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DATA COLLECTION METHODOLOGY
FOR THE AMERICAN CUSTOMER SATISFACTION INDEX (ASCI)
FOR THE
INTERNATIONAL CONFERENCE ON
SURVEY MEASUREMENT AND PROCESS QUALITY
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Figure 1: Welcome to the American Customer Satisfaction Index

The American Customer Satisfaction Index (ACSI)

The American Customer Satisfaction Index, ACSI, is a cross-industry measure of customer satisfaction with the quality of goods and services available to household consumers in the United States.

Figure 2: ACSI: What Is It?

Introduced in 1994 as a new economic indicator, it uses the econometric model developed for the Swedish Customer Satisfaction Barometer, SCSB, which was initiated in Sweden in 1989 and is now in its seventh year. The modeling methodology for both the Swedish and U.S. indices were developed at the University of Michigan's National Quality Research Center by a faculty group headed by Dr. Claes Fornell.¹

The United States is the third country to have a national index of customer satisfaction with quality. The second was Germany where the Deutsche Kundenbarometer, or DK, was introduced in 1992. As of 1994, the SCSB and DK each measured the satisfaction of customers of 31 industries.

¹ Fornell, Claes (1992), "A National Customer Satisfaction Barometer: The Swedish Experience," *Journal of Marketing*, 56 (January), 6-21.

The ACSI measures satisfaction with 200 companies and government agencies in 40 industries and seven sectors of the economy.

Figure 3: ACSI Coverage

Figure 4: ACSI: National Economy--Sectors and Industries

Measures made at the individual customer level are accumulated to form the company index for each of the 200 measured companies. Each industry index is cumulated from the indices of companies within it, weighted by each company's contribution to sales in the industry. Similarly, at the level of each of the seven sectors, industry indices are accumulated, weighted by sales. The seven sector indices are combined into the national index, or ACSI, weighted by sector contributions to the Gross Domestic Product (GDP).

Why the Need for National Customer Satisfaction Indices

Figure 5: Some Important Economic Indicators and a NEW One!

As the U.S. economy has shifted from predominantly agriculture, to predominantly manufacturing, and now to a mix of agriculture, manufacturing, services and information, economic measurement has not kept pace. In the United States, government economic indicators report price and quantity, or some combination of these: Consumer Price Index, Gross Domestic Product, employment/unemployment, number of units or quantities of production, productivity and so forth. Consumer confidence and buying intentions are measured by the academic and private sectors--the University of Michigan's Index of Consumer Sentiment and the Conference Board's Index of Consumer Confidence. But--until the advent of the ACSI--there was no measure of consumers' judgments of the quality of the goods and services they purchase. If individual companies and a nation are to remain competitive, they must hold the loyalty of their customers by satisfying them. Thus there is need to measure quality and satisfaction, as perceived by those who are the best judges of these--the customers.

The Model and the Questions

The ACSI and the Swedish Customer Satisfaction Barometer both use a multi-equation econometric model using partial least squares (PLS) to

estimate the company, industry, sector, and national indices.² The model links the antecedents of satisfaction with satisfaction.

Figure 6: ACSI Model

Satisfaction is linked, in turn, to post-satisfaction behaviors. The model is an interactive one which maximizes the strength of the impact of customer satisfaction on customer loyalty. The foci of the ACSI and the SCSB are on cumulative satisfaction with the products and services of specific companies/agencies rather than on a single transaction experience.

The model requires survey data as input. Multiple questions measure customer expectations prior to experience with a good or service. Similarly, customer post-purchase perceptions of quality and perceptions of value are based on multiple questions. Satisfaction--the ACSI--is measured, not by a single question, but by the combination of a battery of three: Overall satisfaction, confirmation or disconfirmation of expectations, and a comparison of the good or service to a perceived ideal.

² National Quality Research Center, University of Michigan (1994), *American Customer Satisfaction Index: Methodology Report* (Milwaukee: American Society for Quality Control).

Figure 7: The Questions

Respondents answer questions on 10-point scales. Since customer satisfaction is typically skewed in a positive direction, use of 10-point scales spreads the response distributions more than a 4 or 5-point scale does, and thus captures more information. Use of multiple measures of the latent variables--the unmeasurable variables shown in circles on the model--of customer expectations, perceived quality, perceived value, and customer loyalty reduces overall variance and thus permits use of smaller sample sizes. Customer loyalty is composed of two components--repurchase intention, which is transformed to customer retention, and price tolerance. The combined 10-point scale measures are combined into 0-100 indices for each of the latent variables.

