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Product Selection for the Voluntary Consumer Product Information Labeling Program

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Final Report

Prepared for
National Bureau of Standards
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PRODUCT SELECTION FOR THE VOLUNTARY CONSUMER
PRODUCT INFORMATION LABELING PROGRAM

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The U.S. Department of Commerce has commenced a voluntary consumer product information labeling program (CPILP). Any person may propose products to be labeled under that program. This document presents a method for screening proposed products to determine whether they are appropriate for labeling. The method also provides a foundation for documenting a finding of need for a label.

Key words: Consumer information; consumer products; labeling; selection.

1. INTRODUCTION

This report describes a method of product selection for the Voluntary Consumer Product Information Labeling Program (CPILP), officially begun on June 24, 1977 by the U.S. Department of Commerce (DOC). This report is a manual for users of the product selection method.

Any person may request the Secretary of Commerce to find that there is a need to label a particular consumer product under CPILP. If the Secretary finds that a need does exist under CPILP, a Federal Register notice must be published setting out that finding and its basis. If the Secretary determines that there is no need to establish a specification for labeling the requested consumer product, or if sufficient resources are lacking, she may decline the request, stating the appropriate reasons.

Thus, in the case of either acceptance or rejection of the requested finding of need, the Secretary must respond stating the reasons for the decision. It is therefore necessary to have a systematic method to determine the need for CPILP labeling of any consumer product suggested for the program. This report provides such a method that can be used by CPILP staff at the National Bureau of Standards (NBS) and DOC. It can also be used by industry as a common analytical framework for detailed discussion on CPILP selection with DOC. Further, the procedure could be adapted to other selection problems.

2. INFORMATION FOR PURCHASE CHOICES

2.1 Adequate Information

The consumer's ability to purchase products with a realistic expectation of their performance is one of many factors determining the efficiency of the national economy. A purchase based on inaccurate perceptions can lead to a mismatch between the performance of a product and the performance needed or desired by its user. Thus resources are expended without a commensurate return of utility. One manifestation of this is consumer dissatisfaction, which is bad for producers as well as consumers. Misallocation of consumer resources, even when it goes unnoticed, is a drag on the whole economy.

Purchase choices representing an optimum allocation of resources can result from only two things: (1) blind luck and (2) decisions based on adequate information about the products. The object of CPILP is to serve producers and consumers by providing a channel through which producers can send accurate and credible information about their products to the consumer, so the consumer can make an informed purchase choice which will be closer to optimum than an uninformed choice would be. This means a purchase choice made with adequate information to enable the consumer to match the characteristics of the available makes or models of a product to his or her own needs and wants. Some of the relevant product information concerns objectively measurable attributes and some concerns subjective attributes such as style. CPILP deals only with the objective information.

Adequate information meets the following criteria:

- a. Most of the product information important to the consumer's purchase choice must be available (usually from a combination of sources: personal inspection, labels, advertising, etc.).
 - b. It must be determined on the same (or equivalent) basis for all brands and models.
 - c. It must be presented in a form that is easily comparable among brands and models.
 - d. It must not be erroneous or otherwise likely to mislead consumers in their purchase choices.
- Note: This criterion is failed if:

- (1) the product often violates consumers' expectations; or

- (2) consumers make specious product differentiations, i.e., perceive makes or models as different when in fact they are essentially the same; or
 - (3) essential differences among makes or models are obscure, so consumers fail to perceive the differences.
- e. The information must be likely to be believed and trusted by shoppers.
 - f. Shoppers must be unlikely to overlook it. It must be noticed by most shoppers who could use it. This implies point-of-sale information.
 - g. They must be likely to correctly understand it.
 - h. It must be sufficiently simple and otherwise easy to use that they are likely to make use of it.
 - i. The information must be available for most brands and models.

All but the last criterion are criteria for the label itself; the last one, of course, refers to the participation by producers. Criteria a and h tend to be opposed to each other; the former places a lower limit on the amount of information, while the latter implies an upper limit. It is conceivable that for some products these two criteria cannot be met simultaneously. Criterion f rules out comparative testing reports (such as those published by Consumers Union and Consumers' Research) in the context of informative labeling; such reports serve an important function, but de facto serve a more limited audience than is intended in CPILP.

In the context of a consumer's personal experience in using a product (as opposed to reading a label about the product), the criteria for adequate information boil down to criteria a and d.

2.2 Information Sources and Their Control

Information may come to a consumer through several sources, singly or in combination: (1) personal inspection of the product at the point of sale, (2) prior personal experience in using the product, (3) informative labels, (4) certification marks, (5) advertisements (e.g., in mass media), (6) brochures, (7) store displays, (8) salespeople, (9) friends

('word-of-mouth' information), (10) comparative testing reports and (11) miscellaneous sources such as news stories and regulatory actions.

The control over the information from each source is in the hands of the consumer, the producer or others. Inspection and personal experience are entirely under the consumer's control. Informative labeling, certification, advertisements and brochures result from the producer's initiatives. Usually store displays do also, although in some cases the merchant creates them (not under the control of the producer or the consumer). The information provided by salespeople is not under the producers or consumer's control, except that where the salespeople are employees of the producer the latter has some control. Information provided by friends, comparative testing organizations and miscellaneous sources is controlled by neither the producer nor consumer.

All the information controlled by the producer functions as advertising. Informative labeling is one among several alternative channels available to the producer through which to send product information to potential customers.

2.3 Adding Information to Increase Adequacy

For products where adequate information is not now available, it would benefit producers and consumers to augment the available information through one or more sources. Inspection has little potential for augmentation as an information source; in a few cases, changes in packaging may make more information available through inspection. Prior experience with a product, as an effective source of information for a purchase choice, is tantamount to the consumer's experimentation in the marketplace by buying and trying various makes or models, thus acquiring information by trial and error. This is feasible for some products but not for others. As an information source this can be augmented by free or reduced-price samples, but the producer cannot generally afford this as a permanent thing.

Informative labeling and certification have potential for augmentation. Certification is appropriate where the only information needed by the consumer is the fact that some competent organization has determined that the certified make or model meets or exceeds defined minimum requirements. If different consumers have different needs and wants, there is no single standard of adequacy, and the comparative information provided by informative labeling is appropriate, rather than certification.

Information can always be augmented through the other information sources controlled by the producer (mass-media advertisements, etc.).

Finally, the sources controlled by others have little potential for augmentation to provide adequate information. Comparative testing is limited by its funding through subscriptions as well as limited in its audience. The other sources are random in their coverage of products. For example, for any given product on which consumers generally do not already have adequate information, a given consumer may or may not have available a friend from whom to obtain such information.

Even if the information is augmented, the adequacy of the information is not the same for all sources. Consider these four major causes of the inadequacy of information: (1) some of the information important for an informed purchase choice is absent, (2) the information is not comparable among makes and models, (3) the information is misleading, and (4) the information is disbelieved.

Information obtained through personal inspection or through experience in using the product will be believed by the consumer, but depending on the nature of the product the other three inadequacies may or may not exist. Information from an informative labeling program such as CPILP—coordinated to assure completeness, comparability and accuracy, and recognized by a government agency—should minimize these inadequacies. Certification, if appropriate for the product, may also escape these inadequacies, but a lack of consumer recognition can erode its credibility, and consumer misunderstanding can cause the consumer to be misled. Advertisements, brochures, store displays and salespeople tend to suffer from a lack of credibility and a lack of information comparability among makes and models, and they may have the other inadequacies as well. Information from friends, when available, is likely to be believed, and it may be comparable and accurate; however it cannot in general be expected to be available. Comparative testing reports are in principle available to anyone who wants them, and their information is generally comparable, accurate and believable, but since the information is not available at the point of sale it is in fact not used by the majority of consumers. Information from miscellaneous sources is variable in all respects and cannot be relied on as a source of adequate information.

The upshot of this discussion is the following. For certain products, adequate information may be available from inspection or experience. (When this is so, there is no need for informative labeling.) Informative labeling and certification are particularly strong candidates as information

sources that, in combination with other information sources, can provide adequate information to consumers. Advertisements, brochures, store displays and salespeople are weak candidates as sources of adequate information, for several reasons. Friends and miscellaneous sources are not dependable sources of adequate information. Comparative testing reports (when available for the product in question and for most makes and models of the product) usually provide adequate information to those consumers who avail themselves of them, but they do not reach the broad audience intended by an informative label.

3. DEVELOPMENT OF CRITERIA

3.1 Program Goals and Strategies

To serve as a guide in the development of criteria governing the selection of products for CPILP, the overall goals of the labeling program were defined as follows:

- To increase consumer satisfaction with purchase decisions
- To reduce complaints and returns to the merchant and manufacturer
- To increase competition in product performance
- To increase price competition
- To increase the informational value of advertising

There are two major kinds of strategy question, concerning the time frame and concerning the breadth of market exposure. The time frame relates to how much time will be required to label a given product and how soon this result is needed. There is a choice, then, between products that can be labeled quickly and those that will require a long preparation that includes, for example, the development of test methods. In the initiation phase of CPILP the emphasis will be placed on rapidly achieving benefits for the consumer, and this implies the selection of products that can be labeled within a short time. Since it can be expected that many of the products for which a CPILP label can be most valuable will be products requiring a long lead time for labeling, there will be a gradual shift to a continuation phase of CPILP in which there is a mix of short and long lead times. Some indicators of a short lead time are (1) the industry's expressed interest in labeling, (2) simple information requirements for the

label, (3) the existence of suitable test methods, and (4) label information that already has been developed or that will be quick and cheap to obtain.

The second major strategy question is how much exposure of a label to consumers is required, to obtain the consumers' recognition and use of the label. This is a question on which empirical research could be very useful. This strategy question implies a choice between broad market coverage and concentration on a selected market segment. Broad market coverage implies the selection of products that are used by large sections of the consuming public, or a selection of products used by different sections of the public, to spread the benefits of CPILP as widely as possible (so long as they are not spread so thin as to lose their effect). Concentration on a selected market segment would be designed to saturate a limited group of consumers with many labels, on the premise that this is necessary for the labels to be effective. Under this strategy, the products selected for labeling would be a group of products used by an identifiable segment of the consuming population, and this would also facilitate program evaluation research.

3.2 Need for and Source of Criteria

Under the established procedures for CPILP [1]*, candidate products for labeling are proposed by any person, including individuals, manufacturers, government agencies and others. However, not all products are appropriate for labeling under CPILP. For example, works of art are inappropriate because a consumer's purchase choice is based on subjective factors rather than objective measures. Prescription drugs are inappropriate because they are regulated by the Food and Drug Administration. Electrical fuses are not appropriate because the consumer neither needs nor wants comparative performance information; the needed information (in addition to the identity of the product, including its electrical current rating) is simply a certification that it will perform as intended. Locomotive bearings, being intended for industrial use, are not consumer products and are therefore inappropriate for CPILP. Thumbtacks are not appropriate for performance labeling since there is little if anything to know about them that can't be seen. These and other such reasons for excluding products from CPILP are the beginning of a set of criteria by which products proposed for labeling can be evaluated as to their appropriateness.

*Figures in brackets indicate the literature references.

The many reasons for excluding a product from CPILP can be translated into requirements for the appropriateness of a product for labeling. Some of these requirements are related to each other as general and detailed criteria or as alternatives to each other. As a result they can be systematized into a hierarchy wherein the principal question, "Is this product appropriate for labeling under CPILP?", is divided into five major parts, each of which is further divided into detail, and so on. These criteria are presented in chapter 4.

