated with foreign manufacturers imported hearing aids in 1984 to supplement their domestic production. Their imports of hearing aids amounted to *** in 1984, or *** percent of the U.S. total. Sixty-eight percent of total imports of hearing aids and parts by companies not affiliated with foreign manufacturers were accounted for by imports of parts alone. Imports of parts by components suppliers amounted to $1.6 million in 1984, or 32 percent of total imports of parts.

The parent companies of 4 of the U.S. subsidiaries of foreign manufacturers (* * *) are multibillion dollar corporations that make a large variety of goods in facilities throughout the world. The nine other parent companies specialize in products for the hearing impaired. * * *.

* * * of hearing aids, * * *, imported hearing aids from the United States from 1904 until supplies to Denmark were disrupted during World War II. Like several other distributors of U.S.-made hearing aids in Denmark, Germany, Switzerland, and Austria, * * * began making hearing aids during World War II. These manufacturers benefited from the trend in Europe after the War toward socialized medicine and health care. The availability of free hearing aids in much of Western Europe and the United Kingdom generated a sizable market for the European suppliers. However, the bid and contract systems in the United Kingdom and Denmark and the "approved list" systems of West Germany and Switzerland tend to keep the prices of hearing aids in Europe relatively low. * * * attracted to the U.S. market in the early 1960's by the prospect of higher profit margins.

To penetrate the U.S. market, * * * elected to concentrate on convincing clinical audiologists of the superior quality of * * * hearing aids. Since the audiologists did not dispense hearing aids at that time, but did prescribe hearing aids for their patients to be filled by dispensers, audiologists were not as sensitive to price considerations in prescribing specific brands of hearing aids as dispensers were in stocking them. However, dispensers tend to honor the recommendations of audiologists when they specify certain brands and models. To take advantage of volume discounts, dispensers would usually order

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1/ See app. E for a detailed discussion of each importer that also produces domestically; see app. F for similar discussion of importers that do not produce domestically. These importers are presented in the order of the quantity of their imports in 1984.

Table 33.--Hearing aids and parts: U.S. affiliates of foreign producers and importers not affiliated with foreign manufacturers, by levels of imports, 1984

Rank	Importers	Foreign affiliate	Country	Imports of finished hearing aids	Percent of total	Imports of parts	Percent of total	U.S. producer's shipments	Average unit value: Imported BTE	Average unit value: US-made custom ITE
				(1,000 dollars)		(1,000 dollars)		(1,000 dollars)		
Affiliates of foreign manufacturers:										
1										
2										
3										
4										
5										
6	*	*	*	*	*		*	*		*
7										
8										
9										
10										
11										
12										
13										
				20,213	93.3	1,865	37.3			
Importers not affiliated with foreign manufactures:										
1	* * *	-	-	***	***	***	***	***	***	***
2	* * *	-	-	***	***	***	***	***	***	***
3	* * *	-	-	***	***	***	***	***	***	***
4	* * *	-	-	***	***	***	***	***	***	***
5	* * *	-	-	***	***	***	***	***	***	***
6	* * *	-	-	***	***	***	***	***	***	***
7	* * *	-	-	***	***	***	***	***	***	***
8	* * *	-	-	***	***	***	***	***	***	***
9	* * *	-	-	***	***	***	***	***	***	***
10	* * *	-	-	***	***	***	***	***	***	***
11	* * *	-	-	***	***	***	***	***	***	***
12	* * *	-	-	***	***	***	***	***	***	***
13	* * *	-	-	***	***	***	***	***	***	***
14	* * *	-	-	***	***	***	***	***	***	***
15	* * *	-	-	***	***	***	***	***	***	***
16	* * *	-	-	***	***	***	***	***	***	***
17	* * *	-	-	***	***	***	***	***	***	***
18	* * *	-	-	***	***	***	***	***	***	***
19	* * *	-	-	***	***	***	***	***	***	***
				1,437	6.7	3,134	64.3			
				21,650	100.0	4,999	100.0			

1/ Phonic Ear is a subsidiary of Universal Health Care based in London and is the exclusive distributor in the United States for BTE's made by Phonak.

2/ Less than 0.05 percent.

3/ * * * imported hearing aids earlier during the 1981-84 period.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

a number of * * * aids. Once in stock, the dispensers would then promote the * * * line. * * * courting of audiologists included free trips to tour their facilities in Denmark. Eventually, * * * eliminated the free trips for audiologists and, instead, offered them to dispensers who had met certain quotas for ordering * * * aids in a given time period. * * * . Recognizing * * * success, first * * *, then * * * and the other leading European and Japanese manufacturers emulated * * * formula for penetrating the U.S. market by initially courting audiologists, then offering travel incentives to dispensers.

Three market forces led seven subsidiaries of foreign producers to begin manufacturing custom-made hearing aids in the United States during 1981-84 and another two to begin producing in 1985. (* * * began producing BTE hearing aids domestically in 1977 and 1980, respectively, because their chief supplier of components is in the United States.) First, the market swung dramatically away from BTE hearing aids and toward custom-made hearing aids. Second, to participate in the growth area of the market, foreign producers found it advantageous to establish domestic production facilities. Since speed of delivery and price are important elements of competition in the custom-made ITE market, it is not feasible to supply the U.S. custom-made ITE market from Europe or Japan because of the added time and transportation costs involved. Third, because both standard and custom-made hearing aids apply toward filling order quotas for travel incentives, dispensers who base orders on building points to qualify for free trips prefer to purchase standard hearing aids from companies that also offer custom-made hearing aids. Maintaining such dispensers as customers was an added incentive for foreign suppliers of BTE hearing aids to start marketing ITE hearing aids as well.

THE U.S. MARKET

Description of the Market

There are basically three categories of people who can benefit from wearing hearing aids. People born with hearing impairments tend to have severe or profound hearing deficiencies and require body aids or powerful BTE hearing aids. People who suffer traumatic hearing loss as the result of injuries also tend to need strong hearing aids in the form of body aids or BTE hearing aids. The largest part of the market, however, consist of people who have developed impaired hearing over a long period of time, either from occupational exposure to noise or from the aging process. Most of the people in the last category can be assisted adequately with custom-made hearing aids or BTEs of moderate strength.

The U.S. market for hearing aids is undergoing a change in demand from standard hearing aids to custom-made hearing aids. Dispensers were resistant to fit customers with custom-made hearing aids when they were initially introduced in the early 1960's because they could not get their money back if the customer was not satisfied with the fit of the ear mold. * * *.

Most of the new entrants to the U.S. market since 1973 have emphasized custom-made aids. By 1981, custom-made aids accounted for *** percent of U.S. consumption of all hearing aids and most U.S. producers of standard hearing aids were offering custom models (tables 35 and 41, fig. 14). * * *. This allowed U.S. producers to make custom-made aids more powerful and permitted people with more severe hearing losses to benefit from the esthetics of in-the-ear aids. By 1984, the share of the U.S. market accounted for by custom-made hearing aids expanded to *** percent and seven U.S. subsidiaries of foreign BTE suppliers had established domestic facilities for the manufacture of custom-made hearing aids. Industry sources estimate that 80 percent of current hearing aid wearers could be successfully fitted with custom-made aids.

Miniaturization and improvements in manufacturing techniques have also allowed the production of stronger BTE hearing aids, making it possible for body hearing aid users to switch to the less cumbersome, less obvious BTE hearing aids. Consequently, the share of consumption accounted for by body aids dropped from *** percent to *** percent during 1981-84 (tables 34 and 38).

Demographics is contributing to the growth of the U.S. market as the average age of the U.S. populace is increasing. However, industry sources cite two major problems limiting the size of the market: (a) physicians need to be educated regarding the advances made in hearing aid technology; and (b) the social stigma against acknowledgement of physical disabilities needs to be removed so that the estimated 12.5 million people who need hearing aids but do not wear them will step forward and take advantage of the assistance available to them. Another factor affecting the size of the market is the availability of disposable income among the elderly.

Trends in Consumption

Reflecting favorable demographics and the switch from BTE hearing aids to custom-made aids by current hearing aid wearers, U.S. apparent consumption of hearing aids grew *** percent during 1981-84, from *** units to *** units (from *** million to *** million) (table 34). The share of consumption accounted for by standard hearing aids fell from *** percent in 1980 to *** percent in 1984 and *** percent in January-June 1985 (table 35, fig. 16).

The consumption of standard hearing aids dropped 5 percent during 1981-84, from 534,000 units to 505,000 units (from $59.5 million to $60 million) and 17 percent in January-June 1985 compared with January-June 1984, from 253,000 units to 211,000 units (from $29.2 million to $25 million). The consumption of BTE hearing aids fell by 4 percent during 1981-84, from 477,000 units to 460,000 units (from $52.4 million to $54.8 million) and decreased 16 percent in January-June 1985 compared with the corresponding period of 1984, from 229,000 units to 192,000 units (from

Table 34.--Hearing aids: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1981-84, January-June 1984, and January-June 1985

(Quantity in thousands; value in thousands of dollars; unit value per hearing aid)

Period	Producers' shipments	Exports	Imports	Apparent consumption	Ratio (percent) of imports to consumption
	Quantity				
1981	625.3	29.2	***	***	***
1982	654.6	30.6	***	***	***
1983	742.2	30.8	***	***	***
1984	870.8	30.5	***	***	***
Jan.-June					
1984	411.4	14.9	***	***	***
1985	464.0	14.3	***	***	***
	Value				
1981	87,015	3,863	***	***	***
1982	86,411	3,648	***	***	***
1983	98,203	3,458	***	***	***
1984	121,004	3,350	***	***	***
Jan.-June					
1984	58,241	1,659	***	***	***
1985	57,550	1,445	***	***	***
	Unit value				
1981	$139.46	$132.29	***	***	-
1982	132.01	119.22	***	***	-
1983	132.31	112.27	***	***	-
1984	138.96	109.84	***	***	-
Jan.-June					
1984	141.57	111.34	***	***	-
1985	124.03	101.05	***	***	-

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

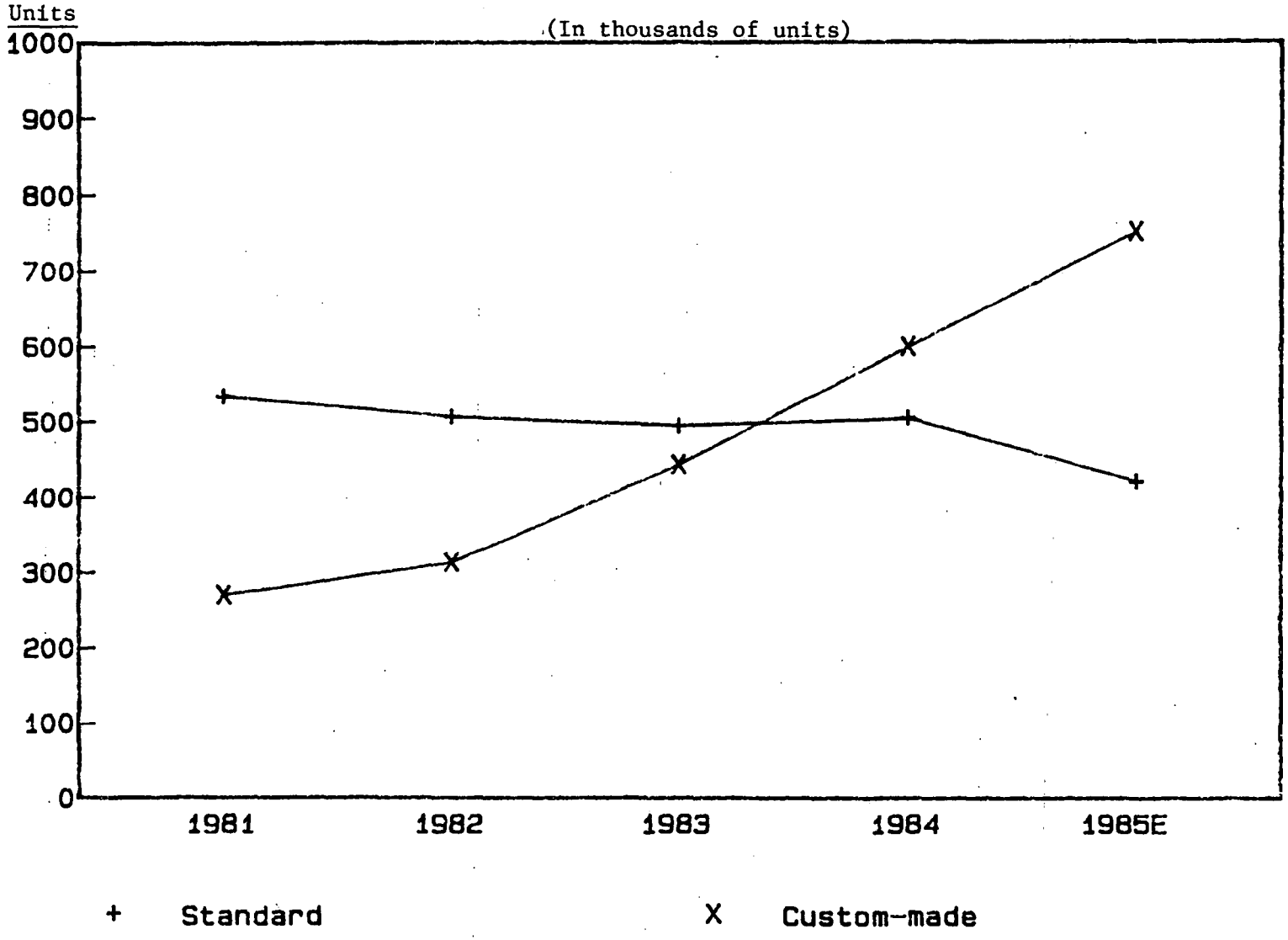
Table 35.--Standard hearing aids: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1981-84, January-June 1984, and January-June 1985