Customer complaints are measured with a "yes" or "no" response, and then identified as being either formal, that is, phoned or written complaints, or merely verbal ones.

The Respondents and The Challenge of Maintaining Representative

Samples

Because the ACSI is based on overall experience with the products and services of specific companies and agencies, only those with actual purchase and use experience are eligible for interview. The recency of purchase and use varies by industry--from having a current account or policy in one's own name for banking and insurance, to having read in the past week for newspapers, purchasing in time periods of one, three, six months or a year for various categories of non-durables and services, to purchase in the past three years for durables.

The mode of interview is computer-assisted-telephone-interviewing (CATI) because of the complexity of screening to customers, the need to identify hundreds of brand and outlet names, and for economy on the scale of interviewing required.

Figure 8: The Respondents

The challenge, however, is to maintain representative national samples of customers (purchasers/users) across 200 companies, 400 industries and seven sectors. Market Strategies, Inc., which handled both the sampling and data collection in 1994 and is doing so now in the ACSI's second year, developed some very innovative methods for meeting these challenges.

Figure 9: Replicate Samples

The ACSI methodology uses national samples generated by the GENESYS random digit dial (RDD) system which employs an epsem (equal probability of selection methodology) in creating the RDD. Continental U.S. samples were constructed, randomized, and broken into 48 replicates. A replicate is formed by randomly assigning a replicate number to each sample piece. Each replicate is considered to be a smaller version of the entire sample pool. These replicates were an important management tool in insuring the representativeness of the final data for each sector, industry, and individual company.

Because there were 40 different industries with forty different questionnaires, the concern was how to adequately represent purchase behavior and minimize respondent attrition. The solution was to rank the 40 industries based on overall market incidence, and then by market share of the companies being measured within each industry.

Figure 10: Company and Brand Incidence for ACSI

Each respondent was screened for having purchased and used products in up to 10 industries and could answer the complete interview for up to three different products. There was a fixed sample size for each company.

Screening started at the lowest incidence company that was open and continued on to the next until a respondent had completed the interviews for which he/she qualified as a customer. The average was 1.8 products per respondent.

Several of the industries contained companies that were regionally based and not national--e.g., electric utilities, local telephone service, and banks. For these, screening was conducted initially using the national RDD,

but for the completion of company quotas more regionalized RDD was developed. This insured that there was no regional bias associated with the purchase behavior of the national products that the same respondents could also be interviewed about.

Figure 11: Sample Comparisons-1

Figure 12: Sample Comparisons-2

The biggest challenge was to develop a data collection methodology that maximized respondent recall and minimized instrument bias. While the ultimate goal was to measure satisfaction with the products or services of a company, customers are often unaware of the company that makes the products they buy and use. For instance, the average customer does not know that Hanes underwear is produced by Sara Lee Corporation or that Oil of Olay is manufactured by Proctor and Gamble.

Responding to this challenge required building brand dictionaries across all of the 200 companies being measured. In total, over 13,000 brand

names were aggregated to 3,914 brands and mapped back to their parent companies. Respondents qualified themselves as customers by telling the brand name they purchased. "Pop-up screens" in the CATI system allowed interviewers to enter the brand name and have that identify the respondent as the customer of a measured company and thus qualified for the interview. The brand name was recalled back into the questions in the CATI program so that the respondent was answering by the brand and product and not the company directly.

Figure 13: Brand Extension of Company Products

1994 ACSI Results

The first national American Customer Satisfaction Index, reported in October 1994, was 74.5 on a 0-100 scale. It dropped very slightly to 74.2 in the 4th quarter 1994 update. First quarter results for 1995 will be released in mid-May.

Figure 14: 1994 ACSI=74.5

As a one-point-in-time measure, what does this mean? For comparison, we can say that it is higher than the SCSB measured in the same way and released in the same week which showed 63.0. The German barometer using somewhat different methodology translates to approximately 61.3.³ Why the differences? One reason is that there are more public and government agencies in the mix of companies/agencies in both the Swedish and German barometers. Satisfaction is lower in public sector industries in all three national indices.