4. DESCRIPTION AND USE OF CRITERIA

4.1 Narrative Description of Criteria

The following outline presents, in the form of questions, the criteria answering the question, "Is this product appropriate for labeling under CPILP?" For this to be answered in the affirmative, questions I, III, IV and V must be answered affirmatively, and question II must be answered in the negative. All the criteria, of course, are to be understood within the context set by the goals of CPILP, listed in chapter 3.

In the following section (4.2) these criteria are abbreviated in the form of a chart. Readers who expect to use the chart should first read the following outline.

CRITERIA FOR DETERMINING WHETHER A PRODUCT IS APPROPRIATE FOR LABELING UNDER CPILP

- I. Is this product a consumer product? (This is defined in the Procedures for CPILP [1] as "any article produced or distributed for sale to a consumer for the use, consumption, or enjoyment of such consumer. The term does not include products customarily intended primarily for business, commercial or industrial use.")
- II. Would a CPILP label be likely to become obsolete soon? (For this to be Yes, either A or B (or both) must be Yes)
 - A. Is the set of attributes that would be labeled for this product likely to need revision soon because of rapid change in product technology?
 - B. Is the product itself becoming obsolete?

- III. Do consumers need more and/or better information on this product to make an informed purchase choice? (For this to be Yes, A, B and C must be Yes and D must be No.) (Note: consumers' expressions of a desire for information will only rarely if ever be sufficient to answer the following questions, but such expressions usually will give pertinent and important information.)
- A. Is there a purchase choice to be made? (For this to be Yes, either 1 or 2 (or both) must be Yes.)
1. Is there more than one make or model of this product?
 2. Is the consumer faced with a reasonable choice of whether to buy this product at all? (Alternatives are to buy a substitute product, to buy equivalent services or to be without the product or service.)
- B. Does the choice matter? (For this to be Yes, 1 or 2 or 3 (or any combination) must be Yes.)
1. Could a lack of information lead to the choice of a make or model that is unsafe for the intended application?
 2. Could non-negligible costs be incurred through an uninformed choice? (Examples: (a) lost purchase money where the product must be scrapped because it is unsatisfactory; (b) unnecessarily high operating or repair expenses; (c) damage the product causes to other things.)
 3. Could an uninformed choice cause undue inconvenience or discomfort? (Examples: (a) unreliability; (b) excessive demands on user's time; (c) failure to fully perform the function needed or wanted by the consumer.)
- C. Is objective information about the product necessary for an informed choice? (This rules out, for example, products that are chosen entirely, or almost entirely, on the basis of fashion or personal taste.)
- D. Is adequate information already available and will it probably continue to be available? (For this to be Yes, 1 or 2 (or both) must be Yes. Note that the information available must satisfy all of the criteria for adequate information.)

1. By inspecting the product (including any labels) at the point of sale can most shoppers get adequate information for an informed purchase choice?
 2. Can most consumers get adequate information by buying (or leasing) the product and using it? (For this to be Yes, all of the following must be Yes.)
 - a. Does personal use of the product give adequate information?
 - b. Is it safe to learn by trial and error?
 - c. Is trial and error an efficient learning strategy? Is the variety of makes and models small enough, and is the product bought frequently enough, that a consumer can readily come to a conclusion about a purchase choice and then apply that in subsequent purchases?
 - d. Is the cost of learning by trial and error reasonable? (Consider price, operating cost, damage to other products, etc.)
 - e. Is the inconvenience and discomfort of learning by trial and error within reasonable bounds?
- IV. Given a need for more and/or better information, is an informative label an appropriate medium through which to make the information available? (For this to be Yes, A must be No and B must be Yes.)
- A. Can simple changes be made (e.g., in product packaging) so adequate information will be available from inspection of the product at the point of sale or from experience with the product, and will these changes probably be made?
 - B. Do any of the attributes to be labeled require comparative information rather than a quality certification? (For this to be Yes, either 1 or 2 must be Yes for at least one attribute.)

1. Do consumers need point-of-sale information showing how makes or models differ in performance or quality levels? (For this to be Yes, both a and b must be Yes.)
 - a. Does (or will) a range of performance or quality levels exist in the attribute(s)?
 - b. Can information on that range help consumers make an informed purchase choice? (For example, do different consumers (or does the same consumer for a variety of purposes) need or want different performance or quality levels?)
 2. Do consumers need point-of-sale information showing how makes or models are similar in performance or quality levels? Do some makes or models, with similar performance or quality levels, have substantially different prices (price differentials resulting from specious product differentiation)?
- V. Is an informative label feasible? (For this to be Yes, A, B, C and D must all be Yes.)
- A. Is an informative label technologically feasible? (For this to be Yes, 1, 2, 3, 4 and 5 must all be Yes.)
 1. Do suitable test methods exist, or can they reasonably be developed (by industry, government or others)?
 2. Does industry have, or can it reasonably develop, the technical capability for its role in CPILP (testing the product and providing the information in the label)?
 3. Does NBS have, or can it reasonably develop or obtain elsewhere, the technical capability for the government role in CPILP (determining the attributes to be labeled, identifying appropriate test methods, and developing a prototype label)?
 4. Are product units that are produced at different times consistent in performance (or will they probably be made consistent in the near future)?

5. Are product units that are produced in different facilities consistent in performance (or will they probably be made consistent in the near future)?
- B. Is an informative label institutionally feasible?
(For this to be Yes, 1 and 2 must be Yes, and 3 and 4 must be No.)
1. Will the cooperation of the industry and business probably be sufficient to assure the use of labels for this product? (The idea behind this question is that it would be wasteful to undertake a labeling project that would fail to achieve a public benefit, due to lack of participation by producers and/or private brand labelers. In some cases an answer to this question will be highly judgmental since it refers to future events. Expression of industry's interest or intent (whether favorable or unfavorable to CPILP) provides evidence bearing on this question. No firm rule can now be given as to the number or percentage of the market that will be sufficient. Even a large number of participants may be insufficient if it entails an unreasonably long period of time or great difficulties. On the other hand, participation by one or two major producers could justify proceeding with a labeling project in the belief that their competitors will follow their lead. It is even conceivable that labeling by a single major producer would afford the consumer a substantial benefit in the form of performance information useful in making a purchase decision, even though comparative information was not available from competitors. Another factor that can influence the answer to this question is the degree to which consumers need the information that could be provided by a CPILP label.)
 2. Would labeling of this product foster a public perception of CPILP as a useful program? (For this to be Yes, a and b must be Yes, and c must be No.)
 - a. Will the product be perceived by consumers as important enough to label? (For this to be Yes, the product must not be frivolous and it must not be a trivial product, either in the sense that the purchase choice has no real consequence for the consumer or

in the sense that the product is bought only by a very small segment of the public.)

- b. Will the information on the label be perceived by consumers as adding significantly to their ability to make an informed purchase choice?
 - c. Is it reasonably anticipated that the label could become the subject of public or political controversy?
3. Is performance labeling of this product within the jurisdiction of another agency? (It is possible that an agency has jurisdiction over certain limited aspects of performance labeling but not other aspects, in which case a CPILP label covering these other aspects could be appropriate. It is possible that by interagency agreement a CPILP label could incorporate information within the jurisdiction of separate agencies. If it is believed that another agency is considering labeling the performance of this product, or would consider performance labeling to be in its jurisdiction, some investigation will be required before this question can be answered. It may be helpful to obtain a letter of understanding to delineate the jurisdiction over this product for purposes of labeling as envisioned in CPILP.)
 4. Do the staff and budget required to plan and execute the labeling effort clearly exceed available resources?
- C. Is the label design feasible? Considering compromises necessitated by test methods or other factors, can a label be designed to provide information needed by consumers and to fulfill the criteria for adequate information (except criterion i)?
 - D. Is a CPILP label for this product economically feasible? (For this to be Yes, 1 must be No and 2 (if applicable) must be Yes.)
 1. Are the costs of labeling this product clearly excessive in relation to the benefits? (Consider the costs and benefits identified in the box in the lower right corner of the chart in section 4.2. Note that the costs to government, while passed through to the general public, are

not passed through specifically to the producer and consumer of a particular product.)

2. If an inflationary impact statement is required, is the impact shown to be within limits of acceptability?

4.2 CPILP Product Selection Chart

The criteria outlined in section 4.1 explicitly identify the judgments that are necessary to determine whether a product is appropriate for labeling. Wherever judgments are called for, people may differ in their answers, but these detailed criteria help to identify exactly what the points of any disagreement are, so any discussion of them can be to the point and productive.

That entire set of criteria is condensed to a single chart, shown in figure 1. For convenience in abbreviating, the criteria are stated in declarative form rather than interrogative. The chart is arranged to force a yes/no decision at each point, as indicated by the arrows connecting the boxes. All of the arrows entering a box must be "satisfied" in order for the statement in that box to be true. An arrow is satisfied if the truth-value of the statement it leads from corresponds to the label on the arrow ("YES" for a true statement, "NO" for false). Where it is sufficient that any one of two or more conditions be fulfilled, this is indicated by yes/no arrows that join into a single arrow labeled "OR" entering the next box.

Number signs (#) in the chart indicate criteria relating to benefits of CPILP label. Asterisks (*) indicate criteria relating to costs that could be incurred, e.g., the cost of developing test methods. Other factors entering into a cost-benefit judgment are listed in the lower-right portion of the chart.

In the upper-right area, the criteria for adequate information are reproduced in their entirety since the concept of adequate information is the key concept for the use of the chart.

4.3 Use of the Chart

After once reading section 4.1, the user can be expected to rely mainly on the chart presented in section 4.2, bearing in mind that the chart is only a condensation of the criteria.

Criteria for adequate information: Information that enables consumers to make an informed purchase choice in terms of their own needs and wants.

- Most of the product information important to the consumer is presented in an easily accessible form (e.g., labels, advertising, etc.).
- It must be determined on the same (or equivalent) basis for all brands and models.
- It must be presented in a form that is easily comparable among brands and models.
- It must not be erroneous or otherwise likely to mislead consumers in their purchase choices.

Note: This criterion is failed if:

- the product often violates consumers' expectations; or
- consumers make spurious product differentiations, i.e., perceive makes or models as different when in fact they are essentially the same; or
- essential differences among makes or models are different when in fact they are essentially the same; or
- the information must be likely to be believed and trusted by shoppers.
- Shoppers must be unlikely to overlook it. It must be noticed by most shoppers who could use it. This implies point-of-sale information.
- They must be likely to correctly understand it.
- It must be sufficiently simple and unobtrusive to use that they are likely to make use of it.
- The information must be available for most brands and models.