(Quantity in thousands; value in thousands of dollars; unit value per hearing aid)

Period	Producers' shipments	Exports	Imports	Apparent consumption	Ratio (percent) of imports to consumption
	Quantity				
1981	351.3	26.3	209.2	534.2	39.2
1982	339.9	28.8	196.2	507.3	38.7
1983	296.6	29.1	228.0	495.5	46.0
1984	270.4	25.8	260.6	505.2	51.6
Jan.-June--					
1984	135.8	13.2	130.3	252.9	51.5
1985	118.9	11.6	103.6	210.9	49.1
	Value				
1981	49,040	3,458	13,946	59,528	23.4
1982	48,436	3,341	15,459	60,554	25.5
1983	42,428	3,246	15,155	54,337	27.9
1984	41,409	2,812	21,412	60,009	35.7
Jan.-June--					
1984	21,244	1,447	9,363	29,160	32.1
1985	17,701	1,139	8,454	25,016	33.8
	Unit value				
1981	$139.60	$131.48	$66.66	$111.43	-
1982	142.50	116.01	78.80	119.37	-
1983	143.05	111.55	66.96	109.66	-
1984	153.14	108.99	82.17	118.78	-
Jan.-June--					
1984	156.44	109.62	71.85	115.30	-
1985	148.87	98.19	81.63	118.62	-

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Figure 16.--Hearing aids: Apparent U.S. consumption by types, 1981-84 and estimated 1985



Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

$26.6 million to $22.6 million) (table 36). The consumption of eyeglass hearing aids fell by 39 percent during 1981-84, from 28,000 units to 17,000 units (from $4.1 million to $2.5 million) (table 37). Similarly, the consumption of body aids dropped by *** percent during 1981-84, from *** units to *** units (from *** million to ***) (table 38). Standard ITE hearing aids improved their popularity in the United States in 1984 after manufacturers made improvements in their performance and comfort. Consumption slumped dramatically in 1982 and 1983 as dispensers found it difficult to move their stock, but more than doubled in 1984 compared with that in 1983. The net result was a *** percent increase in consumption during 1981-84, from *** units to *** units (from *** million to *** million) (table 39).

By contrast, the consumption of custom-made hearing aids (both ITE and canal aids) more than doubled during 1981-84, from *** units to *** units (from *** million to *** million) (table 40). Of these, canal hearing aids, which were introduced in 1983, accounted for *** percent of the consumption of custom-made hearing aids in 1984 and *** percent in January-June 1985. The average unit value of canal hearing aids was *** percent greater than that of custom-made ITE hearing aids in 1984, *** compared with *** (tables 41 and 42).

Factors of Competition Between Imported and Domestically Produced Hearing Aids

The dispenser of hearing aids must consider a number of factors when choosing the manufacturer with which to place orders. These factors include quality, service, price, other value-related considerations (including travel incentives), speed of delivery, and the brand preferences of local audiologists and physicians who make referrals to the dispenser.

Dispensers of hearing aids were surveyed regarding their opinion of the importance of eight criteria in deciding which supplier to use to purchase hearing aids. 1/ The results of the survey are shown in table 43.

For both standard and custom-made hearing aids, the top criteria were quality, service, and reliability of the supplier. 2/ Roughly half as many respondents listed net price as extremely important as those who listed quality as extremely important.

Quality

A number of factors help determine the quality of a hearing aid. * * *, the quality of the components is not a factor of competition. However, the

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1/ Questionnaires were sent to 30 dispensers of hearing aids. Seventeen responded to the "purchasing factors" section of the questionnaire.

2/ The issue of promotional incentives (i.e., free trips) was not brought to the attention of the staff until after the questionnaires were mailed. Consequently, dispensers were not asked to judge the importance of that factor of competition.

Table 36.--Behind-the-ear (BTE) hearing aids: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1981-84, January-June 1984, and January-June 1985

(Quantity in thousands; value in thousands of dollars; unit value per hearing aid)

Period	Producers' shipments	Exports	Imports	Apparent consumption	Ratio (percent) of imports to consumption
	Quantity				
1981	310.5	23.2	189.8	477.1	39.8
1982	304.4	25.2	181.1	460.2	39.4
1983	271.1	26.2	210.4	455.3	46.2
1984	246.8	23.8	236.9	459.9	51.5
Jan.-June--					
1984	124.3	12.2	117.1	229.2	51.1
1985	107.1	10.9	96.1	192.3	50.0
	Value				
1981	42,856	3,063	12,615	52,408	24.1
1982	43,159	2,955	14,308	54,512	26.2
1983	38,518	2,943	14,119	49,694	28.4
1984	37,374	2,581	20,036	54,829	36.5
Jan.-June--					
1984	19,278	1,329	8,665	26,614	32.6
1985	15,679	1,054	8,016	22,641	35.4
	Unit value				
1981	$138.03	$131.87	$66.46	$109.85	-
1982	141.77	116.74	78.99	118.45	-
1983	142.10	112.48	67.10	109.15	-
1984	151.42	108.38	84.56	119.22	-
Jan.-June--					
1984	155.09	109.01	74.02	115.76	-
1985	146.46	96.28	83.42	117.74	-

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 37.--Eyeglass hearing aids: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1981-84, January-June 1984, and January-June 1985

(Quantity in thousands; value in thousands of dollars; unit value per hearing aid)

Period	Producers' shipments	Exports	Imports	Apparent consumption	Ratio (percent) of imports to consumption
	Quantity				
1981	24.9	1.8	5.0	28.1	17.8
1982	24.9	1.8	5.6	28.3	19.8
1983	19.0	1.6	4.3	21.7	19.8
1984	12.6	1.0	5.8	17.4	33.3
Jan.-June--					
1984	6.5	0.5	3.1	9.1	34.1
1985	4.8	0.3	1.3	5.8	22.4
	Value				
1981	3,947	250	360	4,057	8.9
1982	3,762	216	466	4,012	11.6
1983	3,014	188	272	3,098	8.8
1984	2,169	122	430	2,477	17.4
Jan.-June--					
1984	1,136	63	222	1,295	17.1
1985	833	37	102	898	11.4
	Unit value				
1981	$158.20	$135.28	$72.43	$144.38	-
1982	153.69	118.03	83.89	141.77	-
1983	158.26	115.91	62.72	142.76	-
1984	171.72	119.26	73.53	142.36	-
Jan.-June--					
1984	173.62	123.53	71.35	142.31	-
1985	174.01	109.14	79.75	154.82	-

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 38.--Body hearing aids: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1981-84, January-June 1984, and January-June 1985

(Quantity in thousands; value in thousands of dollars; unit value per hearing aid)

Period	Producers' shipments	Exports	Imports	Apparent consumption	Ratio (percent) of imports to consumption
	Quantity				
1981	***	***	9.7	***	***
1982	***	***	8.9	***	***
1983	***	***	8.8	***	***
1984	***	***	10.1	***	***
Jan.-June					
1984	***	***	5.1	***	***
1985	***	***	4.7	***	***
	Value				
1981	***	***	618	***	***
1982	***	***	646	***	***
1983	***	***	495	***	***
1984	***	***	459	***	***
Jan.-June					
1984	***	***	215	***	***
1985	***	***	213	***	***
	Unit value				
1981	$153.78	$151.69	$63.92	$101.31	-
1982	159.26	112.06	72.59	106.23	-
1983	150.41	102.33	56.01	86.24	-
1984	162.20	103.14	45.28	71.95	-
Jan.-June					
1984	163.45	98.04	42.39	67.50	-
1985	169.09	102.04	48.82	70.88	-

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 39.--Standard in-the-ear (ITE) hearing aids: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1981-84, January-June 1984, and January-June 1985

(Quantity in thousands; value in thousands of dollars; unit value per hearing aid)

Period	Producers' shipments	Exports	Imports	Apparent consumption	Ratio (percent) of imports to consumption
			Quantity		
1981	***	***	4.3	***	***
1982	***	***	0.6	***	***
1983	***	***	4.5	***	***
1984	***	***	7.6	***	***
Jan.-June--					
1984	***	***	5.1	***	***
1985	***	***	1.5	***	***
			Value		
1981	***	***	319	***	***
1982	***	***	39	***	***
1983	***	***	269	***	***
1984	***	***	487	***	***
Jan.-June--					
1984	***	***	261	***	***
1985	***	***	105	***	***
			Unit value		
1981	***	***	$74.20	***	-
1982	***	***	66.10	***	-
1983	***	***	60.35	***	-
1984	***	***	63.68	***	-
Jan.-June--					
1984	***	***	51.47	***	-
1985	***	***	71.67	***	-

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 40.--Custom-made hearing aids: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1981-84, January-June 1984, January-June 1985

(Quantity in thousands; value in thousands of dollars; unit value per hearing aid)

Period	Producers' shipments	Exports	Imports	Apparent consumption	Ratio (percent) of imports to consumption
	Quantity				
1981	274.0	2.9	***	***	1/
1982	314.7	1.8	***	***	***
1983	445.6	1.7	***	***	***
1984	600.4	4.7	***	***	***
Jan.-June					
1984	275.6	1.7	***	***	***
1985	345.1	2.7	***	***	***
	Value				
1981	37,975	405	***	***	1/
1982	42,185	307	***	***	***
1983	55,775	212	***	***	***
1984	79,595	538	***	***	***
Jan.-June					
1984	36,997	212	***	***	***
1985	39,849	306	***	***	***
	Unit value				
1981	$138.58	$137.52	***	***	-
1982	134.03	170.18	***	***	-
1983	125.17	124.71	***	***	-
1984	132.57	114.47	***	***	-
Jan.-June					
1984	134.24	124.71	***	***	-
1985	115.47	113.33	***	***	-

1/ Less than *** percent.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 41.--Custom-made in-the-ear (ITE) hearing aids: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption 1981-84, January-June 1984, and January-June 1985

(Quantity in thousands; value in thousands of dollars; unit value per hearing aid)