Figure 15: Manufacturing, Service, Public Sector ACSIs

A second reason may be that customers in the U.S. are more satisfied because they have a wider variety of choices of products and services. The third reason may be that many of these products and services are available at prices which are proportionately less, compared to incomes, than those in the two European countries.

³The DK uses a single 5-point scale to measure customer satisfaction which ranges from 1 (completely satisfied) to 5 (dissatisfied). The 61.3 represent a translation of this average 5-point scale rating to a 0-100 satisfaction scale.

What the first ACSI does show is that there is great variety in satisfaction with what is provided by the companies and agencies measured. The range for individual companies is 55 to 90. The seven sectors show these ranges:

Figure 16: Sector ACSIs

There are dramatic score ranges within a number of industries which point to who the winners and losers will be in retaining customers.

Figure 17: ACSI RANGE 1994 Selected Industries

Finally, one of the best demonstrations of whether customer satisfaction matters, is illustrated by ACSI scores compared to customer complaints.

Figure 18 : CUSTOMER COMPLAINTS VS ACSI

In general, as satisfaction increases, complaints go down--the expected direction. Most of the outliers have credible explanations. Two industries with relatively high satisfaction scores also have high levels of complaints: Automobiles, where there are more things which can go wrong with the product or service, and Express Delivery, where--by guaranteeing delivery within tight time deadlines--the industry has actually encouraged complaints of late or non-delivery. On the other end of the scale, the U.S. Postal Service gets a high volume of complaints from customers who are definitely not satisfied.

This has been a brief introduction to a new economic indicator for the United States--an indicator which measures what has not been measured before, satisfaction with quality by the only persons who are its ultimate judges--the buyers and users. The survey challenge in startup of such an indicator was to design a cost effective way to identify actual customers within probability samples of telephone households in the United States; link the brands they use to the companies which produce those brands; and then to maintain representative, national samples of completed interviews--or, for some companies, regional samples--for each of the 200 companies.

**DATA COLLECTION
METHODOLOGY FOR THE
AMERICAN CUSTOMER
SATISFACTION INDEX**

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Anne Sullivan Marsden
Market Strategies, Inc.



American Customer
Satisfaction Index™

Welcome to the American Customer Satisfaction Index (ACSI)



ACSI is co-sponsored by ASQC and the
University of Michigan School of Business
Administration



ACSI: What Is It?

- A tested method; used in Sweden since 1989
- A quarterly index of customer satisfaction
- A nationwide, multi-industry scale encompassing seven economic sectors
- Independent and uniform
- Represents U.S. economy



American Customer
Satisfaction Index™

ACSI Coverage

- 7 sectors
- 40 industries
- 200+ companies and agencies
- \$2.7 trillion sales (U.S. companies)