Cost Factors

*Criteria in this chart indicate sources of label cost. Others are:
 Increased goodwill and credibility (P/G)
 Cost of testing, recognizing, fees, labels, etc. (P)
 Potential for generalizing labeling experience to other products
 Systematic information for informed purchase choices made available to consumers (P)
 Spillover from other advertising and consumer information programs (cost sharing) (P,G)
 Cost pass-through to consumers (P,C)

Benefit Factors

*Number signs in this chart indicate sources of label benefit. Others are:
 Increased goodwill and credibility (P/G)
 Increased product information to consumers (P)
 Increased consumer awareness of product quality (P)
 Adequate information for informed purchase choices made available to consumers (P)
 Some specific benefit factors are importance of the product to the user, number of households affected, frequency and value of purchases

P = Producers
 C = Consumers
 G = Government

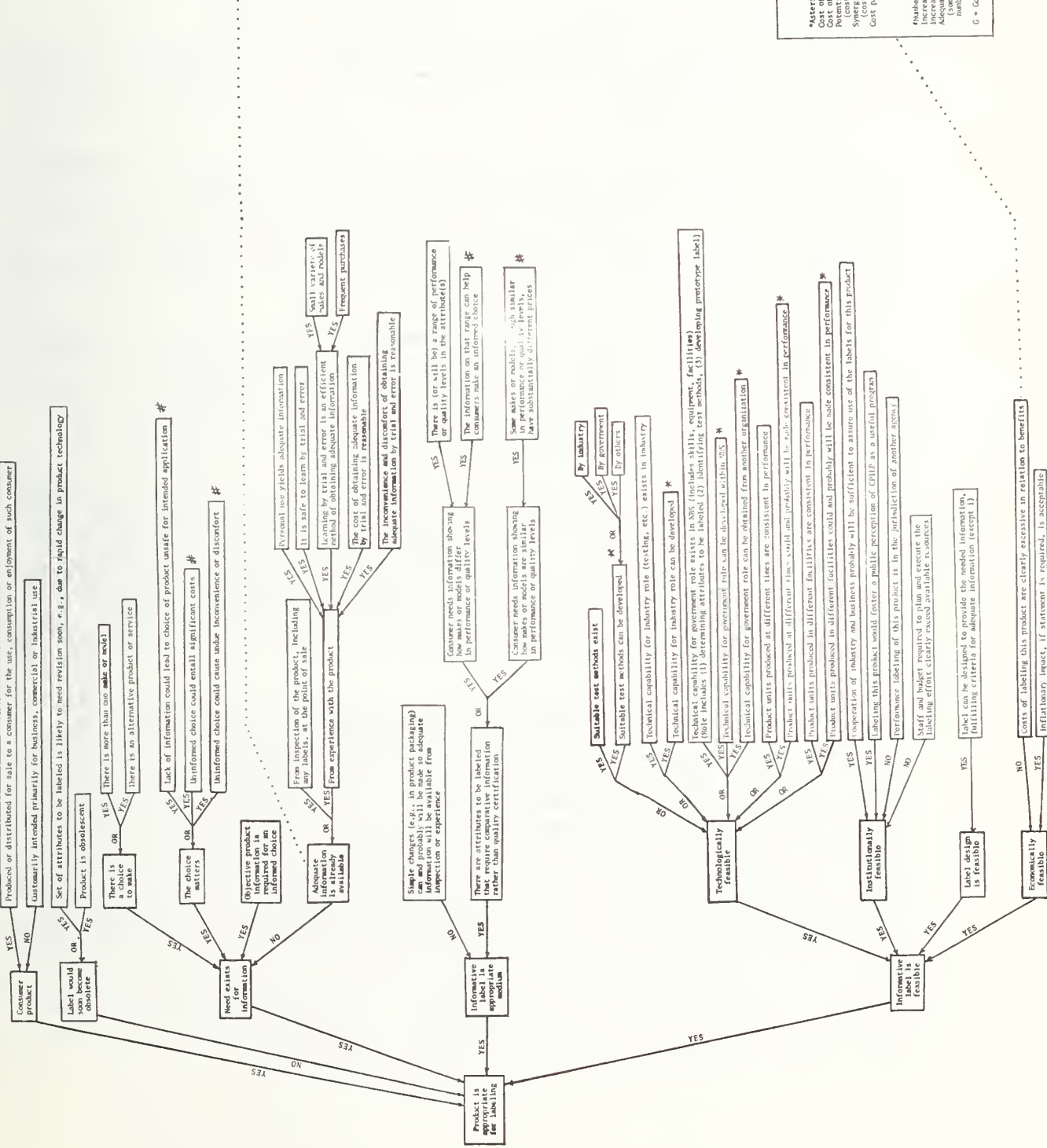


Fig. 1 - CPILP Product Selection Chart

The chart is designed to be used as a worksheet; the user can record his findings for a given product directly on a copy of the chart. A convenient notation is to circle the label on an arrow if it is confirmed, to cross it out if it is disconfirmed, and to enclose it in parenthesis if it is accepted pending further investigation.

It is evident that reading the chart from left to right leads from the most general criteria to detailed criteria designed to help the user in assessing a product. The details should, of course, be understood in the context of the larger criteria from which they derive. Along each branch of the chart the user needs only to go into as much detail as he finds necessary.

Reading from top to bottom indicates the usual sequence of the decisions to be made. However, the user can be flexible in both the horizontal and the vertical sequences. If, for example, he knows or suspects that a particular criterion will disqualify the product, he can begin with that criterion.

The use of the chart as a worksheet makes evident the judgments that are left in some doubt, questions still unanswered, places where some investigation is needed into the product or its consumers or producers, and topics on which more fundamental research is needed.

To be able to use the chart to assess a particular product, the user must have some general concept of the attributes to be included on its label. Thinking through the detailed criteria in the chart is likely to suggest other attributes for inclusion or to suggest that some should be dropped. Therefore, the user is advised to keep notes on such thoughts as he proceeds through the chart.

A product can be assessed for its appropriateness for labeling within a particular time frame, as during the initiation phase of CPILP when products should be selected that can be labeled in a relatively short time. The chart can be used with a "mental overlay" of such a time frame. The time frame applies especially to the five parts of the technological feasibility determination, where a capability either exists or will have to be developed. It also applies especially to the four parts of institutional feasibility; the matters involving cooperation of industry, jurisdiction of other agencies, and staff and budget availability could extend the time required to realize the labels for a particular product, and the public perception of the labeling program could be delayed by the lag between the manufacture of the product and its appearance on retail shelves.

Since the purpose of the criteria for appropriateness (represented by the chart) is to screen out candidate products that are clearly not appropriate for CPILP labeling, leaving a set of appropriate products that are subject to prioritization, it is better to err on the side of inclusiveness than to exclude doubtful products. Hence, the entire chart should be applied in that frame of mind. In particular, the wording is biased toward inclusiveness in criteria III.B.1-3, V.B.4 and V.D.1.

Since "adequate information" is the key concept for CPILP labeling, some further comments are offered here on its role in the application of detailed criteria. Criterion III.C asks whether objective information is needed in a purchase choice, since a CPILP label will only convey objective information. The consumer chooses many, perhaps most, products by a mixture of objective and subjective considerations. The fact that subjective considerations are involved does not make a product inappropriate for CPILP. If adequate information for an informed choice is entirely subjective (as it may be for a work of art), then the product is inappropriate (has no need for a CPILP label). But if adequate information for an informed choice requires some objective information (and the other criteria for appropriateness are satisfied), the product is appropriate for labeling.

Criterion III.D asks whether adequate information is already available, because if it is, no CPILP label is needed. Adequate information for a particular product may include many items of information, and these may be obtained by the consumer from several sources in combination. Although some items may already be available to the consumer, if other items are not, a CPILP label may be appropriate for those items. Those items, of course, are still subject to Criterion IV, concerning the appropriateness of informative labeling, and Criterion V, concerning feasibility.

In particular, Criterion V.C tests whether the label design, as it may have evolved through the application of earlier criteria, is still feasible. A CPILP label will, of course, be designed (as a supplement to other sources of information) to convey adequate information. However, compromises forced by technological or institutional factors could make an adequate label design infeasible, as could the opposed requirements of comprehensiveness and simplicity expressed in items a and h among the criteria for adequate information.

The final judgment of whether a CPILP label is appropriate rests not on whether it can provide completely adequate information (either alone or in combination with other information sources), but rather on whether its contribution to adequate information is worthwhile in view of the resources that would be required for its realization. This final judgment is represented in Criterion V.D.

Since the chart represents many judgments that depend on the user's knowledge about the product and other factors, there are several ways in which the chart can be used, representing different levels of the user's knowledge. Hence the use of the chart is an iterative process. First, the chart can be used for a very preliminary screening of any product recommended for labeling. This initial screening may uncover any immediate and obvious impediments to CPILP labeling. Examples might be that it is not primarily a consumer product, the label might soon become obsolete, or the product is in the jurisdiction of another agency. Following an initial screening without impediments, the user can further prepare a product investigation; an example is given in the next chapter. The selection decisions can then be reiterated with greater depth and assurance than before. Finally, since the user's concept of the label may evolve during his use of the chart, and since at some stage the user may also obtain inputs from consumers or technical experts on label design, attribute selection and other aspects of product performance, he may wish to apply the chart again.

5. EXAMPLE

As an illustration of the way in which the CPILP Product Selection Chart functions, an example using electric irons as a proposed product is given in this chapter. Figure 2 is a CPILP Product Selection Chart which records the criteria decisions on whether irons are an appropriate product for labeling under CPILP. The answer notations on the chart identify whether each criterion was satisfied, based on the product information contained in figure 3, a document by Bernard McGuire which summarizes the pertinent information that was readily available for irons.

In reviewing figure 2, it can be seen by the circles at the left that the first four of the five major criteria were satisfied. This confirms that irons are a consumer product, the label would not soon become obsolete, a need does exist for the information, and informative labeling is an appropriate medium for presentation of the consumer information. The fifth major question, concerning label feasibility is answered "maybe," shown by parentheses. This "maybe"

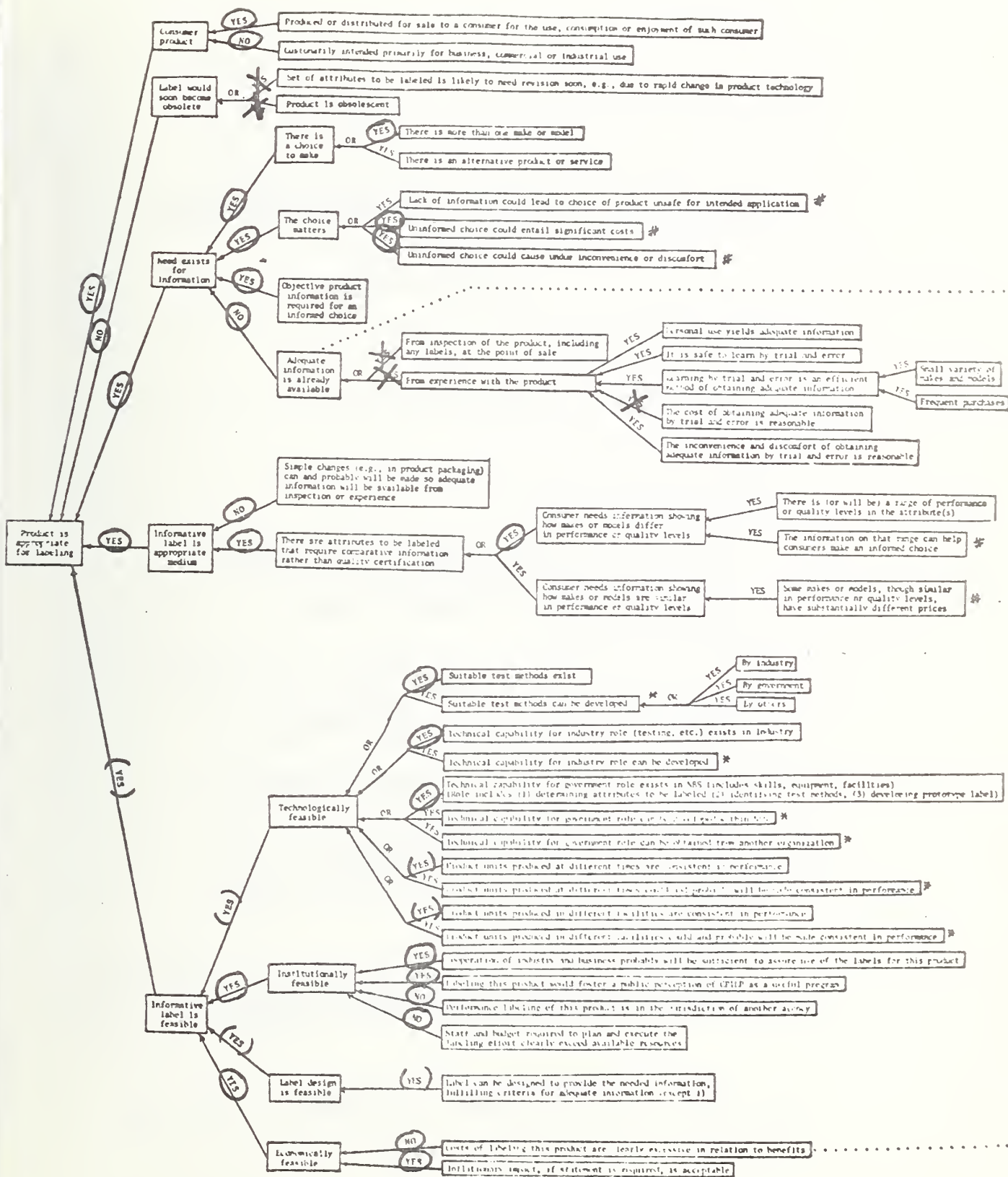


Fig. 2 - Sample Worksheet for Electric Irons

VOLUNTARY CONSUMER PRODUCT INFORMATION LABELING PROGRAM

PRELIMINARY PRODUCT INVESTIGATION

ELECTRIC IRONS

Electric Iron Types

- o dry iron
- o steam iron and steam booster iron
- o spray iron
- o steam spray iron