Period	Producers' shipments	Exports	Imports	Apparent consumption	Ratio (percent) of imports to consumption
	Quantity				
1981	274.0	2.9	***	***	1/
1982	314.7	1.8	***	***	***
1983	420.8	1.7	***	***	***
1984	509.0	3.7	***	***	***
Jan.-June					
1984	236.9	1.1	***	***	***
1985	283.4	1.8	***	***	***
	Value				
1981	37,975	405	***	***	1/
1982	42,185	307	***	***	***
1983	51,011	211	***	***	***
1984	62,028	400	***	***	***
Jan.-June					
1984	29,587	126	***	***	***
1985	29,008	188	***	***	***
	Unit value				
1981	$138.58	$137.52	***	***	-
1982	134.03	170.18	***	***	-
1983	121.22	127.49	***	***	-
1984	121.86	109.20	***	***	-
Jan.-June					
1984	124.91	114.96	***	***	-
1985	102.34	106.03	***	***	-

1/ Less than *** percent.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 42.--Custom-made canal hearing aids: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1981-84, January-June 1984, and January-June 1985

(Quantity in thousands; value in thousands of dollars; unit value per hearing aid)

Period	Producers' shipments	Exports	Imports	Apparent consumption	Ratio (percent) of imports to consumption
	Quantity				
1981	0.0	0.0	0.0	0.0	-
1982	.0	.0	.0	.0	-
1983	24.8	***	.0	24.8	0.0
1984	91.4	1.0	***	***	***
Jan.-June--					
1984	38.7	.6	.0	38.1	.0
1985	61.7	.9	***	***	***
	Value				
1981	-	-	-	-	-
1982	-	-	-	-	-
1983	4,764	1	-	4,763	0.0
1984	17,567	138	***	***	***
Jan.-June--					
1984	7,410	86	-	7,324	.0
1985	10,841	118	***	***	***
	Unit value				
1981	$ -	$ -	$ -	$ -	-
1982	-	-	-	-	-
1983	192.00	142.86	-	192.06	-
1984	192.12	134.24	***	***	-
Jan.-June--					
1984	191.62	152.75	-	192.23	-
1985	175.84	130.97	***	***	-

1/ * * *.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 43.--Hearing aids: Survey results of dispensers' opinions on which supplier to use, by levels of importance and by types, 1984

(In percent)

Type and criteria	(Extremely important) 5	4	3	2	(Not at all important) 1
Standard:					
Quality of products	94	-	-	-	6
Reliability of supplier	88	6	-	-	6
Service	88	-	-	-	12
Net Price	47	29	12	-	12
Availability of product on short notice	47	24	18	6	6
Payment terms	24	29	24	-	24
Proximity of supplier	18	18	24	18	24
Alternative source	12	24	29	12	24
Custom-made:					
Quality of products	100	-	-	-	-
Service	100	-	-	-	-
Reliability of supplier	82	12	6	-	-
Net price	53	29	12	-	6
Availability of product on short notice	41	18	41	-	-
Payment terms	29	24	29	-	18
Proximity of supplier	18	18	24	24	18
Alternative source	12	29	29	12	18

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

care and skill with which these components are assembled does help determine quality because it affects the reliability of the product and the clarity of sound produced in the product. This "craftsmanship" varies by company within countries. Another aspect of quality is the power of the hearing aid. Since it costs more to produce powerful hearing aids, manufacturers command higher prices for more powerful aids. Ongoing advances in manufacturing technologies have both improved product reliability and allowed for the production of more powerful BTE hearing aids. During the course of fieldwork for this investigation, representatives of foreign manufacturers consistently alleged that European and Canadian producers have invested much more in research and development on BTE hearing aids than U.S. producers (* * *) because of an emphasis by U.S. manufacturers on custom-made hearing aids. That reportedly has allowed them to surpass the bulk of U.S. producers in terms of the quality of their standard hearing aids. U.S. producers contended that foreign manufacturers have more capital available to them for research and development.

The Veterans Administration is reportedly the largest single purchaser of hearing aids. In 1984, it accounted for *** percent of U.S. consumption of standard hearing aids and *** percent of U.S. consumption of custom-made hearing aids. The Veterans Administration periodically announces bidding for contracts to supply it with specific types of hearing aids. A committee judges each of the bids on a scale of 1 to 100 with points being awarded for various quality features (the degree to which technical specifications are met) and for price. Six points are awarded for the domestic production of the hearing aid under consideration. During 1981-84, the share of the Veterans Administration's purchases that were supplied by imports increased from *** percent to *** percent for BTE hearing aids; and from *** percent to *** percent for eyeglass hearing aids; but decreased from *** percent to *** percent for body hearing aids. * * *. The tabulation on page 93, compiled from the VA's response to the Commission's questionnaires, shows the average unit values of standard hearing aids purchased by the Veterans Administration between January 1, 1981, and June 30, 1985.

* * * * * * *

Reliability of supplier and service

Both of these factors scored high in the survey of dispensers. The reliability of the supplier is important because dispensers want to know that the hearing aids (which have an average life expectancy of 6 years) can be repaired and the warranty honored. Therefore, the dispensers prefer to do business with firms that will still be in business 6 years from the time of purchase. Quality and speed of service are important because hearing aids do need to be serviced regularly, partly because the acidity from perspiration can damage hearing aid components; hearing aid wearers tend to be anxious for the return of their hearing aids. Although the leading importers have particularly good reputations for service, it cannot be considered a competitive advantage because several domestic suppliers also have excellent reputations for service. U.S. firms with deteriorating reputations for service reportedly tend to lose business to both domestic and foreign-based competitors.

* * * * * * *

Price

The price of hearing aids in general can be measured at two levels in the United States. First, the price paid by dispensers or retailers to the producer or importer. Second, is the retail price, which the final user or consumer pays for hearing aids. 1/ This report is concerned primarily with the price at the first level, that is, the price received by producers or importers from dispensers or retailers. 2/

Hearing aids are differentiated according to functional features, materials, design, cosmetics, locations worn, and workmanship. As a result, product prices vary considerably. For instance, the price of a custom-made canal hearing aid is usually higher than that of a standard body hearing aid. A relatively small hearing aid such as the canal is often higher priced than that of a large hearing aid such as the type worn behind the ear or on the body. In addition to product characteristics, other factors that affect price include consumer tastes, currency-exchange rates (app. G), and the price of substitutes such as surgical services. 3/

U.S. producers and importers commonly sell hearing aids at list prices. 4/ Generally, U.S. producers quote prices on an f.o.b. plant basis, but on some transactions they absorb part or all of the mailing expense on

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1/ There is also the price received by foreign suppliers from U.S importers. Most major importing companies are subsidiaries of foreign supply owners. The price they pay to their parent firms include, in most cases, only manufacturing costs, which do not include advertisement cost and net profit. It is not a market price. Therefore, this price was not used; instead the price charged to retailers was used.

2/ Unless otherwise stated, the term price in this section refers to the weighted average quarterly price on a f.o.b. plant basis.

3/ Not wearing hearing aids is another substitute for the consumer suffering from partial hearing loss. Some people, especially senior citizens, have reduced hearing ability, and cannot afford hearing aids.

4/ According to data submitted in response to Commission questionnaries, a few firms did sell their product at discounted prices for a short period, such as one or two quarters. Such amounts of discounted sales were small.

shipments to dispensers or retailers. As hearing aids are relatively light and small, transportation costs are often less than 1 percent of the net selling price and play an insignificant role in the final price. According to data submitted in response to Commission's questionnaires, most firms grant their major customers credit terms of 30 days net. However, a few firms indicated that they grant discounts to customers who pay their bills on delivery or within 15 days or less.

Domestic sources.--During the 18-quarter sample period (from January-March 1981 through April-June 1985) covered by this investigation, prices of U.S.-produced hearing aids have generally increased steadily. Shifting consumers' preference from the standard to the custom-made could have an impact on the relative prices of these two types of hearing aids. 1/ Because custom-made canal hearing aids require relatively more workmanship than custom-made ITE hearing aids, they are priced higher. As more producers of custom-made hearing aids are expected to enter the market from both domestic and foreign sources, no rapid increases in the price of custom-made hearing aids are expected. Since ITE and eyeglass hearing aids are relatively less conspicuous and more labor intensive than BTE and body hearing aids, their prices are often higher. Early in 1984, a new version of standard ITE hearing aids emerged in the market; it not only boosted sales, but also pulled up the price substantially. 2/ Without the introduction of the new version, standard ITE hearing aids might have disappeared from the market.

Delivered prices.--The delivered price is the price paid by retailers 3/ and is the net of all returns, discounts, allowances, and rebates of any kind. Retailers can purchase hearing aids for sale from both domestic and foreign sources. Retailers consider several factors when making a selection of suppliers, including quality of products, reliability of the supplier, service, promotional incentives, and payment terms. Each of the factors can affect the delivered price of hearing aids.

Delivered prices of custom-made hearing aids.--According to data submitted in response to questionnaires, the weighted average delivered price of domestically produced custom-made ITE hearing aids fluctuated over the sample period, ranging from $119.25 in April-June 1982 to $131.67 in July-September 1984 (table 44). Purchases of imported custom-made ITE hearing aids were reported only in the last six quarters of the sample period. The delivered price was always at ***, which was higher than that of U.S.-made custom-made ITE hearing aids. Domestically-produced and imported custom-made hearing aids are comparable; however, subtle differences in quality may lead to price differentials.

1/ The Commission has not attempted to quantify the impact of shifting consumer preference on the relative prices of standard and custom-made hearing aids; that shift may explain in part pricing differences between domestic and imported standard hearing aids.

2/ According to a major producer, the increase in units in 1984 reflected a new stock ITE hearing aid, which was a more advanced design type of unit characterized by its small size and better fitting.

3/ In addition to dispensers, the term "retailer" includes clinical audiologists and physicians who sell hearing aids to their patients.

Starting from January-March 1983, retailers purchased custom-made canal hearing aids from both domestic and foreign sources. Except for October-Deceomber 1984, the delivered price of U.S.-made canal aids was always higher than that of imported canal aids (table 44). The delivered price of U.S.-made canal aids ranged from $203.75 in July-September 1984 to $225.80 in January-June 1985. The delivered price of imported canal aids changed slightly from *** in October-December 1983 to *** in January-March 1985. The volume of imported canal aids was very small.

Delivered price of standard hearing aids.--Among the four kinds of standard hearing aids, BTE aids were most widely used. The price differences between U.S.-made and imported BTE hearing aids were not large. The weighted average delivered price of U.S.-made BTE hearing aids ranged from $148 in July-September 1981 to $181 in January-June 1985 (table 45). The price range of foreign BTE hearing aids was from $145 in 1981 to $198 in April-June 1985. During the 18-quarter period, the delivered price of U.S.-made BTE hearing aids was higher than that of imported BTE hearing aids in 10 quarters, but were lower than imported BTE hearing aids in the final 6 quarters of the period. Although the domestically-produced and imported products are comparable, differences in certain quality features can lead to higher prices.

The delivered price of standard ITE hearing aids was relatively stable compared with those of other types of standard aids. The price of U.S.-made ITE aids increased moderately from *** in January-September 1981 to *** in October-December 1984 (table 45). The new version of the standard ITE hearing aid contributed to the price increase in 1984. The delivered price of imported ITE hearing aids increased from $127 in 1981 to $135 in January-March 1983 and remained at that level until October-December 1984. Since January-March 1984, retailers paid a higher price for U.S.-made standard ITE hearing aids because their better quality, as indicated by a major producer.

The delivered prices of U.S.-made and imported body hearing aids increased steadily over the sample period. The price of U.S.-made body aids increased from $141 in 1981 to a record high of $201 in July-September 1984, and the price of imported body aids increased from $155 in the first quarter of 1981 to its peak of $192 in April-June 1984. In most quarters, the price of imported body aids was higher than that of U.S.-made body aids.

The delivered price of U.S.-made eyeglass hearing aids increased continuously from $143 in January-March 1981 to $167 in January-September 1984. The delivered price of imported eyeglass hearing aids rose from $183 in 1981 to $185 in 1982. No purchases of imported eyeglass aids were reported in the last 10 quarters of the sample period. 1/ During the first eight quarters, the price of imported eyeglass aids was consistently higher than that of U.S.-made eyeglass hearing aids.

1/ All delivered prices were based on data provided by 7 major importers.