American Customer Satisfaction Index™

ACSI: National Economy— Sectors and Industries

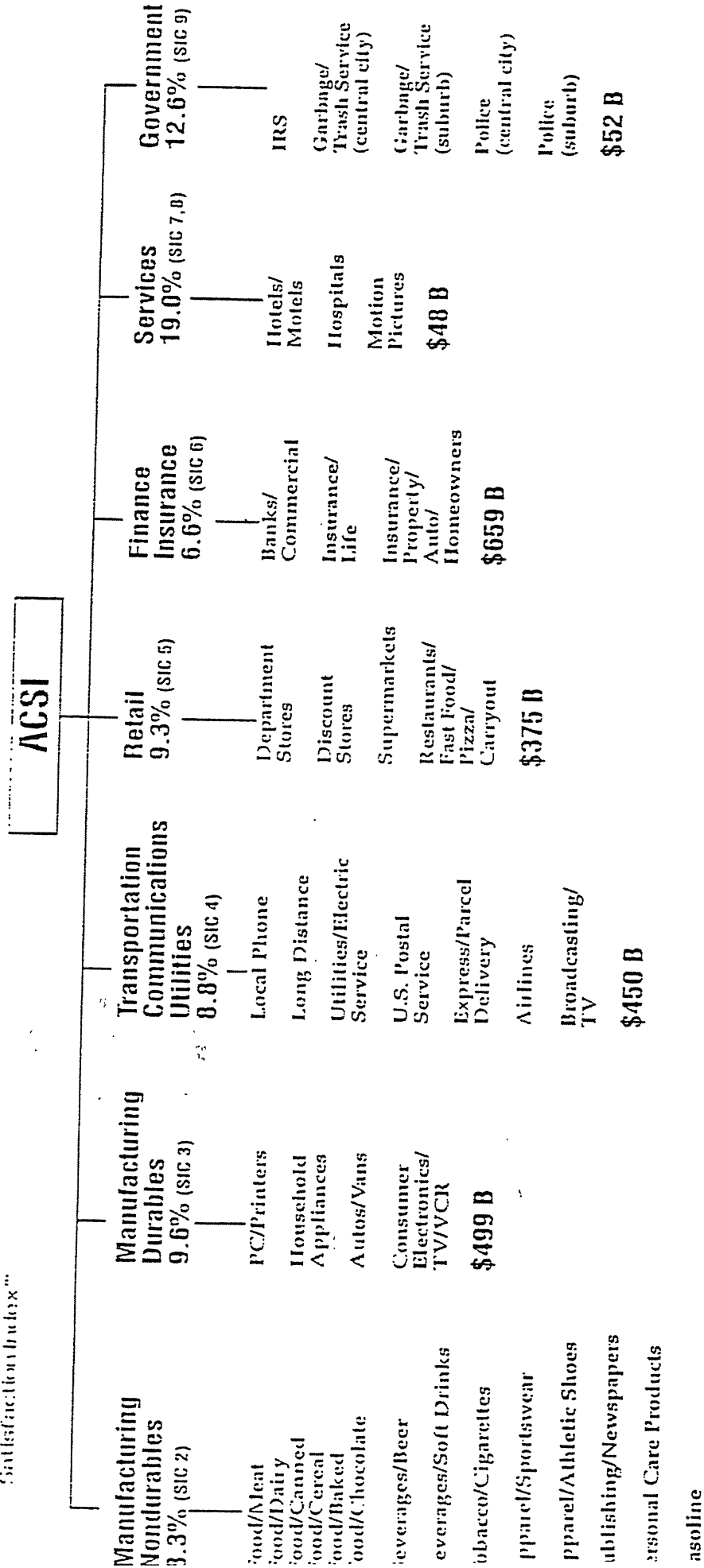
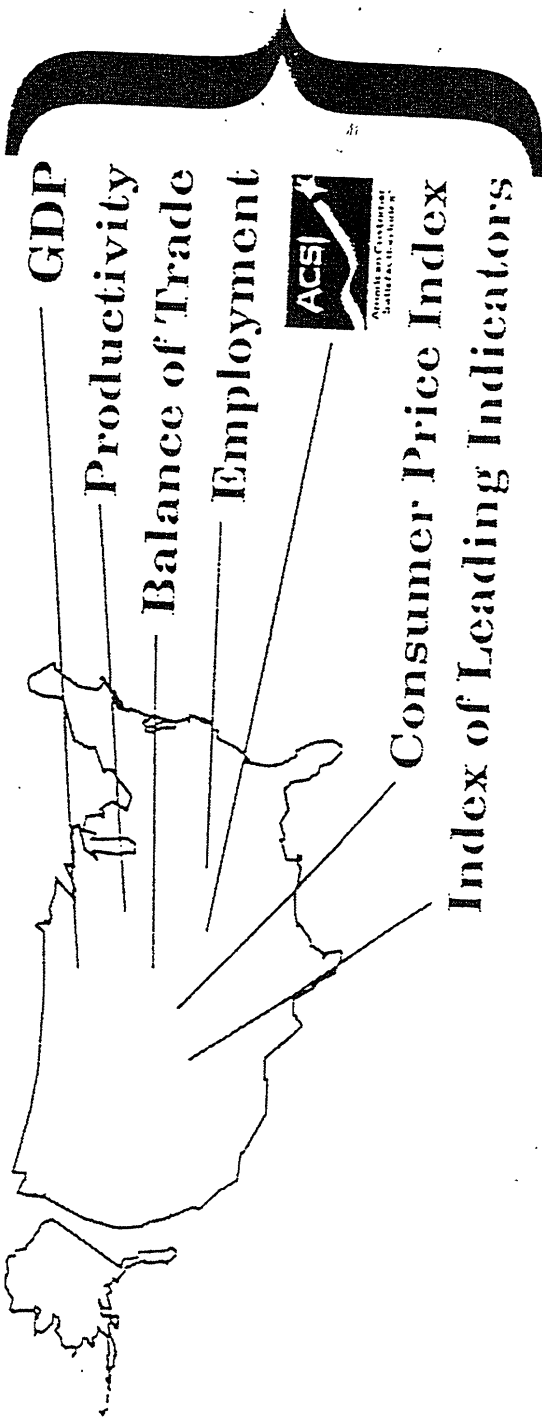