Typical Special Features

- o work light
- o water gage or "visible" tank
- o indicator that soleplate temperature corresponds to temperature control setting
- o nonstick soleplate coating (teflon, etc.)
- o fabric chart or coded temperature control
- o self-clean system

Measurable Performance Characteristics

- o temperature "overshoot" on initial heatup
- o soleplate temperature distribution
- o heatup and cooldown time
- o normal cyclic variation in soleplate temperature
- o accuracy of temperature control
- o steam rate and steam pattern
- o spray rate and spray pattern
- o tank capacity (or spray/steam duration)
- o weight/balance
- o stability at rest
- o impact resistance
- o electrical power requirement
- o electrical safety
- o thermal safety
- o test methods already exist for most of the above performance characteristics and can easily be developed for the remainder.

Fig. 3 - Information on Electric Irons

Typical Problems

- o inaccurate temperature control can cause damage to fabrics
- o boil-over of excess steam or poor handle design can cause burns to user
- o uneven temperature distribution, poor spray or steam pattern, or buildup of starch or other material on soleplate, can make ironing difficult
- o breakage when dropped or buildup of deposits in steam system can result in financial loss

Relevant Standards

- o AHAM No. I-1, Household Electric Irons, October 1974.
- o UL 1005, Electric Flat Irons, February 1977.
- o IEC 311, Methods of Measurement of Performance of Electric Irons for Household or Similar Use, 1970.
- o Some portions of CEE 10 may apply but were not available in the Standards Library.

Cognizant Trade Associations/Certification Programs

- o Association of Home Appliance Manufacturers
- o No certification program

Some Reasons for Labeling

- o It is feasible to standardize the temperature control markings/terminology and the related soleplate temperatures, but this has not been done in the U.S. It has been done in Europe.
- o Inaccurate or misleading control markings can result in damage to fabrics, or in less severe cases, buildup of burnt starch and other material on the soleplate. This buildup can cause sticking. Aluminum soleplates are most susceptible to buildup and scratching and chrome soleplates are less susceptible. Soleplates coated with teflon or similar materials are least susceptible to buildup, but vulnerable to scratching.

-
- o Some irons have small water tanks that require frequent refilling. Also, some irons have inadequate steam rates or patterns.

Fig. 3 - Information on Electric Irons (continued)

Electric Iron Market

	units shipped 1975	dollar value 1975	units shipped 1976	units shipped 1977*
Dry Irons	600 000	7 800 000		
Travel Irons	197 000	2 364 000		
Steam/Spray Irons	7 086 000	177 150 000		
Total	7 883 000	187 314 000	8 230 000	8 600 000

* projection

Note: Data from Merchandising (March 1976) and Appliance (January 1977).

Literature at Hand

- o Buying Guide Tag Pilot Program Report, Federated Department Stores, Inc., 1970.
- o Which?, April 1975, p. 110-112.
- o Consumer Reports, March 1974, p. 194-199.
- o Consumer Bulletin, February 1966, p 6-10.
- o Consumer's Research Magazine, February 1974, p 15-18.
- o Good Housekeeping, October 1974, p. 154.
- o Popular Mechanics, August 1974, p. 82-85.

B. McGuire
June 16, 1977

Fig. 3 - Information on Electric Irons (continued)

results from other of the same notations found in the detailed criteria under technological feasibility and label design feasibility. The overall result of this determination is that irons are accepted as an appropriate product for labeling under CPILP, pending confirmation of some assumptions about feasibility. The outstanding "maybe" notations highlight those areas that would need further investigation.

Looking at the detail regarding whether this product is a consumer product (at the top of the chart), we see two parts to the question. The first asks whether the product is produced for sale to a consumer, etc., and it has been answered Yes, confirming the label on its arrow as indicated by the circle. The second part (intended for business, etc.) has been answered No, and this answer satisfies its arrow. Since both of these arrows are satisfied, the product is determined to be a consumer product.

The next line of the chart asks whether the label would soon become obsolete. A sufficient condition for this to be true is a Yes answer to either of its parts, as indicated by the "yes-or-yes" arrow. But since neither part could be answered Yes, the arrow entering the box "Label would soon become obsolete" is not satisfied. Hence that box is not true, and that satisfies the No arrow leading from that box.

Skipping down to the box marked "Adequate information is already available" we see that this criterion will be met if adequate information is available from inspection or experience (or both). (Note that if these two sources in combination provide adequate information, the box to their left would be satisfied, and this could be indicated by circling both YES labels together or the OR.) But since in this case the information is not available from inspection, as shown by crossing out the YES leading from it, we must ask whether it is available from experience. For that to be confirmed, we will have to show that all five of its parts are satisfied. However, since one of them is disconfirmed, "From experience with the product" is disconfirmed also. This, together with the determination for inspection falsifies "Adequate information is already available" and that satisfies the NO arrow leading from it.

The rest of the worksheet is completed in similar fashion.

6. INFORMATION SOURCES FOR PRODUCT SELECTION

To apply the criteria to determine the appropriateness of a product for labeling requires information about the product and about the consumer. This chapter is a guide to information sources on product attributes and performance (sec. 6.1), economic data on products (sec. 6.2), measures of consumer attitudes (sec. 6.3) and models of buyer behavior (sec. 6.4).

6.1 Product Attributes and Performance

It is apparent as a result of the product selection research project that products being evaluated for CPILP must be considered in light of their performance attributes. These are the salient attributes from which a product specific CPILP label would be constituted. Several aspects of the selection criteria, including technical feasibility, existence of standard test methods, etc., are based on attributes, features, characteristics, uses and problems of each product being evaluated. The selection process requires in good measure, detailed information on product attributes and performance.

It is therefore important to know what sources may be available to identify the key features and salient attributes associated with any candidate product for CPILP. The following is a brief narrative that directs the user to several sources of information that can be useful in product selection.

6.1.1 Comparative Testing Journals

One source of detailed information pertaining to product attributes and performance are the comparative testing journals. Best known of these are Consumer Reports [2] (published by Consumers Union) and Consumers' Research Magazine [3] (published by Consumers' Research, Inc.). Other related sources, with somewhat less applicability to the U.S. market, are Canadian Consumer [4] and WHICH? [5] (Great Britain).

Articles in these comparative testing journals characteristically include performance information reported for key product attributes. In addition, specific features, defects and faults, consumer use and misuse guidelines and other aspects of the product are detailed. Such articles can be a good first reference in addition to other sources of information and CPILP staff analyses. Of course, such preliminary information is only a guide to identify key product attributes and features for CPILP product selection. Of those products subsequently chosen for CPILP labeling,

detailed studies are necessary to confirm the attributes to be labeled and the actual label format.

Both Consumer Reports and Consumers' Research Magazine include an annual or semi-annual subject (product) index. An additional feature of each magazine is an annual handbook or buyer's guide, which also contains a subject index. The material contained in these two periodicals can also be obtained through a more comprehensive index to sources of product information, namely, Consumers Index [6].

6.1.2 Consumers Index

Consumers Index to Product Evaluations and Information Sources is a quarterly publication, with an annual compendium, that indexes consumer product information and services by subject classification. Approximately 110 periodicals, including the major English language comparative testing journals are regularly reviewed and indexed. The Product Systems Analysis Division presently has on hand the 1973, 1974 and 1975 Annuals. Among the major subject headings are Consumerism, Health and Personal Care, Clothing, the Home, Sports-Recreation-Hobbies, Sight and Sound, Transportation, and others.

6.1.3 Consumer Review

The International Organization of Consumers Unions—IOCU (Netherlands)—publishes a quarterly periodical entitled Consumer Review [7]. This is the official publication based on the collected efforts of the major consumers' organizations around the world. The subject and product information in Consumer Review is organized under the major headings of:

- Technical Developments (Standardization and Test Methods)
- Legislation
- Education
- Consumer Organizations' Publications (Subject Index)
- Bibliographies
- Translations
- Index

Each 4th quarter issue contains an annual alphabetical index by subject and product, which can be used to search product information for any of the above subject headings. Recent year copies of Consumer Review are available in the Division.

6.1.4 Product Information File

Consumers Index has been utilized, in conjunction with earlier efforts, to initiate a Product Information File in the Product Systems Analysis Division. The file consists of copies of articles pertaining to individual products, mostly appliance products. For these products, selected articles were collected by reviewing the respective subject over the last three years of Consumers Index.

The file presently includes approximately sixty products, with from one to as many as six articles per product. The Product Information File has proven very useful, e.g., in consideration of CPILP labels for irons and vacuum cleaners. Appendix A lists the individual products presently contained in the information file.

6.1.5 Product Standards

The existence of any of the various forms of standards can provide considerable insight into product attributes, possible test methods for CPILP, performance specifications and the like. This information is also useful when working through the set of criteria for product selection. There are several NBS special publications related to standards, which list many of the voluntary trade and professional organization, state, national and international standards for products including consumer products. The most appropriate of these references are:

- Slattery, Tabulation of Voluntary Standards and Certification Programs for Consumer Products, NBS TN-948 (1977).
Revision of Chumas' NBS TN-762 (1973). [8]
- Grossnickle, ed., An Index of State Specifications and Standards. NBS SP-375 (1973). [9]
- Chumas, ed., Directory of United States Standardization Activities, NBS SP-417 (1975). [10]
- Chumas, ed., Index of International Standards, NBS SP-390 (1974). [11]
- Slattery, An Index of U.S. Voluntary Engineering Standards, NBS SP-329 (1971); Supplement 1 (1972); Supplement 2 (1975). [12]

The NBS Standards Application and Analysis Division, and its Standards Library, can be a source of additional assistance and provide copies of specific standards as required.

6.1.6 Trade and Professional Associations

NBS SP-417 [10] referred to above includes reference to many trade and professional associations that are known to have active standardization activities. In addition, although not known for their standardization work, there are numerous other associations which can be a very valuable source of product information. There are two comprehensive guides to the available associations, and both include a comprehensive subject index. These annual guides are:

- Fisk, ed., Encyclopedia of Associations [13], and
- Colgate, ed., National Trade and Professional Associations of the United States and Canada and Labor Unions [14].