Table 44.--Custom-made hearing aids: Delivered prices 1/ paid by domestic retailers, by locations worn, by sources, and quarters January 1981-June 1985 2/

(Per unit)

Period	Canal		In-the-ear	
	Domestic	Foreign	Domestic	Foreign
1981:				
January-March	-	-	$125.75	-
April-June	-	-	125.75	-
July-September	-	-	124.40	-
October-December	-	-	124.40	-
1982:				
January-March	-	-	122.58	-
April-June	-	-	119.25	-
July-September	-	-	120.20	-
October-December	-	-	119.25	-
1983:				
January-March	$214.50	***	121.00	-
April-June	214.50	***	121.44	-
July-September	214.50	***	121.00	-
October-December	210.00	***	121.00	-
1984:				
January-March	218.75	***	125.20	***
April-June	208.50	***	126.20	***
July-September	203.75	***	131.67	***
October-December	218.60	***	127.20	***
1985:				
January-March	225.80	***	130.40	***
April-June	225.80	***	130.40	***

1/ Data in this table represent weighted average quarterly prices.
2/ *** firms provided usable price data.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 45.--Standard hearing aids: Delivered prices 1/ paid by domestic retailers, by locations worn, by sources, and quarters January 1981-June 1985 2/

(Per unit)

Period	In-the-ear		Behind-the-ear		Eyeglass		Body	
	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
1981:								
January-March	***	$127	$149	$145	$143	$183	$141	$155
April-June	***	127	149	145	143	183	141	155
July-September	***	127	148	145	143	183	141	166
October December	***	127	149	145	143	183	141	155
1982:								
January-March	***	132	154	151	147	185	166	161
April-June	***	132	154	151	147	185	146	161
July-September	***	132	150	151	147	185	146	161
October December	***	132	148	151	147	185	146	161
1983:								
January-March	***	135	165	162	153	-	169	163
April-June	***	135	163	162	153	-	148	163
July-September	***	135	167	162	153	-	148	163
October December	***	135	165	162	153	-	148	163
1984:								
January-March	***	135	164	175	167	-	165	170
April-June	***	135	166	175	167	-	165	192
July-September	***	135	168	175	167	-	201	170
October December	***	135	168	185	162	-	165	170
1985:								
January-March	***	132	181	183	166	-	198	180
April-June	***	132	181	198	166	-	173	180

1/ Data in this table represent weighted average quarterly prices.
2/ *** firms provided usable price data.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Speed of delivery

Speed of delivery is not a competitive factor for standard hearing aids because dispensers and suppliers keep them in stock. Domestic manufacturers and U.S. subsidiaries of foreign producers can usually guarantee overnight shipment of orders for standard hearing aids. However, speed of delivery for custom-made hearing aids is of critical importance. Unlike standard hearing aids that can be ordered over the telephone, manufacturers must receive ear molds for custom-made aids in the mail. It usually takes 3 days before the finished custom-made aid can be shipped out. Since the length of wait is important to the end consumer, the additional time and cost for special air mail delivery of ear molds to Europe and Japan and the return of the finished product makes it virtually impossible for custom-made hearing aids imported from those locations to be competitive in the U.S. market. Even the * * * firm that supplies * * * of the imports of custom-made hearing aids to the United States is scheduled to transfer its production of these hearing aids for the U.S. market to * * * by the end of 1985 because it found it difficult to compete with firms * * * because of the additional *** it takes to deliver the hearing aids from * * * to its distributor in * * *.

Referrals

Clinical audiologists and physicians reportedly tend to favor European-made hearing aids when they prescribe a specific brand of standard hearing aid in their referrals to dispensers. This reflects the success that subsidiaries of European firms have had in "educating" this group of hearing care professionals. This preference for imported hearing aids is evident as *** percent of imported standard hearing aids are sold to hospitals and clinics compared with only *** percent of U.S.-made standard hearing aids.

Other nonprice factors related to value

When choosing a company to supply it with hearing aids, a dispenser asks, "What can I get for my dollar?" The dispenser must look beyond the base price. There are a number of ways to add value to a hearing aid. Examples include numbered volume controls, output controls, tone controls, and telecoils with switches. Ordinarily, these are not included in the base price and there is an additional charge for these "extras." Some companies intentionally quote a low base price knowing that they will make their profit from the charges for the extras. In the heat of competition, some companies will throw in free extras. Other extras for which the supplier may or may not charge, depending on the competitive situation, include an additional year of warranty and a year of all risk insurance. Suppliers also compete on the basis of terms of sale, sales on consignments, and their policy regarding returns. For each of these factors, U.S. and foreign producers have an equal basis from which to compete.

The one added value factor that may give certain foreign manufacturers an advantage is their travel incentives. Almost all of the leading foreign suppliers have programs whereby dispensers can earn a free vacation (or educational tour) for ordering a specific volume of hearing aids in a given time period. Nearly every industry representative interviewed during the field work for this investigation cited travel incentives as the most important competitive advantage for foreign producers. The advantage is that trips to plants in Denmark, West Germany, Switzerland, and Japan tend to be perceived as more exotic (therefore of higher value) than trips to U.S. producers' plants. U.S. producers have entered into the travel incentive battleground by offering trips to such places as Arizona, Acapulco, Las Vegas, and the Bahamas. * * *.

APPENDIX A

LETTER TO CHAIRWOMAN PAULA STERN FROM THE ACTING UNITED STATES TRADE REPRESENTATIVE MICHAEL B. SMITH

THE UNITED STATES TRADE REPRESENTATIVE
WASHINGTON
20506

The Honorable Paula Stern
Chairwoman
United States International
Trade Commission
701 E Street, N.W.
Washington, D.C. 20436

Dear Chairwoman Stern:

On February 14, 1983, pursuant to section 167(b) of the Educational, Scientific, and Cultural Materials Importation Act of 1982 (the Act) (Pub. L. 97-446; 96 Stat. 2346) the President proclaimed temporary duty-free treatment for certain imported articles, including hearing aids. Section 166(a) of that Act authorizes the President to narrow the scope of, or place conditions on, the duty-free treatment applicable to some of these articles, including hearing aids, if such treatment is not provided for in the Florence Agreement or the Nairobi Protocol to that Agreement, a copy of the relevant provisions of which (Annex E) is enclosed. The statutory justification for such action is a Presidential determination that the duty-free treatment has a significant adverse impact on a domestic industry (or portion thereof) producing a like or directly competitive article. Applications for action under this provision have been received from Beltone Electronics Corporation and Qualitone Corporation, both manufacturers of hearing aids. Copies of the applications are enclosed.

To assist us in addressing the Beltone and Qualitone request, at the direction of the President pursuant to the authority of section 332(g) of the Tariff Act of 1930, I request that the Commission conduct an investigation and provide the President with information on conditions of competition between imported and domestically produced hearing aids which would assist in making a determination as to whether the duty-free treatment provided for conventional (non-custom) hearing aids in item 960.15 of the Tariff Schedules of the United States, and which are subject to action under section 166 of the Act, has a significant adverse impact on a domestic industry (or portion thereof). To the extent practicable, the Commission's report should differentiate between imports of conventional hearing aids for non-profit institutions and hearing aids imported for regular commercial distribution.

The Commission's report on this matter should be submitted as soon as possible but not later than 6 months after the receipt of this request.

Sincerely yours,

MICHAEL B. SMITH
Acting

MBS:hcc

enclosures

APPENDIX B

NOTICE OF INSTITUTION OF INVESTIGATION NO. 332-215 IN THE FEDERAL REGISTER

Agency Form Submitted for OMB Review

AGENCY: International Trade Commission.

ACTION: In accordance with the provisions of the Paperwork Reduction Act of 1980 (44 U.S.C. Chapter 35), the Commission has submitted a proposal for the collection of information to the Office of Management and Budget for review.

Purpose of Information Collection

The proposed information collection is for use by the Commission in connection with investigation No. 332-215, An Assessment of the Impact of Imports under the Educational, Scientific, and Cultural Materials Importation Act of 1982, Pub. L. 97-446, on the U.S. Hearing Aid Industry, instituted under the authority of section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)).

Summary of Proposals

(1) Number of forms submitted: three.

(2) Title of forms: (1) Questionnaire for Producers of Hearing Aids, (2) Questionnaire for Importers of Hearing Aids, and (3) Questionnaire for Purchasers of Hearing Aids.

(3) Type of request: new.

(4) Frequency of use: nonrecurring.

(5) Description of respondents: U.S. producers, importers, and purchasers of hearing aids.

(6) Estimated number of respondents: 140.

(7) Estimated total number of hours to complete the forms: 2,100.

(8) Information obtained from the form that qualifies as confidential business information will be so treated by the Commission and not disclosed in a manner that would reveal the individual operations of a firm.

Additional Information or Comment

Copies of the proposed form and supporting documents may be obtained from William Fry, the USITC agency clearance officer (tel. no. 202-523-4463). Comments about the proposals should be directed to the Office of Information and Regulatory Affairs of the Office of Management and Budget, Washington, D.C. 20503, Attention: Ms. Francine Picoult, Desk Officer for the U.S. International Trade Commission (202-395-7231). If you anticipate commenting on a form but find that time to prepare comments will prevent you from submitting them promptly you should advise OMB of your intent as soon as possible. Copies of any comments should be provided to William Fry (United States International Trade Commission, 701 E Street, NW, Washington, D.C. 20436).

Issued: June 13, 1985.

By order of the Commission.

Kenneth R. Mason,

Secretary.

[FR Doc. 85-14775 Filed 6-18-85; 8:45 am]

BILLING CODE 7020-02-M

[332-215]

Assessment of the Impact of Imports Under the Educational, Scientific, and Cultural Materials Importation Act of 1982, Pub. L. 97-446, on the U.S. Hearing Aid Industry

AGENCY: International Trade Commission.

ACTION: Institution of investigation.

SUMMARY: Following receipt, on May 29, 1985, of a letter from the U.S. Trade Representative at the direction of the President, the Commission instituted investigation No. 332-215 under section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)), for the purpose of assessing the impact of imports under the Educational, Scientific, and Cultural Materials Importation Act of 1982, Public Law 97-446, on the U.S. hearing aid industry.

EFFECTIVE DATE: June 11, 1985.

FOR FURTHER INFORMATION CONTACT: Mr. Ruben Moller or Mr. Ralph Watkins, General Manufactures Division, U.S. International Trade Commission, Washington, D.C. 20436, telephone 202-724-1732 or 202-724-0976, respectively.

SUPPLEMENTARY INFORMATION: The Commission will investigate and provide the President with information on conditions of competition between imported and domestically produced hearing aids for the purpose of assisting the President in his determination of whether the duty-free treatment provided for conventional (non-custom) hearing aids under item 960.15 of the Tariff Schedules of the United States, pursuant to the terms of section 167(b) of the Educational, Scientific, and Cultural Materials Importation Act of 1982 (Pub. L. 97-446; 96 Stat. 2346), has a significant adverse impact on a domestic industry (or portion thereof). Section 166(a) of that act authorizes the President to narrow the scope of or place conditions on the duty-free treatment applicable to some of these articles, including hearing aids, if such treatment is not provided for in the Florence Agreement or the Nairobi Protocol to that agreement.

To the extent practicable, the Commission's report will differentiate between imports of conventional hearing aids for non-profit [illegible] and hearing aids imported for regular commercial distribution. The Commission will examine the U.S. and major foreign hearing aid industries, analyze the key economic forces in the U.S. market, and assess the factors of competition in the U.S. market between domestic and foreign products.

Written Submissions

Interested persons are invited to submit written statements concerning the investigation. Written statements should be received by July 25, 1985. Commercial or financial information which a submitter desires the Commission to treat as confidential must be submitted on separate sheets of paper, each clearly marked "Confidential Business Information" at the top. All submission requesting confidential treatment must conform with the requirements of section 201.6 of the Commission's *Rules of Practice and Procedure* (19 CFR 201.6). All written submissions, except for confidential business information, will be made available for inspection by interested persons. All submissions should be addressed to the Secretary at the Commission's Office in Washington, D.C.

Issued: June 14, 1985.

By order of the Commission.

Kenneth R. Mason,

Secretary.

[FR Doc. 85-14776 Filed 6-18-85; 8:45 am]

BILLING CODE 7020-02-M

[Investigation No. 337-TA-212]

Certain Convertible Rowing Exercisers; Commission Determination Not To Review Initial Determination Joining Respondents

AGENCY: International Trade Commission.

ACTION: Nonreview of an initial determination (ID) joining three respondents to the investigation.

SUMMARY: Notice is hereby given that the Commission has determined not to review the administrative law judge's (ALJ) ID to join three parties as respondents in the above-captioned investigation.

FOR FURTHER INFORMATION CONTACT: Jack Simmons, Esq., Office of the General Counsel, telephone 202-523-0493.

SUPPLEMENTARY INFORMATION: On April 19, 1985, complainant diversified Products Corp moved (Motion 212-12) to amend the complaint and notice of

APPENDIX C

EXPLANATION OF THE RATES OF DUTY APPLICABLE TO HEARING AIDS, AND SELECTED PORTIONS OF THE TARIFF SCHEDULE OF THE UNITED STATES ANNOTATED, 1985

Explanation of the rates of duty applicable to hearing aids and parts as shown in this appendix

The rates of duty in column 1 are most-favored-nation (MFN) rates and are applicable to imported products from all countries except those Communist countries and areas enumerated in general headnote 3(d) of the Tariff Schedules of the United States (TSUS). The People's Republic of China, Hungary, Romania, and Yugoslavia are the only Communist countries currently eligible for MFN treatment. However, MFN rates do not apply if preferential tariff treatment is sought and granted to products of developing countries under the Generalized System of Preferences (GSP) or the Caribbean Basin Economic Recovery Act (CBERA), or to products of Isreal or of least developed developing countries (LDDC's), as provided under the Special rates of duty column.

Preferential rates of duty in the Special column followed by the code "D" column reflect the full U.S. MTN concession rates implemented without staging for particular products of LDDC's enumerated in general headnote 3(e)(vi) of the TSUS. Where no rate of duty is provided for LDDC's in the Special column for a particular tariff item, the rate of duty in column 1 applies.

The rates of duty in column 2 apply to imported products from those Communist countries and areas enumerated in general headnote 3(d) of the TSUS.

The GSP affords nonreciprocal tariff preferences to developing countries to aid their economic development and to diversify and expand their production and exports. The U.S. GSP, enacted in title V of the Trade Act of 1974, was implemented by Executive Order No. 11888 of November 24, 1975, and renewed in title V of the Trade and Tariff Act of 1984. It applies to merchandise imported on or after January 1, 1976, and is scheduled to remain in effect through July 4, 1993. It provides duty-free entry to eligible articles imported directly from designated beneficiary developing countries. Eligible followed by an "A" or "A*." The designation "A" means that products of all beneficiary developing countries are eligible for benefits of the GSP, and "A*" indicates that products of certain developing countries, specified in general headnote 3(e)(v)(D) of the TSUS, are not eligible.

The 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 98067 and implemented by Presidential Proclamation 5133 of November 30, 1983, applies to merchandise entered, or withdrawn from warehouse for consumption, on or after January 1, 1984; it is scheduled to remain in effect until September 30, 1995. It provides duty-free entry to eligible articles imported directly from designated Basin countries, as reflected by the rates of duty "Free" followed by the code "E" in the Special column. (See general headnote 3(e)(i) and (vii) of the TSUS).

Preferential rates of duty in the Special column followed by the code "I" reflect the rates of duty applicable to produces of Isreal under the United States-Isreal Free Trade Area Implementation Act of 1985, as provided in general headnote 3(e)(viii) of the TSUS. Where no rate of duty is provided for products of Israel in the Special column for a particular tariff item, the rate of duty in column 1 applies.

Item	Stat. Suf-fix	Articles	Units of Quantity	Rates of Duty		
				1	Special	2
		Medical, dental, surgical and veterinary instruments, etc. (con.):				
		Other (con.):				
709.19	00	Dental burs	Gross	7.4% ad val.	6.2% ad val.(D) Free (A,E,I)	35% ad val.
		Needles:				
709.21	00	Dental hypodermic needles	No.	6.1% ad val.	5.3% ad val.(D) Free (A,E,I)	35% ad val.
709.23		Other		8.8% ad val.	6.4% ad val.(D,I) Free (A,E)	55% ad val.
	20	Hypodermic (except dental)	No.			
	40	Other	No.			
		Other:				
709.25		Dental instruments, and parts thereof		5.3% ad val.	4.7% ad val.(D) Free (A,E,I)	35% ad val.
	20	Dental hand instruments, and parts thereof	X			
	40	Other	X			
709.27	00	Other	X	10.4% ad val.	7.9% ad val.(D,I) Free (A,E)	55% ad val.
709.40	00	Mechano-therapy appliances and massage apparatus, and parts thereof	X	4.4% ad val.	4.2% ad val.(D) Free (A*,E,I)	35% ad val.
709.45	00	Artificial respiration, ozone therapy, oxygen therapy, aerosol therapy or similar apparatus; breathing appliances, including gas masks and similar respirators; parts of the foregoing	X	4% ad val.	3.7% ad val.(D) Free (A,E,I)	35% ad val.
709.46	00	Gas masks and similar respirators, if certified for use in civil aircraft (see headnote 3, part 6C, schedule 6)	X	Free		35% ad val.
709.50		Hearing aids and parts thereof		4.7% ad val.	4.2% ad val.(D) Free (A,E,I)	35% ad val.
	20	Hearing aids	No.			
	40	Parts	X			
		Orthopedic appliances, surgical belts, trusses, and similar articles; artificial limbs, eyes, teeth, and other prosthetic articles; splints and other fracture appliances:				
		Artificial teeth and dentures:				
709.54	00	Wholly or almost wholly of plastics	X	5% ad val.	Free (A,E,I)	20% ad val.
709.55	00	Other	X	12.4% ad val.	9% ad val.(D,I) Free (A,E)	70% ad val.
709.56	00	Bone and joint prostheses, bone plates, screws, and nails, and other internal fixation devices and appliances	X	9.9% ad val.	7.2% ad val.(D,I) Free (A,E)	55% ad val.
709.57	00	Other	X	6.9% ad val.	5.8% ad val.(D) Free (A,E,I)	40% ad val.
		Apparatus based on the use of X-rays or of the radiations from radioactive substances, whether for medical, industrial, or other uses, and parts thereof:				
		X-ray apparatus and parts thereof:				
709.61		X-ray tubes, and parts of tubes		2.6% ad val.	2.5% ad val.(D) Free (A,E,I)	35% ad val.
	20	X-ray tubes	No.			
	40	Parts	X			
709.63		Other		2.2% ad val.	2.1% ad val.(D) Free (A,E,I)	35% ad val.
	20	Apparatus for medical or dental use, and parts thereof	X			
	40	Other	X			

Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Special	2
		Articles returned to the United States after having been exported etc. (con.):				
806.30	00 1/	Any article of metal (except precious metal) manufactured in the United States or subjected to a process of manufacture in the United States, if exported for further processing, and if the exported article as processed outside the United States, or the article which results from the processing outside the United States, is returned to the United States for further processing.....	1/ 2/	A duty upon the value of such processing outside the United States (see headnote 2 of this subpart)	Free (E,I)	A duty upon the value of such processing outside the United States (see headnote 2 of this subpart)
807.00	00 1/	Articles assembled abroad in whole or in part of fabricated components, the product of the United States, which (a) were exported in condition ready for assembly without further fabrication, (b) have not lost their physical identity in such articles by change in form, shape, or otherwise, and (c) have not been advanced in value or improved in condition abroad except by being assembled and except by operations incidnetal to the assembly process such as cleaning, lubricating, and painting.....	1/ 2/	A duty upon the full value of the imported article, less the cost or value of such products of the United States (see headnote 3 of this subpart)	Free (E,I)	A duty upon the full value of the imported article, less the cost or value of such products of the United States (see headnote 3 of this subpart)

1/ See subpart B statistical headnote 1.
2/ See subpart B statistical headnote 2.

Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty 2	Effective Period
		PART 4. - TEMPORARY DUTY REDUCTIONS, PURSUANT TO THE EDUCATIONAL, SCIENTIFIC, AND CULTURAL MATERIALS IMPORTATION ACT OF 1982				
		Part 4 headnotes: 1. An article described in any of the provisions of this part, if entered during the period specified in the last column, is classifiable in said provision, if the conditions and requirements thereof and of any applicable regulations are met. The provisions of this part shall prevail over any provision describing such article in schedules 1 to 8, inclusive. 2. For the purposes of items 960.10, 960.12, and 960.15-- (a) The term "physically or mentally handicapped persons" includes any person suffering from a permanent or chronic physical or mental impairment which substantially limits one or more major life activities, such as caring for one's self, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working. (b) These items do not cover- (i) articles for acute or transient disability; (ii) spectacles, dentures, and cosmetic articles for individuals not substantially disabled; (iii) therapeutic and diagnostic articles; and (iv) medicines or drugs.				
		Articles specically designed or adapted for the use or benefit of the blind or other physically or mentally handicapped persons (however provided for in schedules 1 to 7):				
960.10	1/	Articles for the blind: Books, music, and pamphlets, in raised print, used exclusively by or for them...	1/	Free	Free	On or before 8/11/85
960.12	1/	Braille tablets, cubarithms, and special apparatus, machines, presses, and types for their use or benefit exclusively.....	1/	Free	Free	On or before 8/11/85
960.15	1/	Other.....	1/	Free	Free	On or before 8/11/85
960.20	1/	Catalogs of films, recording or other visual and auditory material of an educational, scientific or cultural character (provided for in items 270.25, 270.45, 270.50, and 270.85, part 5, schedule 2).....	1/	Free	Free	On or before 8/11/85
960.30	1/	Architectural, engineering, industrial, or commercial drawings and plans, whether originals or reproductions (provided for in items 273.45, 273.50, and 273.55, part 5, schedule 2).....	1/	Free	Free	On or before 8/11/85

1/ See Appendix, statistical headnote 1.

APPENDIX D

PUBLIC LAW 97-466: SELECTED PORTIONS

(2) the term "entry" includes any withdrawal from warehouse for consumption.

SUBTITLE B—IMPLEMENTATION OF NAIROBI PROTOCOL

Educational, Scientific, and Cultural Materials Importation Act of 1982.

SEC. 161. SHORT TITLE, ETC.

(a) SHORT TITLE.—This subtitle may be cited as the "Educational, Scientific, and Cultural Materials Importation Act of 1982".

(b) PURPOSE.—The purpose of this subtitle is to enable the United States to give effect to the Nairobi Protocol to the Florence Agreement on the Importation of Educational, Scientific, and Cultural Materials (opened for signature on March 1, 1977) with a view to contributing to the cause of peace through freer exchange of ideas and knowledge across national boundaries.

SEC. 162. BOOKS, PUBLICATIONS, AND DOCUMENTS.

19 USC 1202 note.

Part 5 of schedule 2 is amended—

(1) by inserting, in numerical sequence, the following new item:

"	270.90	Catalogs of films, recordings or other visual and auditory material of an educational, scientific, or cultural character	Free	Free ";

(2) by striking out items 273.45 through 273.55, and the superior heading thereto, and inserting in lieu thereof the following:

"	273.52	Architectural engineering, industrial, or commercial drawings and plans, whether originals or reproductions	Free	Free ";

and

(3) by inserting immediately below the phrase "Printed not over 20 years at time of importation:" and above (and at the same hierarchical level as) "Lithographs on paper:" the following new item:

"	274.55	Loose illustrations, reproduction proofs or reproduction films used for the production of books	Free	Free ".

SEC. 163. VISUAL AND AUDITORY MATERIALS.