6.1.7 Safety Information

Specific safety related information may, at times, be desired to assist in CPILP product selection. One measure of the potential hazards associated with consumer products is based on the Consumer Product Safety Commission (CPSC) National Electronic Injury Surveillance System (NEISS).

An additional source of product related safety information could be Accident Facts [15], or more specifically its publisher, the National Safety Council.

6.2 Economic Data on Products

In addition to knowledge about the attributes and performance of product candidates for CPILP labeling, it is also important to obtain an economic profile of those products. Such data are needed for the selection criteria to help assess the economic importance of the product. The economic data sources are of two kinds. One source is of a general systems nature that can be used to retrieve information on numerous different consumer products. Examples would be the reports put out by the Bureau of the Census. In contrast, other sources of a more product-specific nature are also available, such as trade journals.

6.2.1 U.S. Government Data and Information Sources

There are several Federal Government sources of information on products and related industries that can be valuable in obtaining economic data for needed CPILP analyses. CPILP product selection is enhanced when such product or industry economic profile data are available. One agency that provides detailed information on selected products and industries is the Department of Commerce. A

major reference is the yearly survey entitled Current Industrial Reports (CIR) [16], from the Bureau of the Census. The CIR reports on products or associated groups of products classed by their Standard Industrial Classification (SIC) or Product Code. The CIRs cover over 5,000 products representing 40% of all manufacturing in the United States. Selected broad categories covering some consumer products include:

- machinery and equipment
- stone, clay and glass products
- chemicals, rubber and plastics
- lumber, furniture and paper products
- apparel and leather
- textile mill products

Normally included in the CIR are figures for value of shipments (\$), number of units shipped, number of companies responding, and export data. Appendix B provides a listing of those CIRs currently available. Appendix C is a selected product CIR on Major Household Appliances as an illustration of the type of information generally contained therein.

Periodically, the Bureau of the Census does a national Survey of Manufactures, the last having been reported in 1972 [17]. It provides more detailed and comprehensive coverage than the annual CIRs. Available from the 1972 survey are 440 reports covering 450 industries or combinations of industries. The most pertinent of these is the collection of eighty-one Industry Series Final Reports. Each of the reports provides information for a group of related industries. Final figures for the United States are shown for each of the 450 manufacturing industries on quantity and value of products shipped and quantity and cost of materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payrolls, payroll supplements, man-hours, value added by manufacturing, number of establishments, and number of companies. Also shown are selected operating ratios such as payroll per employee and cost of materials per dollar of shipments. Comparable statistics for earlier years are provided for each industry. Data on value of shipments, value added by manufacturing, capital expenditures, employment, and payrolls are shown by geographic region and State, employment-size class of establishment, and by degree of industry specialization.

The Department of Commerce also publishes, through its Domestic and International Business Administration (DIBA), an annual U.S. Industrial Outlook [18]. These also provide economic projections for eight years hence. Some general

industry headings of interest to CPILP are Consumer Goods; Communications; Chemicals; and Rubber and Allied Products. Within each major area, the U.S. Industrial Outlook contains detailed analyses of individual industries, pertinent statistics, legislative developments, new products and technology. The Bureau of Domestic Commerce, within DIBA, and the Bureau of Economic Analysis can be potential sources of business and industry economic data. Outside of the Commerce Department, the Bureau of Labor Statistics can be another source of useful data through its Consumer Expenditure Survey [19].

There are numerous government publications that can provide preliminary information on selected consumer products. These publications are often prepared for the general public from the resources and expertise contained within the government. One example is the Consumer Information Series (CIS), which comprises publications about several consumer products. Different sets of CIS publications are available both from the National Bureau of Standards and the General Services Administration. Specific bibliographies to consumer publications offered through the Government Printing Office (GPO) are available from its "Consumer Guide to Federal Publications." A periodically revised list of consumer interest publications, "The Consumer Information Catalog," appears quarterly from the GSA's Consumer Information Center in Pueblo, Colorado. However, this listing is neither cumulative nor comprehensive in coverage, and carries a maximum of about 250 publications at any one time.

6.2.2 Predicasts Information Retrieval System

Predicasts, Inc. is a computer-based information retrieval system in conjunction with Lockheed's Information Systems Division. There are several files in the Predicast system including statistical, index, abstract and data bases. The statistical file, for example, contains historical and forecast data from numerous U.S. and international sources including census, FTC, IMF, OECD, etc. The data are collected by products, markets, services, regulations, industries, companies, capacities, end-users and the like. The National Bureau of Standards Library can provide computerized access to certain of the Predicasts System files. There are search fees applicable to each use. The output from Predicasts is available both as direct computer printout and in hard copy volumes.

In addition to the Predicasts System there are other computerized search systems of a related nature, such as Inform, Management and others. In contrast to Predicasts these latter systems provide bibliographic citations only, rather than the direct data output also available via the former.

6.2.3 Appliance and Other Product Survey Data

Due to the important position that home appliances hold in the home and to the consumer, there are several readily available sources of related economic information on these classes of products. This survey information is separate from that available through the Census CIR data described above. Merchandising magazine publishes an annual Statistical Issue and Marketing Report [20]. This study includes prior ten-year figures on number shipped (units) and retail value (\$) for approximately forty-five consumer appliances. Also, included are saturation indices, replacement and trade-in data, imports and exports, and regional sales patterns. Appliance magazine offers an annual Statistical Review [21]. Appliance data occasionally appear in the monthly HFD Databank [22]. This Databank can also be a useful source of economic data on all retail home furnishings including furniture, upholstery, floor coverings, domestic textiles, etc.

A recent reference book on Business Information Sources [23] can be a very helpful guide to locating other sources of industry and product information. Selected chapters include

- directories of companies and organizations
- basic U.S. statistical sources
- industry statistics
- U.S. business and economic trends.

6.2.4 Consumer Complaint Data

Consumers' complaints about products can be one useful criterion to indicate need for information under CPILP. One means of obtaining such data on specific products is through the reports of the consumer action panels that have begun in recent years. First and preeminent among these is the Major Appliance Consumer Action Panel (MACAP), sponsored by the Association of Home Appliance Manufacturers (AHAM). An annual MACAP Statistical Report [24] summarizes their consumer complaints and resolutions by product type and complaint type, including performance and service. Other related efforts have been considered by other action panels for motor vehicles, and carpets and rugs.

Several Federal, State and local government departments can be a potential source of consumer complaint data. To date, however, there is no coordinated Federal effort to monitor ongoing consumer complaint information on a national basis.

6.3 Aggregate Consumer Attitudes

The following delineates the consumer movement trend in the U.S. over the last few years including a study of businessmen's attitudes in 1971 compared to businessmen's attitudes in 1962, consumer attitudes tracked from 1971 to 1975, business response to consumer complaints, and attitudes of various concerned groups towards consumer movement as of 1977, besides specific surveys or complaints, and two economic indices.

Probably the most comprehensive survey of various groups' attitudes toward the consumer movement, commissioned by Sentry Insurance and titled "Consumerism at the Crossroads" [25], measured the attitudes of businessmen and consumers in addition to the attitudes of consumer activists and public regulators. Conducted by Harris with Marketing Science Institute, they interviewed 2,000 people in 1976 in a survey designed to meet two objectives:

- 1) How is the consumer movement now viewed?
- 2) What insights are there into the future direction of the consumer movement?

The major areas explored by the survey were:

- 1) The standards, practices and motivations of American business with respect to consumerism.
- 2) The rate and effectiveness of government regulation of consumer matters.
- 3) The handling of consumer complaints by business.
- 4) Expectations for future development of consumer affairs.
- 5) The extent to which different leadership groups are seen as speaking for the consumer.
- 6) The effectiveness and role of the consumer movement and its leaders.
- 7) The public's source of consumer information and their attitudes toward such sources.
- 8) The expectations for the future of the consumer movement, regulation and the handling of consumer problems.

One of the general conclusions was that "helping consumers get a fair deal when shopping" has a top priority, ahead of a National Energy Policy, controlling air and water pollution, National Health Insurance and others. It ranks second only to other issues relating to the economy. Other conclusions were:

- 83% of the public is concerned about misleading packaging or labeling;
- 81% of the public is concerned about the absence of reliable information about different products and services;
- 59% of the public is concerned about the difficulty of choosing between so many products.

All of these findings support the need for CPILP.

In 1971 and 1972 Louis Harris and Associates studied consumer attitudes toward the consumer movement, toward regulation of consumer goods industries, toward advertising and the quality of consumer products. About 1600 persons, a national cross section of adults 18 and older, were interviewed for each study. Essentially, "Consumerism at the Crossroads" confirms their earlier findings. One overall conclusion was that consumers found more fault with products and services in 1972 than they did in 1971. We were not able to acquire the actual reports; however, the study was reported in the newspapers and in proceedings of a conference.

Information on Study #2120 Consumerism I is available from:

Revett, John, "Consumers Endorse More Restrictions on Business: Harris," Advertising Age, (n.p.) (25 October 1971).

Dorny, Lester R., "How Consumers See Business--and the Consumer Movement," Proceedings of the Advertising Research Foundation, pp. 5-9 (15 November 1971).

Information appeared in a news article on Study #2154 Consumerism II:

Dougherty, Philip H., "Advertising: Angry Consumers," The New York Times (n.p.) (20 June 1972).

There was an interesting one-shot attempt at getting the public's feelings on the subject in 1972. In this case, the results supported the conclusions of later, major and well-controlled studies. The Council of Better Business Bureaus, Inc. participated in the 1972 National Consumer Week. They issued a short, check-off questionnaire, the 1972 National Consumer Referendum [26] distributed by various means, e.g., as telephone bill inserts and at various places of business throughout the U.S. Sixty-eight thousand consumers responded. Although this method of sampling is the least desirable and encourages questions about the validity of the results, the major findings are listed below:

- A. Ranking of current "annoying" business practices:
 - No. 1. Products that don't perform as represented.
 - No. 2. Advertising that misleads or claims too much.
- B. Ranking of business-sponsored "most helpful" consumer programs:
 - No. 1. Owner's manuals on use, care and safety of appliances.
 - No. 2. More informative product labeling.
- C. Ranking of types of information consumers want more of:
 - No. 1. What's in a product, how it's made.
 - No. 2. How to get help when something goes wrong.
- D. Finding that 72% of the respondents read a warranty before purchasing a product.
- E. Finding that 67% of respondents ask in advance what the minimum charge will be when calling an appliance serviceman.

Given the limitations of this study, there are still some positive implications for CPILP. The program should reduce the annoying business practices denoted in A above. Also, it will support business' continued efforts at informative product labeling (B above).

Besides attitudinal data the business community has at least two economic indices—the Michigan Consumer Sentiment Survey [27] and the Conference Board Consumer Confidence Index [28]. These surveys indicate the public's confidence in the future through their intentions to purchase certain durable goods.

The Michigan Consumer Sentiment Survey, conducted quarterly since 1952, samples 1500 adults aged 18 and above on their attitudes on the economy by determining consumer preference for the purchase of certain durable goods. The University of Michigan's Institute for Social Research is the parent organization for the Survey Research Center which conducts the consumer studies. The study, first developed and organized by George Katona, a pioneer in consumer behavior, is considered an index of retail sales with a three to six month lead time.

The Conference Board Consumer Confidence Index is a study conducted every two months by the National Family Opinion, Inc. for the Conference Board which surveys more than 10,000 U.S. households. They produce a Consumer Confidence Index that is akin to the Index of Consumer Sentiment, although some differences exist.

It would appear that business could be well apprised of consumer attitudes and consumer buying intentions. However, the consumer is not getting the information he needs. The conference discussed next emphasizes the need to give consumers information and is an example of how engineers came to that conclusion in 1971.

In April 1971, the National Academy of Engineering arranged a program in Washington, D.C. on Product Quality, Performance and Cost of consumer products [29]. The objectives were twofold:

- to look into how to improve production and consumption decisions by the consumer and
- how to define the engineer's role in this context.

As a result of this symposium 130 recommendations were consolidated into the following six composite recommendations:

1. on consumer and producer information
2. on consumer education
3. on engineering education
4. on design
5. on professional societies
6. on safety standards and safeguards.

Their recommendations, as summarized in that report, give a rationale for and the steps to provide information to the consumer. It underscores the need to provide information which allows the consumer to judge the quality of a product in making a buying decision.

These kinds of reports—major surveys, economic indices, and conferences—have been selected to stress the consumers' needs for information in the marketplace. One aspect of consumer information, advertising, especially has an impact on both consumers and public policy makers. The following illustrates some of the controversy surrounding advertising.

Advertising affects businessmen's as well as consumers' attitudes and pocketbooks. Creyser [30] queried businessmen and ad-men on their attitudes toward the two perceived roles of advertising in 1971:

- 1) its economic role as a tool of business
- 2) its social role as an institution of society.

Twenty-seven hundred subscribers of Harvard Business Review (HBR) responded to this study and the results were compared to results of a similar study of HBR subscribers done in 1962. Significant changes had occurred in the interim and were expected to have an impact on the later study:

- 1) an increased volume of advertising
- 2) the emergence of a viable consumer movement
- 3) the evaluation of regulatory patterns.

Generally, the study found that business viewed advertising more questioningly and less favorably in 1971 than in 1962. Among the highlights of the results were:

- 1) Business was more critical of all aspects of the roles of advertising.
- 2) Advertising was nonetheless regarded as essential.
- 3) Advertising speeded the development of new product market.
- 4) Business did not like advertising's negative impact, e.g., persuading people to buy unneeded items.
- 5) Only one-third of the respondents thought advertising truly represented the product.

- 6) Respondents thought advertisers needed a code of standards.
- 7) However, they felt ad improvement rested with top corporate management.

In contrast, Barksdall, et al [31] in a five-year study picked up consumer attitudes toward advertising and business. They surveyed consumers' attitudes toward seven major areas of consumer concern: advertising, business philosophy, product quality, consumer responsibilities, government regulation, prices and price control, and other marketing activities (e.g., personal selling). Three national mail surveys (1971, 1973 and 1975), which sampled telephone subscribers in the 48 contiguous states, allowed the researchers to note changes and stability in opinions from 1971-1975. The results generally suggest that consumers were still discontented with the various facets of the marketplace; also the authors found their results corresponded with results of other consumer surveys. Dissatisfaction was not generally related to particular demographic characteristics, but some relationship between attitudes and respondents' sex and occupation occurred in the latter two surveys. The authors treat consumer dissatisfaction as a relative concept; i.e., there is always some level of consumer dissatisfaction.

Nonetheless consumer dissatisfaction is rarely expressed, according to Andreason [32]. This phenomenon may be related to lack of information at point of sale, e.g., how to report complaints to manufacturer. In a spring 1975 survey of 2400 national urban households, he surveyed consumers on how business responds to consumer complaints. He concludes that consumer complaints are, if expressed, in few instances serviced satisfactorily, and he stresses the need for better communications between business and consumer.

The survey had two objectives:

- 1) to find the percentage of complaints per number of purchases of both products and services (20%) and
- 2) to identify business response to those who complain (one in four were resolved).

Data were compiled on two product categories and on services:

- 1) frequently purchased products, e.g., toys, clothing;

- 2) infrequently purchased products, e.g., cars, bicycles, air conditioners;
- 3) consumer services, e.g., car repair, appliance repair.

Since the incidence of price complaints was low and probably reflected changing economic conditions, the incidence of non-price complaints (20%) was used as an index of industry performance. The results were:

- 1) Complaints are more related to expense and frequency of purchase than to the type of purchases.
- 2) For more than one-half of the purchases for which non-price complaints existed, no action was taken.
- 3) Most of the action taken was to contact the manufacturer or retailer (79%).
- 4) The corporate response rate was poor--only one in four complaints was satisfactorily resolved.

The authors recommended that business pay more attention to the dissatisfaction in the marketplace by:

- 1) Encouraging consumers to complain to business
- 2) Dealing with complaints received in a timely manner
- 3) Mandating a positive company attitude towards complaints--use it in marketing the product.

There have been many surveys of consumer attitudes for specific purposes, such as complaints about major appliances. Two recent examples are the annual report of the Major Appliance Consumer Action Panel (MACAP) [33] and the survey of the National Home Builders Association [34].

MACAP reported on 11,961 complaints and 17 types of products over the period from January 1968 to December 1975. Ten percent of the complaints were not satisfactorily disposed. Most complaints were on service (40%) while complaints on performance ranked second (28%).

The National Association of Home Builders in their first, annual survey reported the opinions of 500 new homeowners on two subjects.

1. the general performance of their appliances
(92% good to excellent)
2. specific data on buildersupplied appliances:
The survey could provide to the home construction industry by region and expected cost of the home, the preference for brand, color, and model of various appliances.

6.4 Buyer Behavior Models

Buyer behavior models, as opposed to aggregate consumer attitude measurement, explores how and why an individual consumer makes a buying decision. This once was an aspect of market research, but it is slowly becoming a separate discipline. The following identifies some research in modeling buyer behavior and is a rationale for developing and using models of buyer behavior to assist in product selection for CPILP and other consumption policy developments.

The future success of public policy programs like CPILP will require information on and attention to the needs of the consumers in the marketplace. Buyer behavior, as a rapidly maturing discipline which assesses consumer behavior, is beginning to be used in public policy decisions [35] affecting consumer and marketing. Jagdish Sheth, a pioneer in the consumer behavior discipline, predicts that the next decade will see buyer behavior being adapted for public policy purposes (among other major developments). Sheth's recent book [36] presents several authors who expounded on the conceptual, qualitative and empirical models of both comprehensive models of buyer behavior, innovative behavior and product adoption.

Philip Kotler [37] also sees the benefits of marketing applied to public policy makers":

"Nonprofit organizations such as . . . government agencies are seeing marketing as a new way of looking at their relations with their publics" p.3.

His treatise covers the analyses, planning and control involved in marketing. The section on Analyzing Marketing Opportunities emphasizes the need to understand consumer markets and buyer behavior. He discusses various models of buyer behavior available to marketers, including:

- learning model
- psychoanalytic model
- sociological model
- economic model
- hierarchy of needs model.

Such models allow the marketer to understand the consumer's objectives. It is just such objectives that the government must understand before implementing public policy.

In a seven volume treatment of technology and the consumer Nicosia and Lancaster [38] examined the meanings of technology, product variety, consumer power and the organization of the Federal Government. This study suggested that good public policy decisions would require, prior to implementing public policy, a study of cost and benefits to the consumer. The authors of this lengthy, voluminous study revealed certain aspects about the interface among technology, product variety, and consumer:

- The Federal Government, unlike private firms, is still oriented toward the country's past need to industrialize.
- The consumer is not powerless—he demands quality as well as quantity.
- Disseminating information about the technological attributes of products may not be good public policy, but facilitating interaction between consumers and private agencies may have a greater pay-off.

Some of the most recent research on buyer (consumer) behavior is yearly amassed in the Advances In Consumer Research, a report of the annual conference of the Association for Consumer Research (ACR). The contributors to ACR's conference range from academicians to businessmen to public policy administrators. In his address to the 1977 conference, David M. Gardner, President of ACR, stated his belief, too, that the government will use more consumer behavior research although he believes it won't be a leader in its development [39].

These authors and several others [40-46] have researched various aspects of consumer behavior which can be used as a starting point in government research. As the government gets more involved with the marketplace and the consumer, buyer behavior research is needed. These authors and others can introduce the public policy maker to its major concepts, and hopefully lead to more thoughtful public policy decisions.

APPENDIX A

PRODUCT FOLDERS IN THE PRODUCT INFORMATION FILE

Air Conditioners (window)	Irons
Appliances (small, housewares, misc.)	Lanterns
Bed Coverings	Lawn Mowers
Blenders	Lighters (cigarette, etc.)
Broilers	Meat Grinders
Candles	Microwave Ovens
Carving Knives (electric)	Mixers (food, electric)
Can Openers	Motorbikes
Coffeemakers	Paints
Crockpots	Pressure Cookers
Curling Irons	Radios
Dehumidifiers	Ranges
Dishwashers	Refrigerators (combinat
Drills	Slicing Machines
Dryers	Soldering and Welding
Fabrics	Stereo and Phonographs
Fans	Sunlamps, Sunproducts
Floor Polishers	Technical Information
Freezers	(safety, misc.)
Frying Pans (electric)	Television
Furniture	Thermometers
Garbage Disposers	Toasters
Griddles	Trash Compactors
Grills (outdoor)	Tricycles
Guns	Trimmers
Hair Dryers	Vacuum Cleaners
Hair Stylers	Vehicle Safety
Heaters	Washers
Humidifiers	Water Heaters

APPENDIX B

CURRENT INDUSTRIAL REPORTS AVAILABLE FOR CONSUMER PRODUCTS

Air conditioning and refrigeration equipment

Electric housewares and fans

Major household appliances

Radio receivers and television sets, phonographs and record
players, speakers

Plumbing fixtures

Paint, varnish and lacquer

Consumer, scientific, technical glassware

Carpets and rugs

Apparel

Sheets, pillowcases and towels

Gloves and mittens

Shoes and slippers

Mattresses, bedsprings and sleep furniture

Office furniture

APPENDIX C

SAMPLE CURRENT INDUSTRIAL REPORT

CURRENT INDUSTRIAL REPORTS

Major Household Appliances

1975



Issued July 1976

SERIES: MA-36F(75)-1

SUMMARY OF FINDINGS

During 1975 the total value of shipments was \$4,020.6 million. This figure includes electric ranges over 2-1/4 kilowatts, \$636.3 million; domestic cooking appliances (except electric), \$259.6 million; household refrigerators, \$1,119.7 million; food freezers, \$430.0 million; household washing machines and dryers, \$1,060.7 million; electric water heaters, \$142.8 million; water heater (except electric), \$199.9 million; dishwashing machines, food waste disposers/and household trash compactors, \$482.6 million; and household floor waxing and polishing machines, \$18.4 million.

DESCRIPTION OF SURVEY

This has been a continuous survey since 1968. The data contained in this publication were collected on Census annual form MA-36F, Major Household Appliances, from all known producers of major household appliances with total shipments over \$100 thousand. For 1975, there were 89 companies. The figures on quantity and value of shipments represent physical shipments from the reporting establishments and include all products whether for domestic consumption or for export. Imports are excluded. The value of shipments, f.o.b. plant, excludes discounts and allowances, freight charges and excise taxes. Products bought and sold without any further manufacture are excluded.

The figures for the current year may include estimates for respondents whose reports were not received in time for tabulation. Such missing figures are imputed from the year-to-year movements shown by reporting firms and are generally limited to a maximum of 10 percent to any one item. Individual items with higher imputation rates are footnoted.

RELATED REPORTS

Table 1 shows value of shipments figures collected on Form MA-36F, compared with data collected in the 1973 Annual Survey of Manufactures, and in the 1974 Annual Survey of manufactures.