(a) PHOTOGRAPHIC FILM.—Part 5 of schedule 2 is amended—

(1) by inserting the phrase "(including developed photographic film; photographic slides; transparencies; holograms for laser projection; and microfilm, microfiche, and similar articles)" immediately after "Photographs" in the superior heading to items 274.50 through 274.70, and

(2) by adding, in numerical sequence, the following new item:

"	274.67	Developed photographic film; photographic slides; transparencies; holograms for laser projection; and microfilm, microfiche, and similar articles	Free	Free ".

(b) MOTION PICTURE FILMS.—Subpart G of part 2 of schedule 7 is amended—

(1) by striking out "724.05 and 724.10" in headnote 1 and inserting in lieu thereof "724.07 and 724.22"

(2) by striking out headnote 2,

(3) by striking out items 724.05 and 724.10, and the superior heading thereto, and inserting in lieu thereof the following:

"	724.07	Motion-picture films in any form on which pictures, or sound and pictures, have been recorded, whether or not developed	Free	Free ".

(4) by striking out items 724.15 through 724.40 and inserting in lieu thereof the following new item:

"	724.22	Sound recordings, combination sound and visual recordings, and magnetic recordings not provided for in the foregoing provisions of this subpart	Free	Free ".

and

(5) by striking out the rates of duty appearing in rate columns 1, LDDC, and 2 for item 724.12 and inserting "Free" in rate columns numbered 1 and 2.

(c) PATTERNS, MODELS, ETC.—Part 7 of schedule 8 is amended— 19 USC 1202 note.

(1) by striking out headnote 1 and redesignating headnote 2 as headnote 1,

(2) by striking out item 870.30, and

(3) by inserting, in numerical sequence, the following new item:

"	870.35	Patterns, models (except toy models) and wall charts of an educational, scientific or cultural character, mock-up or visualizations of abstract concepts such as molecular structures or mathematical formulae; materials for programed instruction; and kits containing printed materials and audio materials and visual materials or any combination of two or more of the foregoing	Free	Free ".

SEC. 164. TOOLS FOR SCIENTIFIC INSTRUMENTS OR APPARATUS.

Part 4 of schedule 8 is amended by adding in numerical sequence, the following new item:

"	851.67	Tools specially designed to be used for the maintenance, checking, gauging or repair of instruments or apparatus admitted under item 851.60	Free	Free ".

SEC. 165. ARTICLES FOR THE BLIND OR OTHER HANDICAPPED PERSONS.

(a) ELIMINATION OF DUTY.—Subpart D of part 2 of schedule 8 is amended by striking out items 825.00, 826.10, and 826.20.

(b) SPECIALLY DESIGNED ARTICLES.—Part 7 of schedule 8 is amended—

(1) by inserting, in numerical sequence, the following new items:

"		Articles specially designed or adapted for the use or benefit of the blind or other physically or mentally handicapped persons:		
		Articles for the blind:		
	870.50	Books, music, and pamphlets, in raised print, used exclusively by or for them	Free	Free
	870.55	Braille tablets, cubarithms, and special apparatus, machines, presses, and types for their use or benefit exclusively	Free	Free
	870.60	Other	Free	Free ";

and

(2) by adding the following new headnote:

"2. For the purposes of items 870.50, 870.55, and 870.60

"Physically or mentally handicapped persons."

"(a) The term 'physically or mentally handicapped persons' includes any person suffering from a permanent or chronic physical or mental impairment which substantially limits one or more major life activities, such as caring for one's self, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working.

"(b) These items do not cover—

"(i) articles for acute or transient disability;

"(ii) spectacles, dentures, and cosmetic articles for individuals not substantially disabled;

"(iii) therapeutic and diagnostic articles; or

"(iv) medicine or drugs.".

(c) STATISTICAL INFORMATION.—The Secretary of the Treasury, in conjunction with the Secretary of Commerce, shall take such actions as are necessary to obtain adequate statistical information with respect to articles to which the amendments made by this section apply.

SEC. 166. AUTHORITY TO LIMIT CERTAIN DUTY-FREE TREATMENT ACCORDED UNDER THIS ACT.

(a) AUTHORITY TO LIMIT.—

(1) IN GENERAL.—In addition to any authority under section 201 of the Trade Act of 1974 (19 U.S.C. 2251), the President may proclaim changes in the Tariff Schedules of the United States (19 U.S.C. 1202) to narrow the scope of, or place conditions upon, the duty-free treatment accorded under section 164, section 165, or section 167(b) (insofar as section 167(b) relates to temporary duty-free treatment of articles covered by sections 164 and 165) with respect to any type of article the duty-free treatment of which—

(A) has significant adverse impact on a domestic industry (or portion thereof) manufacturing or producing a like or directly competitive article, and

(B) is not provided for in the Florence Agreement or the Nairobi Protocol.

(2) RATES WHICH ARE TO TAKE EFFECT IF DUTY-FREE TREATMENT ELIMINATED.—If the President eliminates any duty-free treatment under paragraph (1), the rate of duty thereafter applicable to any article which is—

(A) affected by such action, and

(B) imported from any source,

shall be the rate proclaimed by the President as the rate applicable to such article from such source (determined without regard to this subtitle).

(b) RESTORATION OF TREATMENT.—If the President determines that any duty-free treatment which is no longer in effect because of action taken under subsection (a) could be restored in whole or in part without a resumption of significant adverse impact on a domestic industry or portion thereof, the President may proclaim changes to the Appendix to the Tariff Schedules of the United States to resume such duty-free treatment.

(c) OPPORTUNITY TO PRESENT VIEWS.—Before taking an action authorized by subsection (a) or (b), the President shall afford an opportunity for interested Government agencies and private persons to present their views concerning the proposed action.

SEC. 167. EFFECTIVE DATE; TEMPORARY DUTY-FREE TREATMENT.

(a) IN GENERAL.—The amendments made by sections 162, 163, 164, and 165 shall apply with respect to articles entered, or withdrawn from warehouse for consumption, on or after the date which the President proclaims as the date on which he ratifies the Nairobi Protocol to the Florence Agreement on the Importation of Educational, Scientific, and Cultural Materials.

(b) TEMPORARY DUTY-FREE TREATMENT.—

(1) ARTICLES FOR THE BLIND OR OTHER HANDICAPPED PERSONS.—Subject to the provisions of paragraph (3) and section 166, the President shall proclaim changes to the Appendix to the Tariff Schedules of the United States (19 U.S.C. 1202) to implement the provisions of section 165 with respect to articles entered, or withdrawn from warehouse for consumption, during the two and one-half-year period beginning on the thirtieth day following the date of the enactment of this subtitle.

(2) OTHER ARTICLES.—Subject to the provisions of paragraph (3) and section 166, the President, if he deems such action to be in the interest of the United States, may proclaim further changes to the Appendix to the Tariff Schedules of the United States to implement any provision of section 162, 163, or 164 with respect to articles entered, or withdrawn from warehouse for consumption, during any period beginning on or after the thirtieth day following the date of the enactment of this subtitle and ending not later than two and one-half years after such beginning date.

(3) TIME PROVISIONS CEASE TO HAVE EFFECT.—If any temporary duty-free treatment accorded under paragraph (1) or (2) has not yet expired, such treatment shall cease to be effective on and after the date proclaimed by the President pursuant to subsection (a).

TITLE II—MISCELLANEOUS CUSTOMS PROVISIONS

SEC. 201. INTERNATIONAL TRANSMISSION OF BUSINESS DOCUMENTS; IMPORTERS OF RECORD.

(a) General headnote 5 is amended— 19 USC 1202 note.

(1) by striking out "and" at the end of subdivision (d);

(2) by redesignating subdivision (e) as subdivision (f); and

(3) by adding immediately after subdivision (d) the following:

"(e) records, diagrams, and other data with regard to any business, engineering, or exploration operation whether on paper, cards, photographs, blueprints, tapes, or other media; and".

(b) Item 870.10 is repealed. Repeals.

(c) Section 483 of the Tariff Act of 1930 (19 U.S.C. 1483) is repealed.

(d) Section 484 of the Tariff Act of 1930 (19 U.S.C. 1484) is amended—

(1) by amending subsection (a)—

(A) by amending that part of paragraph (1) thereof which precedes subparagraph (A) to read as follows: "Except as provided in sections 490, 498, 552, 553, and 336(j) of this Act and in subsections (h) and (i) of this section, one of the parties qualifying as 'importer of record' under paragraph (2)(C) of this subsection, either in person or by an agent authorized by him in writing—" 19 USC 1490, 1498, 1552, 1553, 1336.

APPENDIX E

PROFILES OF U.S. PRODUCERS

PROFILES OF U.S. PRODUCERS

Argosy Electronics

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Audio-Aid, Inc.

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Audiotone

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Beltone Electronics Corp.

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Bernafon, Inc.

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Robert Bosch Hearing Instruments Division

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Dahlberg Hearing Systems Division

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Danavox, Inc.

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Ear Care Hearing Systems, Inc.

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Electone, Inc.

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Hearing Services, Inc.

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Knowles Electronics, Inc.

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Magnatone Hearing Aid Corp.

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Maico Hearing Instruments Co.

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Omni Hearing Systems

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Oticon Corp.

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Oto-Dyne Hearing Instruments

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Phonic Ear, Inc.

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Qualitone

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Radioear Corp.

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Rexton, Inc.

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Rion-Acoustics Instruments, Inc.

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Siemens Hearing Instruments, Inc.

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Starkey Labs, Inc.

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Telex Communications, Inc.

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Tibbetts Industries, Inc.

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Zenetron, Inc.

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Table E-1.--Hearing aids: U.S. producers ranked by volume of shipments, 1984

Rank	Producer	Standard					Custom-made			Total	
		BTE	Eyeglass	Body	ITE	Subtotal	ITE	Canal	Subtotal	Quantity	Value
		Number of hearing aids									1,000 dollars
1	* * *	***	***	***	***	***	***	***	***	***	***
2	* * *	***	***	***	***	***	***	***	***	***	***
3	* * *	***	***	***	***	***	***	***	***	***	***
4	* * *	***	***	***	***	***	***	***	***	***	***
5	* * *	***	***	***	***	***	***	***	***	***	***
6	* * *	***	***	***	***	***	***	***	***	***	***
7	* * *	***	***	***	***	***	***	***	***	***	***
8	* * *	***	***	***	***	***	***	***	***	***	***
9	* * *	***	***	***	***	***	***	***	***	***	***
10	* * *	***	***	***	***	***	***	***	***	***	***
11	* * *	***	***	***	***	***	***	***	***	***	***
12	* * *	***	***	***	***	***	***	***	***	***	***
13	* * *	***	***	***	***	***	***	***	***	***	***
14	* * *	***	***	***	***	***	***	***	***	***	***
15	* * *	***	***	***	***	***	***	***	***	***	***
16	* * *	***	***	***	***	***	***	***	***	***	***
17	* * *	***	***	***	***	***	***	***	***	***	***
18	* * *	***	***	***	***	***	***	***	***	***	***
19	* * *	***	***	***	***	***	***	***	***	***	***
20	* * *	***	***	***	***	***	***	***	***	***	***
21	* * *	***	***	***	***	***	***	***	***	***	***
22	* * *	***	***	***	***	***	***	***	***	***	***
23	* * *	***	***	***	***	***	***	***	***	***	***
24	* * *	***	***	***	***	***	***	***	***	***	***
25	* * *	***	***	***	***	***	***	***	***	***	***
	Total	246,849	12,631	3,132	7,863	270,465	508,725	88,221	596,946	867,411	120,358

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table E-2.--Hearing aids: Share of total U.S. producers' shipments of hearing aids accounted for by each producer, by types, 1981 and 1984

(In percent)

Rank	Producer	Standard										Custom-made						Total	
		BTE		Eyeglass		Body		ITE		Subtotal		ITE		Canal		Subtotal			
		1981	1984	1981	1984	1981	1984	1981	1984	1981	1984	1981	1984	1984	1981	1984	1981	1984
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14	*	*		*		*		*		*		*		*		*		*	
15																		
16																		
17																		
18																		
19																		
20																		
21																		
22																		
23																		
24																		
25																		

1/ Less than 0.05 percent.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table E-3.--Hearing aids: U.S. producers ranked by the average unit value of their shipments of behind-the-ear (BTE), body, and custom-made in-the-ear (ITE) hearing aids, 1984