Table 3 provides a comparison between data on domestic output (shipments) and exports. This table is included in the publication to provide a convenient means for comparing domestic and foreign trade. Comparable import data are not currently available.

The Bureau of the Census also publishes Current Industrial Reports on other types of household appliances as follows:

- MA-35M Air Conditioning and Refrigeration Equipment
- MA-36E Electric Housewares and Fans
- MA-36M Radio Receivers and Television Sets, Phonographs and Record Players, Speakers, and Related Equipment

ACKNOWLEDGMENTS

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Inquiries concerning these figures should be addressed to the U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233, or call Odelle S. Thomas, (301) 763-2824.



U.S. Department of Commerce BUREAU OF THE CENSUS

For sale by the Subscriber Services Section (Publications), Bureau of the Census, Washington, D.C. 20233, or any U.S. Department of Commerce district office. Postage stamps not acceptable; currency submitted at sender's risk. Remittances from foreign countries must be by international money order or by a draft on a U.S. bank. Price: 25 cents per copy.

Table 1.--VALUE OF EQUIPMENTS OF MAJOR HOUSEHOLD APPLIANCES BY CLASS OF PRODUCT: 1975, 1974 AND 1973

(In million of dollars)

Product code	Description	1975, MA-36F	1974		1973		
			MA-36F	Annual Survey of Manufactures	MA-36F	Annual Survey of Manufactures	
36311 pt.	Electric household ranges and ovens and surface cooking unit equipment, and parts (except small appliances) ¹	636.3	705.8	(²)	666.7	706.1	
36312	Household ovens and ranges, equipment and parts, except electric:						
36312 00	Domestic cooking appliances (except electric).....	259.6	266.3	}	303.7	486.0	
36312 12	Gas barbecuers, grills and braziers for outdoor cooking.....	(³)	(³)				(³)
36312 32	Other than gas (charcoal, etc.) barbecuers, grills and braziers for outdoor cooking.....	(³)	(³)				(³)
36312 98 pt.	Parts for cooking equipment (except electric) sold separately.....	(³)	(³)		(³)		
36321	Household refrigerators, including combination refrigerator-freezers.....	1,119.7	1,249.2	(³)	1,275.4	1,319.5	
36322	Home and farm freezers.....	430.0	466.7	(³)	309.4	312.2	
36331	Household washing machines, dryers, and washer-dryer combinations.....	1,060.7	1,142.3	(³)	1,222.7	1,233.9	
36391	Water heaters, electric.....	142.8	147.2	(³)	139.3	136.1	
36392	Water heaters (except electric).....	199.9	172.0	(³)	163.5	174.9	
36394	Dishwashing machines and food waste disposers.....	482.6	550.4	(³)	566.0	549.6	
36399 pt.	Other household appliances and parts ³	18.4	19.7	(³)	24.4	42.2	

¹Revised by 5 percent or more from previously published figures.²Product code 3631181, parts and accessories for household electric ranges and ovens such as burners, rotisseries, oven racks, broiler pans, etc., which are sold separately, are only collected in the annual survey of manufactures and census of manufactures.³Data for the 1974 annual survey of manufactures were not available at the time of this publication.⁴These data are only collected on the annual survey of manufactures and the census of manufactures.⁵Product code 36399 91, parts and accessories for electric water heaters are collected only in the Annual Survey of Manufactures and the Census of Manufactures.

Table 2.—QUANTITY AND VALUE OF SHIPMENTS FOR MAJOR HOUSEHOLD APPLIANCES 1973 AND 1974

Product code	Item	Number of companies	1973		1974	
			Quantity (1,000 units)	Value (million dollars)	Quantity (1,000 units)	Value (million dollars)
	MAJOR HOUSEHOLD APPLIANCES, TOTAL	(X)	(X)	4,350.0	(X)	4,719.8
36311 00	Electric ranges over 2-1/4 kilowatts, total.....	(X)	(X)	636.3	(X)	705.8
	Free-standing ranges (widths are based on outside dimensions):					
36311 11	Under 23 inches in width, all types, including apartment house type.....	15	97.2	11.5	130.0	14.2
	23 inches up to and including 32 inches in width:					
36311 21	Low oven.....	24	1,329.0	263.2	1,718.8	310.1
36311 24	High oven.....	9	16.5	3.9	33.6	6.2
36311 26	High-low oven.....	18	148.8	51.1	206.2	66.2
	33 inches and over in width:					
36311 32	Low oven and/or slide-in.....	14	96.8	23.0	147.6	31.1
36311 34	High oven.....	-	-	-	-	-
36311 36	High-low oven.....	-	-	-	-	-
	Other than free-standing:					
	Built-in ranges:					
	Built-in ovens:					
36311 53	Single oven.....	18	237.5	38.4	297.3	41.6
36311 55	Two ovens.....	13	91.1	25.9	124.3	30.7
36311 61	Surface cooking tops.....	18	381.0	45.6	441.2	45.2
36311 65	Drop-in ranges.....	12	240.3	47.5	393.4	61.1
36311 72	Household electronic stoves and ovens (excluding microwave.....	2	-	-	-	-
36311 73	Micro-wave ranges and ovens (excluding portable ovens) (include double oven ranges if either or both ovens are micro-wave).....	5	21.7	13.2	398.4	99.4
36311 74	Micro-wave ovens, portable.....	7	-	-	-	-
36311 80	Other electric ranges not listed above.....	2	516.2	133.0	-	-
36312 00	Domestic cooking appliances (except electric), total.....	(X)	(X)	259.6	(X)	266.3
	Gas:					
	Standard type, free-standing:					
36312 11	Oven 32" cooking top and oven.....	20	185.1	34.0	215.6	34.5
36312 13	Oven 24" to 32" cooking top and oven.....	19	957.8	162.5	1,002.7	158.0
36312 15	Apartment ranges (24" cooking top and under).....	16	181.4	17.5	205.5	17.7
36312 17	Standard type, for built-in installation.....	16	97.8	17.0	117.7	16.7
36312 19	Surface cooking tops (one or more burners) (quantity in number of top units).....	13	116.3	7.4	136.4	7.4
	Nonstandard types:					
36312 21	Wall hung.....	2	-	-	-	-
36312 23	Slide-in or drop-in (including as one unit a drop-in cooking surface with a slide-in).....	8	68.1	8.0	180.9	15.1
36312 24	Hot plates.....	3	-	-	-	-
36312 98	All other domestic cooking appliances (except electric) (kerosene ranges, coal and wood ranges, coal and wood cook stoves, kerosene ranges, etc.).....	16	92.9	13.2	117.5	16.9
36321 00	Household refrigerators, including combination refrigerator-freezers, total.....	(X)	4,410.5	1,119.7	5,707.2	1,249.2
	Complete units:					
36321 07	6-6 cubic feet and under.....	4	31.7	4.7	20.1	3.1
36321 08	6.5 to 8.4 cubic feet.....	2	-	-	-	-
36321 15	8.5 to 9.4 cubic feet.....	1	-	-	-	-
36321 16	9.5 to 10.4 cubic feet.....	4	99.4	12.7	95.0	10.0
36321 17	10.5 to 11.4 cubic feet.....	1	-	-	-	-
36321 21	11.5 to 12.4 cubic feet.....	6	604.1	90.7	855.5	112.1
36321 22	12.5 to 13.4 cubic feet.....	4	-	-	-	-
36321 27	13.5 to 14.4 cubic feet.....	6	764.4	144.2	1,087.9	178.9
36321 13	14.5 to 15.4 cubic feet.....	6	262.2	80.2	466.8	91.3
36321 36	15.5 to 16.4 cubic feet.....	7	181.2	87.3	553.6	111.6
36321 42	16.5 to 17.4 cubic feet.....	9	692.8	173.7	710.9	158.3
36321 44	17.5 to 18.4 cubic feet.....	8	204.4	52.6	314.8	70.0
36321 46	18.5 to 19.4 cubic feet.....	7	518.9	157.0	597.5	164.4
36321 48	19.5 cubic feet and over.....	10	410.6	304.1	-	-
36321 61	Range-refrigerator and/or sink combination.....	5	38.6	12.5	1,005.1	349.5

See footnotes at end of table

Table 2.--QUANTITY AND VALUE OF SHIPMENTS FOR MAJOR HOUSEHOLD APPLIANCES: 1975 AND 1974--Continued

Product code	Item	Number of companies	1975		1974	
			Quantity (1,000 units)	Value (million dollars)	Quantity (1,000 units)	Value (million dollars)
MAJOR HOUSEHOLD APPLIANCES--Continued						
3632200	Home and farm freezers, total.....	(X)	2,455.6	430.0	3,060.8	466.7
3632213	8.4 cubic feet and under.....	7	205.2	25.5	265.2	78.7
3632216	8.5 to 10.4 cubic feet.....	6	188.4	26.3	195.8	22.9
3632219	10.5 to 12.4 cubic feet.....	4	148.6	22.6	206.2	27.5
	12.5 to 14.4 cubic feet:					
3632221	Upright type.....	6	62.6	10.3	91.1	12.6
3632222	Chest type.....	-	-	-		
	14.5 to 15.4 cubic feet:					
3632226	Upright type.....	3	488.3	83.1	400.9	67.0
3632225	Chest type.....	5			262.8	34.1
	15.5 to 17.4 cubic feet:					
3632227	Upright type.....	8	373.5	69.3	692.5	103.5
3632228	Chest type.....	1				
	17.5 to 19.4 cubic feet:					
3632231	Upright type.....	5	202.3	42.3	189.8	34.1
3632232	Chest type.....	1				
	19.5 to 21.4 cubic feet:					
3632234	Upright type.....	6	356.8	67.5	478.7	81.1
3632235	Chest type.....	3				
	21.5 to 23.4 cubic feet:					
3632241	Upright type.....	1	249.6	51.4	238.6	45.0
3632243	Chest type.....	3				
	23.5 cubic feet and over:					
3632245	Upright type.....	3	180.5	31.7	59.2	10.2
3632247	Chest type.....	5				
3633100	Household washing machines, dryers, and washer-dryer combination, total.....	(X)	6,876.5	1,060.7	8,427.2	1,142.3
	Washing machines, including those with dishwasher attachments:					
	Standard size, electrically driven:					
3633131	Fully automatic, and semiautomatic (excluding coin-operated).....	8	3,896.7	676.7	4,615.8	708.6
3633136	Nonautomatic, wringer-type, and spinner-type.....	4	226.4	31.7	278.6	34.7
3633139	All other, including gasoline-driven and small size.....	3				
	Dryers:					
3633151	Gas.....	8	(¹)	(¹)	(¹)	(¹)
3633155	Electric.....	10	2,081.4	249.2	2,735.5	288.8
	Washer-dryer combinations (in one cabinet):					
3633181	Electric.....	1	1,672.0	103.1	1,797.3	110.2
3633185	Gas.....	-				
3639100	Water heaters, electric, total.....	(X)	2,462.7	142.8	2,569.4	147.2
	Storage type:					
3639111	34 gallons and under.....	11	764.9	37.9	931.9	50.7
3639112	35 to 44 gallons.....	13	522.9	33.5	646.9	36.6
3639114	45 to 54 gallons.....	10	458.5	46.3	730.9	44.7
3639115	55 gallons and over.....	11	183.4	21.2	220.5	21.4
3639198	Other types, including circulating and portable storage.....	3	33.0	3.9	19.2	3.8
3639200	Water heaters (except electric), total.....	(X)	1,220.3	199.9	3,011.3	172.0
	Direct fired water heaters:					
3639212	Gas.....	10	3,154.3	191.0	2,955.4	164.6
3639224	Oil.....	7	32.0	6.7	26.7	5.2
3639212	Cool or wood tank heaters.....	-	-	-	-	-
	Indirect water heaters:					
3639242	Storage, cast or coil type (less tank).....	2	34.0	2.2	29.2	2.2
3639251	Tanks (with or without generator coils).....	2				
3639253	Generator coils with tank collar.....	1				
3639255	Instantaneous.....	3				

See footnotes at end of table.