BTE			Body			ITE		
Rank	Producer	Average unit value	Rank	Producer	Average unit value	Rank	Producer	Average unit value
1	* * *	***	1	* * *	***	1	* * *	***
2	* * *	***	2	* * *	***	2	* * *	***
3	* * *	***	3	* * *	***	3	* * *	***
4	* * *	***	4	* * *	***	4	* * *	***
5	* * *	***	5	* * *	***	5	* * *	***
6	* * *	***		Industry average	162.20	6	* * *	***
7	* * *	***				7	* * *	***
8	* * *	***				8	* * *	***
9	* * *	***				9	* * *	***
10	* * *	***				10	* * *	***
11	* * *	***				11	* * *	***
12	* * *	***				12	* * *	***
13	* * *	***				13	* * *	***
	Industry average	151.42				14	* * *	***
						15	* * *	***
						16	* * *	***
						17	* * *	***
						18	* * *	***
						19	* * *	***
						20	* * *	***
						21	* * *	***
						22	* * *	***
							Industry average	121.86

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table E-4.--Hearing aids: U.S. producers ranked by net sales, operating income, and ratio of operating income to net sales, 1984 1/

Rank	Producer	Net sales	Rank	Producer	Operating income 2/	Rank	Producer	Ratio of operating income to net sales 2/
		(1,000 dollars)			(1,000 dollars)			(Percent)
1	* * *	***	1	* * *	***	1	* * *	***
2	* * *	***	2	* * *	***	2	* * *	***
3	* * *	***	3	* * *	***	3	* * *	***
4	* * *	***	4	* * *	***	4	* * *	***
5	* * *	***	5	* * *	***	5	* * *	***
6	* * *	***	6	* * *	***	6	* * *	***
7	* * *	***	7	* * *	***	6	* * *	***
8	* * *	***	8	* * *	***	8	* * *	***
9	* * *	***	9	* * *	***	9	* * *	***
10	* * *	***	10	* * *	***	10	* * *	***
11	* * *	***	11	* * *	***	11	* * *	***
12	* * *	***	12	* * *	***	12	* * *	***
13	* * *	***	13	* * *	***	13	* * *	***
14	* * *	***	14	* * *	***	14	* * *	***
15	* * *	***	15	* * *	***	15	* * *	***
16	* * *	***	16	* * *	***	16	* * *	***
17	* * *	***	17	* * *	***	17	* * *	***
18	* * *	***	18	* * *	***	18	* * *	***
19	* * *	***	19	* * *	***	19	* * *	***
20	* * *	***		Total	(1,290)			
	Total	235,105						

1/ Dahlberg, Maico, Bosch, Danavox, and Radioear did not supply usable financial data.
2/ Magnatone did not provide data necessary for calculating operating income.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table E-5.--Hearing Aids: U.S. producers ranked by units produced per man-hour worked by production workers, by type, 1981 and 1984

Standard hearing aids				Custom-made hearing aids			
Rank	Producer	Production man-hour worked		Rank	Producer	Production man-hour worked	
		1981	1984			1981	1984
1	* * *	***	***	1	* * *	***	***
2	* * *	***	***	2	* * *	***	***
3	* * *	***	***	3	* * *	***	***
4	* * *	***	***	4	* * *	***	***
5	* * *	***	***	5	* * *	***	***
6	* * *	***	***	6	* * *	***	***
7	* * *	***	***	7	* * *	***	***
8	* * *	***	***	8	* * *	***	***
9	* * *	***	***	9	* * *	***	***
10	* * *	***	***	10	* * *	***	***
11	* * *	***	***	11	* * *	***	***
12	* * *	***	***	12	* * *	***	***
13	* * *	***	***	13	* * *	***	***
14	* * *	***	***	14	* * *	***	***
				15	* * *	***	***
				16	* * *	***	***
				17	* * *	***	***
				18	* * *	***	***
				19	* * *	***	***
				20	* * *	***	***
				21	* * *	***	***
				22	* * *	***	***

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

APPENDIX F

PROFILES OF CERTAIN U.S. IMPORTERS

Audio-Aid

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Audio-Phil Corp.

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BREL Precision Components, Inc.

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Componex

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Fidelity Hearing Instruments, Inc.

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Lloyd Hearing Aid Corp.

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Marco Hearing Instruments, Inc.

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Precision Acoustics Industries

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Panasonic Industrial Company

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Solar Impex, Inc.

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Unitron Industries, Ltd.

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Widex Hearing Aid Co., Inc.

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Table F-1.--Hearing Aids: U.S. importers ranked by volume of imports, 1984

Rank	Importer	Standard	Custom	Total quantity	Value	Percent of total quantity
					(1,000 dollars)	(Percent)
1	* * *	***	***	***	***	***
2	* * *	***	***	***	***	***
3	* * *	***	***	***	***	***
4	* * *	***	***	***	***	***
5	* * *	***	***	***	***	***
6	* * *	***	***	***	***	***
7	* * *	***	***	***	***	***
8	* * *	***	***	***	***	***
9	* * *	***	***	***	***	***
10	* * *	***	***	***	***	***
11	* * *	***	***	***	***	***
12	* * *	***	***	***	***	***
13	* * *	***	***	***	***	***
14	* * *	***	***	***	***	***
15	* * *	***	***	***	***	***
16	* * *	***	***	***	***	***
17	* * *	***	***	***	***	***
18	* * *	***	***	***	***	***
19	* * *	***	***	***	***	***
20	* * *	***	***	***	***	***
21	* * *	***	***	***	***	***
	Total	243,174	4,089	247,263	20,982	100.0

1/ Less than 0.05 percent.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table F-2.--Hearing aids: U.S. importers ranked by the average unit value of their imports of behind-the-ear (BTE), body, and custom-made in-the-ear (ITE) hearing aids, 1984

BTE			Body			ITE		
Rank	Importer	Average unit value	Rank	Importer	Average unit value	Rank	Importer	Average unit value
1	* * *	***	1	* * *	***	1	* * *	***
2	* * *	***	2	* * *	***	2	* * *	***
3	* * *	***	3	* * *	***	3	* * *	***
4	* * *	***	4	* * *	***		Import average	67.93
5	* * *	***	5	* * *	***			
6	* * *	***	6	* * *	***			
7	* * *	***	7	* * *	***			
8	* * *	***	8	* * *	***			
9	* * *	***	9	* * *	***			
10	* * *	***	10	* * *	***			
11	* * *	***		Import average	71.23			
12	* * *	***						
13	* * *	***						
14	* * *	***						
15	* * *	***						
16	* * *	***						
17	* * *	***						
18	* * *	***						
19	* * *	***						
20	* * *	***						
21	* * *	***						
	Import average	84.89						

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

APPENDIX G

EXCHANGE RATES

Exchange rates

During the sample period, Denmark, Canada, Switzerland, and West Germany were the four largest foreign suppliers of hearing aids. Quarterly data reported by the International Monetary Fund indicate that during the period January 1981-June 1985 the nominal value of the currencies of Denmark, Switzerland, Canada, and West Germany, depreciated relative to the U.S dollar by 41.6 percent, 26.8 percent, 12.8 percent, and 32.4 percent, respectively (tables G-1 through G-4, appendix G). 1/ Because the level of inflation in Switzerland was similar to that in the United States over the 18-quarter period, changes in the international purchasing power of the respective currency of that country was approximately the same as that in its nominal value. In contrast, the high inflation rate in Denmark and Canada over the same period resulted in the devaluation of the currencies of each of the aforementioned countries in real terms by 24.8 percent and 2.3 percent relative to the U.S. dollar--significantly less than the respective apparent depreciations of 41.6 percent and 12.8 percent represented by the nominal devaluation. 2/

1/ International Financial Statistics, April 1984 and September 1985.

2/ The percentage change in the international purchasing power of each currency from the reference period January-March 1981 provides an indication of the maximum amount that a foreign producer or its agent can reduce its dollar prices of foreign products in the U.S. market without reducing its profits assuming it has no dollar-denominated costs or contracts. A foreign producer, however, may choose to increase its profits by not reducing its dollar prices or by reducing its dollar prices by less than the depreciation would allow. Within specific industries such as the hearing aid industry the proportion of foreign producers' costs attributable to imports of raw materials and energy from the United States or from countries whose currencies are linked to the dollar would vary by specific product and producer.

Table G-1.--U.S.-Danish exchange rates: Nominal-exchange-rate equivalents of the Danish krone in U.S. dollars, 1/ real-exchange-rate equivalents, and producer price indicators in the United States and Denmark, 2/ indexed by quarters, January 1981-June 1985

(January-March 1981=100)

Period	U.S. Producer Price Index	Danish Producer Price Index	Nominal-exchange-rate index	Real-exchange-rate index 3/
1981:				
January-March	100.0	100.0	100.0	100.0
April-June	102.2	105.5	90.5	93.4
July-September	102.9	109.2	84.8	89.9
October-December	102.8	110.1	89.4	95.8
1982:				
January-March	103.7	113.8	83.3	91.3
April-June	103.8	115.6	79.8	88.8
July-September	104.3	119.3	74.8	85.5
October-December	104.4	121.1	73.6	85.3
1983:				
January-March	104.5	120.2	75.8	87.2
April-June	104.8	121.1	73.0	84.4
July-September	105.8	124.8	68.1	80.3
October-December	106.4	127.5	66.9	80.2
1984:				
January-March	107.5	130.3	65.7	79.7
April-June	108.2	133.0	65.1	80.0
July-September	107.9	133.0	60.9	75.0
October-December	107.7	134.9	58.8	73.7
1985:				
January-March	107.5	136.7	55.6	70.7
April-June	107.6	4/ 138.5	58.4	75.2

1/ Exchange rates expressed in U.S. dollars per Danish krone.

2/ Producer price indicators--intended to measure final product prices--are based on average quarterly indexes presented in line 63 of International Financial Statistics.

3/ The real value of a currency is the nominal value adjusted for the difference between inflation rates as measured here by the producer price index in the United States and in Denmark. Producer prices in the United States increased by 7.6 percent during January 1981-June 1985 compared with a 38.5-percent increase in Denmark during the same period.

4/ Preliminary.

Source: International Monetary Fund, International Financial Statistics, April 1984 and September 1985.

Table G-2.--U.S.-Swiss exchange rates: Nominal-exchange-rate equivalents of the Swiss franc in U.S. dollars, 1/ real-exchange-rate equivalents, and producer price indicators in the United States and Switzerland, 2/ indexed by quarters, January 1981-June 1985

(January-March 1981=100)

Period	U.S. Producer Price Index	Swiss Producer Price Index	Nominal-exchange-rate index	Real-exchange-rate index 3/
1981:				
January-March	100.0	100.0	100.0	100.0
April-June	102.2	101.4	93.3	92.5
July-September	102.9	102.7	90.5	90.3
October-December	102.8	103.6	103.8	104.5
1982:				
January-March	103.7	103.8	101.2	101.3
April-June	103.8	104.6	95.2	95.9
July-September	104.3	104.9	89.8	90.3
October-December	104.4	105.0	88.6	89.2
1983:				
January-March	104.5	104.0	94.2	93.8
April-June	104.8	104.6	91.5	91.3
July-September	105.8	105.5	88.3	88.1
October-December	106.4	105.9	87.9	87.5
1984:				
January-March	107.5	107.3	86.3	86.2
April-June	108.2	108.3	84.5	84.5
July-September	107.9	108.9	77.7	78.4
October-December	107.7	109.3	75.5	76.6
1985:				
January-March	107.5	111.6	68.9	71.5
April-June	107.6	111.6	73.2	75.9

1/ Exchange rates expressed in U.S. dollars per Swiss franc.

2/ Producer price indicators--intended to measure final product prices--are based on average quarterly indexes presented in line 63 of International Financial Statistics.

3/ The real value of a currency is the nominal value adjusted for the difference between inflation rates as measured here by the producer price index in the United States and in Switzerland. Producer prices in the United States increased by 7.6 percent during January 1981-June 1985 compared with an 11.6-percent increase in Denmark during the same period.

Source: International Monetary Fund, International Financial Statistics, April 1984 and September 1985.

Table G-3.--U.S.-Canadian exchange rates: Nominal-exchange-rate equivalents of the Canadian dollar in U.S. dollars, 1/ real-exchange-rate equivalents, and producer price indicators in the United States and Canada, 2/ indexed by quarters, January 1981-June 1985

(January-March 1981=100)

Period	U.S. Producer Price Index	Canadian Producer Price Index	Nominal-exchange-rate index	Real-exchange-rate index 3/
1981:				
January-March	100.0	100.0	100.0	100.0
April-June	102.2	102.2	99.6	99.6
July-September	102.9	104.4	98.5	99.9
October-December	102.8	105.7	100.2	103.0
1982:				
January-March	103.7	107.2	98.7	102.0
April-June	103.8	109.3	95.9	100.9
July-September	104.3	110.1	95.5	100.8
October-December	104.4	110.5	96.9	102.6
1983:				
January-March	104.5	111.2	97.3	103.5
April-June	104.8	112.9	97.0	104.5
July-September	105.8	113.8	96.8	104.2
October-December	106.4	114.3	96.4	103.6
1984:				
January-March	107.5	116.2	95.1	102.8
April-June	108.2	117.6	92.3	100.3
July-September	107.9	118.3	90.8	99.5
October-December	107.7	118.6	90.5	99.7
1985:				
January-March	107.5	119.8	88.2	98.3
April-June	107.6	120.6	87.2	97.7

1/ Exchange rates expressed in U.S. dollars per unit of Canadian currency.

2/ Producer price indicators--intended to measure final product prices--are based on average quarterly indexes presented in line 63 of International Financial Statistics.

3/ The real value of a currency is the nominal value adjusted for the difference between inflation rates as measured here by the producer price index in the United States and in Canada. Producer prices in the United States increased by 7.6 percent during January 1981-June 1985 compared with a 20.6-percent increase in Canada during the same period.

Source: International Monetary Fund, International Financial Statistics, April 1984 and September 1985.

Table G-4.--U.S.-West German exchange rates 1/: Nominal-exchange-rate equivalents of the West German mark in U.S. dollars, real-exchange-rate equivalents, and producer price indicators in the United States and West Germany, 2/ indexed by quarters, January 1981-June 1985

Period	U.S. producer price Index	West German producer price index	Nominal-exchange-rate index	Real-exchange-rate index 3/
			US$ per DM	
1981:				
January-March	100.0	100.0	100.0	100.0
April-June	102.2	102.5	91.7	91.9
July-September	102.9	104.7	85.8	87.3
October-December	102.8	106.2	93.0	96.1
1982:				
January-March	103.7	108.1	88.9	92.6
April-June	103.8	109.1	87.7	92.2
July-September	104.3	110.1	84.1	88.7
October-December	104.4	110.5	83.4	88.3
1983:				
January-March	104.5	110.2	86.7	91.4
April-June	104.8	110.5	84.0	88.6
July-September	105.8	111.4	79.0	83.1
October-December	106.4	112.1	77.9	82.1
1984:				
January-March	107.5	113.1	77.2	81.3
April-June	108.2	114.0	77.0	81.1
July-September	107.9	114.5	71.5	75.8
October-December	107.7	115.3	68.3	73.2
1985:				
January-March	107.5	116.5	64.1	69.5
April-June	107.6	117.0	67.6	73.5

1/ Exchange rates expressed in U.S. dollars per West German mark.

2/ Producer price indicators--intended to measure final product prices--are based on average quarterly indexes presented in line 63 of International Financial Statistics.

3/ The real value of a currency is the nominal value adjusted for the difference between inflation rates as measured by the producer price index in the United States and in the foreign country. Producer prices in the United States increased by 7.6 percent during the period January 1981-June 1985 compared to a 17.0-percent increase in West Germany during the same period.

Source: International Monetary Fund, International Financial Statistics, April 1984 and September 1985.

Note.--January-March 1981=100.

APPENDIX H

A METHODOLOGY FOR ESTIMATING THE IMPACT OF TARIFF ELIMINATION ON THE U.S. HEARING AID INDUSTRY

This appendix presents a method for estimating the impact on competing U.S. output of imports of hearing aids under "The Educational Scientific and Cultural Materials Importation Act of 1982," Public Law 97-446, a provision that eliminates the tariff on these imports. 1/ It provides a graphic analysis, an equation for calculating the impact on domestic sales, and a range of estimates of this import.

A Graphic Analysis

There are many factors that affect the responses of imports of hearing aids to a tariff elimination. In order to simplify the case and make it easy to present in a two-dimensional graph, the following assumptions are made:

1. Imported and domestic goods are imperfect substitutes.

2. Foreign and domestic suppliers are numerous.

3. Transportation costs are constant.

4. All exporting countries are subject to the same tariff treatment.

5. Competitive conditions prevail.

The effect of the tariff on imports of hearing aids is shown in figure H-1. The foreign supply is assumed to take place under conditions of increasing costs, and is represented by the supply curve S. With no tariff, the U.S. import demand is D^f, the equilibrium price is OP^f, and the equilibrium quantity is OQ^f. A tariff causes the import demand to shift downward to D^t by the amount of the duty per unit of imports. This causes the equilibrium price to increase to OP^t (of which PP^t is the duty), and the equilibrium quantity to decrease to OQ^t.

Under free trade, the U.S. Treasury loses tariff revenue equal to rectangle P^tCAP. The U.S. producers lose their sales either equal to or smaller than Q^tQ^f. Two main determinants of the size of the producers' losses are the domestic demand and supply elasticities. In general, a tariff reduction would tend to lower prices. At lower prices, consumers would increase their consumption. The domestic production of the commodity will change in accordance with the change in consumption and the change in imports.

The Equation

The effects of a tariff reduction on imports depend on the elastisities of domestic import demand and the foreign supply. In the case of hearing aids, elasticities vary according to sources of supply and types of aids. Data available to the Commission are not sufficient to estimate these

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1/ During January 1981-June 1985, about two-thirds of the U.S. total imports of hearing aids were duty free. Only a fraction of the duty-free imports were entered into the United States under the Generalized System of Preference (GSP).

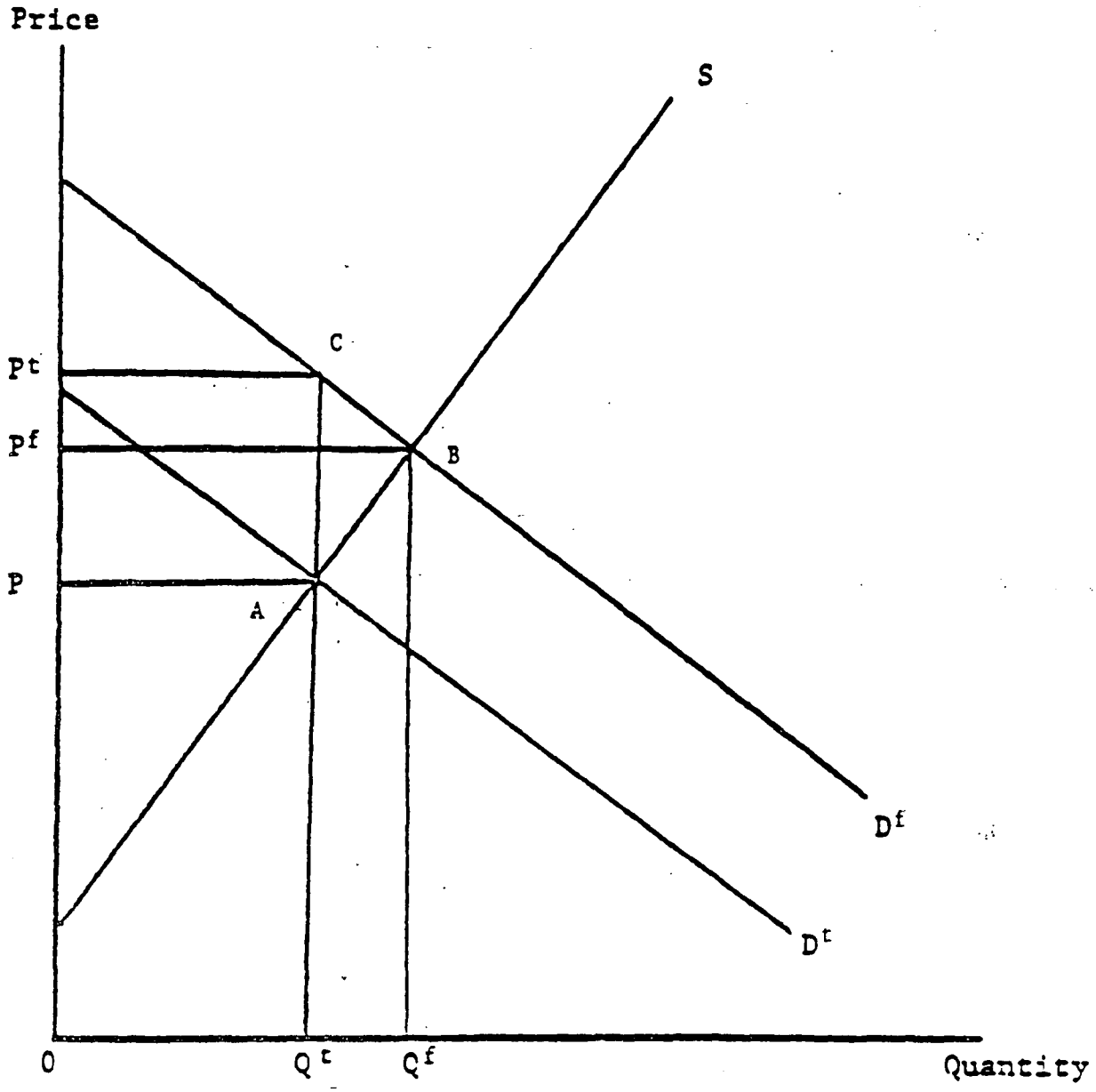

FIGURE H-1

The Impact of Tariff Elimination

elasticities. A method developed by Rousslang and Lindsey 1/ can be used to estimate a range for the effect on imports caused by a tariff elimination.

Rousslang and Lindsey developed the following equation to calculate the change in U.S. imports that would result from a tariff elimination:

(IH) $dM = Rn(e + 1)/(e + n)$,

When dM is the change in U.S. imports from the Caribbean, R is the revenue that the tariff would yield, e is the export supply elasticity, and n is the import demand elasticity.

Usually, the change in imports and the change in domestic sales caused by a tariff reduction are of different magnitudes. The increase in imports is usually greater than the decline in domestic output, because the total consumption increases. However, for simplicity, it is assumed that there is a one-to-one relationship between imports of hearing aids and the competing U.S. product. That is, each $1 increase in imports is assumed to result in a $1 decrease in competing domestic production. According to this assumption, the increase in imports is equal to the decrease in domestic production. Using equation (IH) and a range of eleasticity estimates yields the following estimates of the effects of the Educational, Scientific and Cultural Materials Importation Act on U.S. production of hearing aids.

These estimates tend to overstate the effects of the act, since they are based on the assumption that the elimination of the Act would cause the full U.S. MFN tariff to apply to hearing aid imports. In fact, however, many of these imports would receive preferential tariff treatment under TSUS item 807.00.

Year	M 1/	R	Range of likely effects on U.S. productions	
			n = 1, e = 1	n = 5, e = 5
	1,000 dollars		Percent	
1981	2,060	115	-0.13	-0.3
1982	2,009	106	-0.12	-0.3
1983	12,258	625	-0.64	-1.9
1984	23,406	1,147	-0.95	-2.8
1985 (Jan.-June)	8,855	416	-0.72	-2.1

1/ M stands for duty-free imports of finished hearing aids and parts.

1/ Donald Rousslang and John Lindsey, "The Benefits to Caribbean Basin Countries from the U.S. CBI Tariff Eliminations," Journal of Policy Modeling, Winter 1984, pp. 513-530.

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