Table 2.--QUANTITY AND VALUE OF SHIPMENTS OF MAJOR HOUSEHOLD APPLIANCES: 1975 AND 1974--Continued

Product code	Item	Number of companies	1975		1974	
			Quantity (1,000 units)	Value (million dollars)	Quantity (1,000 units)	Value (million dollars)
	MAJOR HOUSEHOLD APPLIANCES--Continued					
36394 00	Dishwashing machines, food waste disposers, and household trash compactors.....	(X)	4,651.8	482.6	5,968.5	550.4
	Dishwashing machines:					
36394 12	Portable type, including convertibles type.....	9	737.7	116.8	652.0	131.5
36394 14	Built-in type.....	10	1,725.6	260.5	2,250.4	291.8
36394 71	Food waste disposers (all sizes, of the electro-mechanical, comminutor type, operating in conjunction with household plumbing systems of the type generally used in residences.....	9	1,868.1	62.3	2,391.6	89.3
36394 72	Household trash compactors.....	8	320.4	43.0	474.5	57.8
36399 pt	Other household type appliances and parts.....	(X)	657.1	18.4	759.8	19.7
36399 63	Floor sanding and polishing machines (for household use only).....	5	657.1	18.4	759.8	19.7

- Represents zero.

- Revised by 5 percent or more from previously published figures.

(X) Not applicable.

Figures for "Dryers: gas" are included with "Washer-dryer combinations (in one cabinet)."

Table 3.--MAJOR HOUSEHOLD APPLIANCES--SHIPMENTS AND EXPORTS FOR SELECTED PRODUCTS: 1975 AND 1974

(Manufacturers' shipments represent quantity and value (f.o.b. plant) of physical shipments, including interplant transfers, from establishments during each year. Export values are values at seaport, border point, or airport of exportation; they are based on selling price, including freight, insurance, and other charges to the port of exportation. Because manufacturers' shipments of certain products may be used as materials for incorporation into other products, it may not be valid to compare exports with shipments for combinations of product groups. See "Limitations on the Comparison of Export, Import, and Output Data.")

Product code ¹	Product	Manufacturers' shipments		Exports of domestic merchandise ²		Percent exports to manufacturers' shipments	
		Quantity (1,000 units)	Value f.o.b. plant (million dollars)	Quantity (1,000 units)	Value at port (million dollars)	Quantity	Value
1975							
36311 11, 21, 24, 26, 32, 34, 36, 53, 55, 61, 65, 72, 73, 74, 80	Electric home-type ranges, parts, and accessories.	(X)	636.3	(X1)	15.0	(NA)	2.3
36312 11, 13, 15, 17, 19, 21, 23, 24, 98 ³	Domestic cooking appliances (except electric).....	(X)	259.6	81.7	9.9	(X1)	3.5
36321 07, 08, 15, 16, 17, 21, 22, 27, 33, 36, 42, 44, 46, 48	Household refrigerators, including combination refrigerator-freezers (excluding range-refrigerator and/or sink combinations).....	4,410.5	1,119.7	226.9	72.6	5.1	6.4
36322 13, 16, 19, 21, 22, 24, 25, 27, 28, 31, 32, 34, 35, 41, 43, 45, 47	Home and farm freezers.....	2,455.6	430.0	30.4	8.5	1.2	2.3
36331 31, 36, 39, 51, 55, 61, 85	Household mechanical washing machines, dryers and washer-dryer combinations.....	8,876.5	1,060.7	(NA)	136.9	(NA1)	3.5
36391 11-15, 98	Water heaters, electric.....	2,462.7	142.8	(NA)	4.3	(NA1)	3.0
36392 12, 24, 32, 42, 51, 53, 55	Water heaters (except electric).....	(X)	199.9	(NA)	111.2	(NA1)	5.6
36394 12, 14	Dishwashing machines, portable and built-in.....	4,651.8	482.6	176.2	30.0	3.7	6.2
36399 83	Floor waxing and polishing machines (for household use only).....	657.1	18.4	82.9	3.7	12.6	20.1
1974							
36311 11, 21, 24, 26, 32, 34, 36, 53, 55, 61, 65, 72, 73, 74, 80	Electric home-type ranges, parts, and accessories.	(X1)	705.8	(X)	11.6	(NA)	1.6
36312 11, 13, 15, 17, 19, 21, 23, 24, 98 ³	Domestic cooking appliances (except electric).....	(X1)	266.3	80.4	7.9	(X1)	2.9
36321 07, 08, 15, 16, 17, 21, 22, 27, 33, 36, 42, 44, 46, 48	Household refrigerators, including combination refrigerator-freezers (excluding range-refrigerator and/or sink combinations).....	5,707.2	1,249.2	343.1	84.8	6.0	6.7
36322 13, 16, 19, 21, 22, 24, 25, 27, 28, 31, 32, 34, 35, 41, 43, 45, 47	Home and farm freezers.....	3,060.8	466.7	28.3	6.6	0.9	1.6
36331 31, 36, 39, 51, 55, 61, 85	Household mechanical washing machines, dryers, and washer-dryer combinations.....	8,427.2	1,142.3	(NA1)	121.9	(NA)	1.9
36391 11-15, 98	Water heaters, electric.....	2,569.4	147.2	(NA)	47.8	(NA1)	5.2
36392 12, 24, 32, 42, 51, 53, 55	Water heaters (except electric).....	(X1)	172.0	(NA)	112.8	(NA1)	7.4
36394 12, 14	Dishwashing machines, portable and built-in.....	5,968.5	550.4	338.1	34.0	6.0	6.2
36399 83	Floor waxing and polishing machines (for household use only).....	759.8	19.7	63.8	2.4	8.3	12.1

Note: Comparable data for imports of major household appliances are not available separately.

(NA) Not available. (X) Not applicable.

¹Comparison of Standard Industrial Classification base-codes and Schedule B numbers is as follows:

Product code	Product	Schedule B Export Numbers
36311 11, 21, 24, 26, 32, 34, 36, 53, 55, 61, 65, 71, 79, 81	Electric home-type ranges, parts and accessories	725.05 05, 1
36312 11, 13, 15, 17, 19, 21, 23, 24, 98	Domestic cooking appliances (except electric).....	697.10 30, 40
36321 07, 08, 15, 16, 17, 21, 22, 27, 33, 36, 42, 44, 46, 48	Household refrigerators, including combination refrigerator-freezers.....	725.01 10
36322 13, 16, 19, 21, 22, 24, 25, 27, 28, 31, 32, 34, 35, 41, 43, 45, 47	Home and farm freezers.....	725.01 20
36331 31, 36, 39, 51, 55, 61, 85	Household mechanical washing machines, dryers and washer-dryer combinations.....	725.02 10, 30, 40
36391 11-15, 98	Water heaters, electric.....	717.15 60, 85
36392 12, 24, 32, 42, 51, 53, 55	Water heaters (except electric).....	725.03 45
36394 12, 14	Dishwashing machines, portable and built-in.....	719.43 10, 20
36399 83	Floor waxing and polishing machines.....	718.62 45
		725.03 30

²Source: Bureau of the Census Report PT-10, U.S. Exports--Schedule B Commodity by Country. ³Includes parts for non-electric household type washers. ⁴Includes value of parts. ⁵Includes parts for domestic water heaters.

LIMITATIONS ON THE COMPARISON OF EXPORT, IMPORT, AND DOMESTIC OUTPUT DATA

Generally, it is somewhat easier to find a reasonable statistical basis for a comparison of exports with domestic output than for a comparison of imports with domestic output. Aside from the differences in the basic commodity classifications used, there are a substantial number of imported commodities which are not produced in the United States or are produced in very small quantities. On the other hand, the merchandise exported from the United States is ordinarily produced in this country and reflects items important in output.

There are other problems affecting the comparability of the three sets of data. Differences in methods of valuation is perhaps the principal such problem. There may be elements of duplication in output data but not in imports or exports; low-value transactions are excluded from data for individual export and import commodity classifications; and a small portion of manufacturing output is not allocated to detailed commodity lines. All of these factors affect comparability to some degree. For these reasons the relationships shown in this report should be considered as only approximations.

(a) **Valuation**—Domestic producers' shipments, or production, are usually valued at the point of production—the factory, mine, or farm.

On the other hand, exports are by definition valued at the point of exportation—seaport, border point, or airport. Export values are the selling price, or cost if not sold, and include expenditures for freight, insurance, and other charges to the export point.

Further, the exporters' trade margin above costs increases the export values compared with producers' values. Information on the magnitude of this incremental margin on a commodity-by-commodity basis is not available.

The dollar value shown for imports in the basic statistics is defined ordinarily as the market value in the foreign country and excludes U.S. import duties, transportation, insurance, and other costs. In actual practice only the values reported for imports subject to an ad valorem rate of duty (accounting for 10 to 15 percent of total imports) tend to conform to this definition. For other imports, the reported values may inadvertently include ocean freight; intracompany shipments may reflect arbitrary values, etc.

Thus, import values tend to understate the unit prices at which imported goods are sold in the U.S. market, in that they do not cover transportation, insurance costs, import duties, and other costs. By the same token, the total value of imports relative to domestic output tends to be understated if viewed at the point of entry into the U.S. market. The calculated value of import duties is shown separately for each

commodity line in the table, but sufficient information is not available on the transportation, insurance, and other costs for individual commodities for those costs to be shown in this report.

(b) **Duplication in Quantity and Value of Output**—Because producers' shipments of some commodities may be used as materials for incorporation into other commodities, combinations of data for such commodities may contain a certain amount of duplication. Thus, percentages of exports to output or imports to apparent consumption (output plus imports minus exports) at 4-digit or broader levels may be understated.

Where the duplication is known to be substantial, the output data are appropriately noted in the table.

(c) **Low-Value Export and Import Transactions**—Commodity information is not shown for individual imports valued under \$251. For exports, commodity information is not reported for shipments individually valued under \$251 effective October 1969 and for shipments valued under \$100 prior to October 1969. This is believed to have only negligible effect on the statistics for the bulk of the commodities.

(d) **Manufacturers' Shipments, Not Specified by Kind**—The value of manufacturers' shipments at the 4-digit commodity level often includes a small amount which is not distributed among the individual 5-digit product classes. Export and import percentages at the more detailed levels might thus be slightly overstated.

(e) **Time Lag Between Output and Exports**—There will sometimes be a lag between the time a commodity is produced or shipped by the producer and the time it is actually exported. The time lag will usually be greater if the merchandise moves through intermediaries (wholesalers, exporters) rather than directly from producers into the export market. Ordinarily, this type of discrepancy would not be very important in annual figures.

(f) **"Direct" vs "Total" Commodity Exports**—The commodity export data in this report represent direct exports of those commodities. They do not include the exports of the commodities which are incorporated into other, more finished products and exported in finished form. Thus, by showing only direct exports, the relation of exports to output for intermediate products, such as steel shapes and forms, is considerably understated. The figure for steel exported as such, does not include steel incorporated in automobiles, tractors, etc., which are also exported.

(g) **Used Commodities**—With a few exceptions, used or rebuilt commodities are classified in the same import or export codes as is new merchandise. Percentages are thus overstated to the extent that used or rebuilt products are significant in trade.

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