Figure 4



American Customer Satisfaction Index™

Some Important Economic Indicators and a NEW One!



ACSI Model

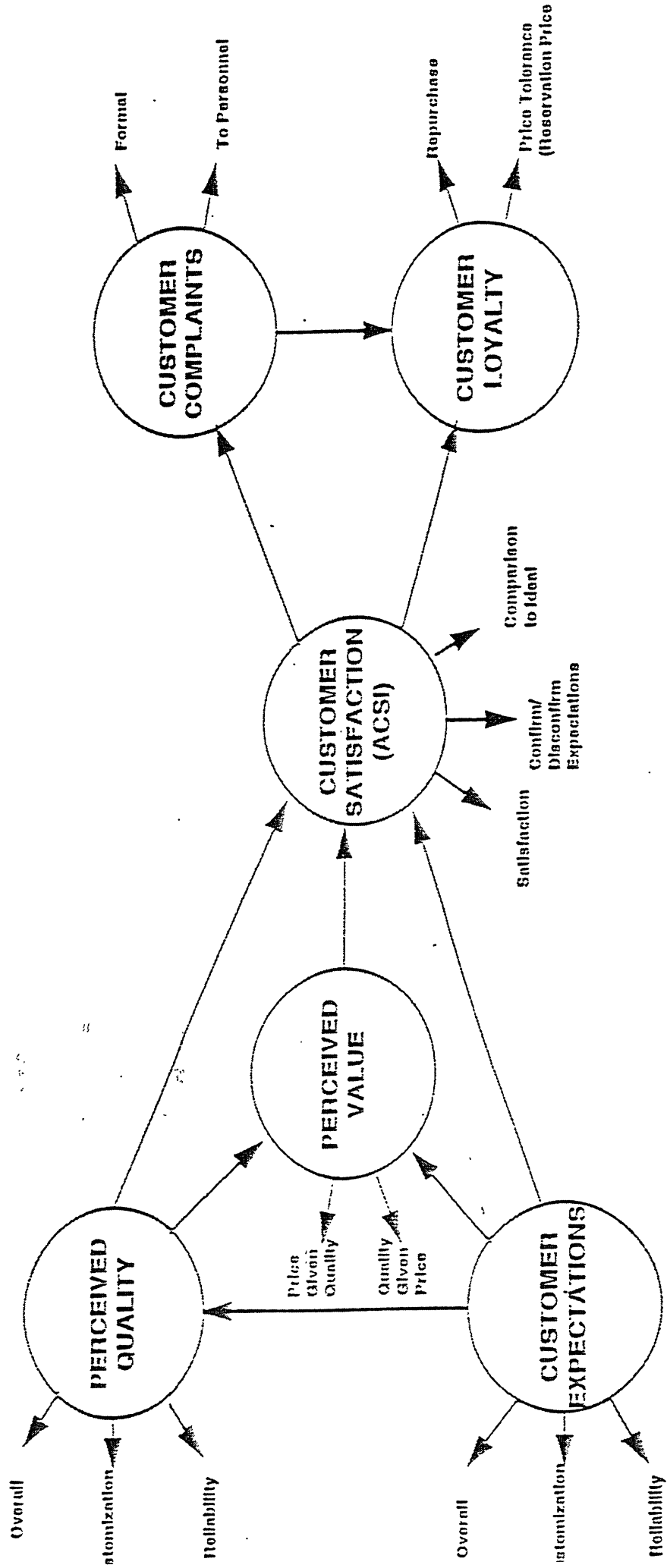


Figure 6



American Customer
Satisfaction Index™

The Questions

- Customer expectations
- Quality
- Value
- Customer satisfaction
- Customer loyalty
- Customer complaints



The Respondents

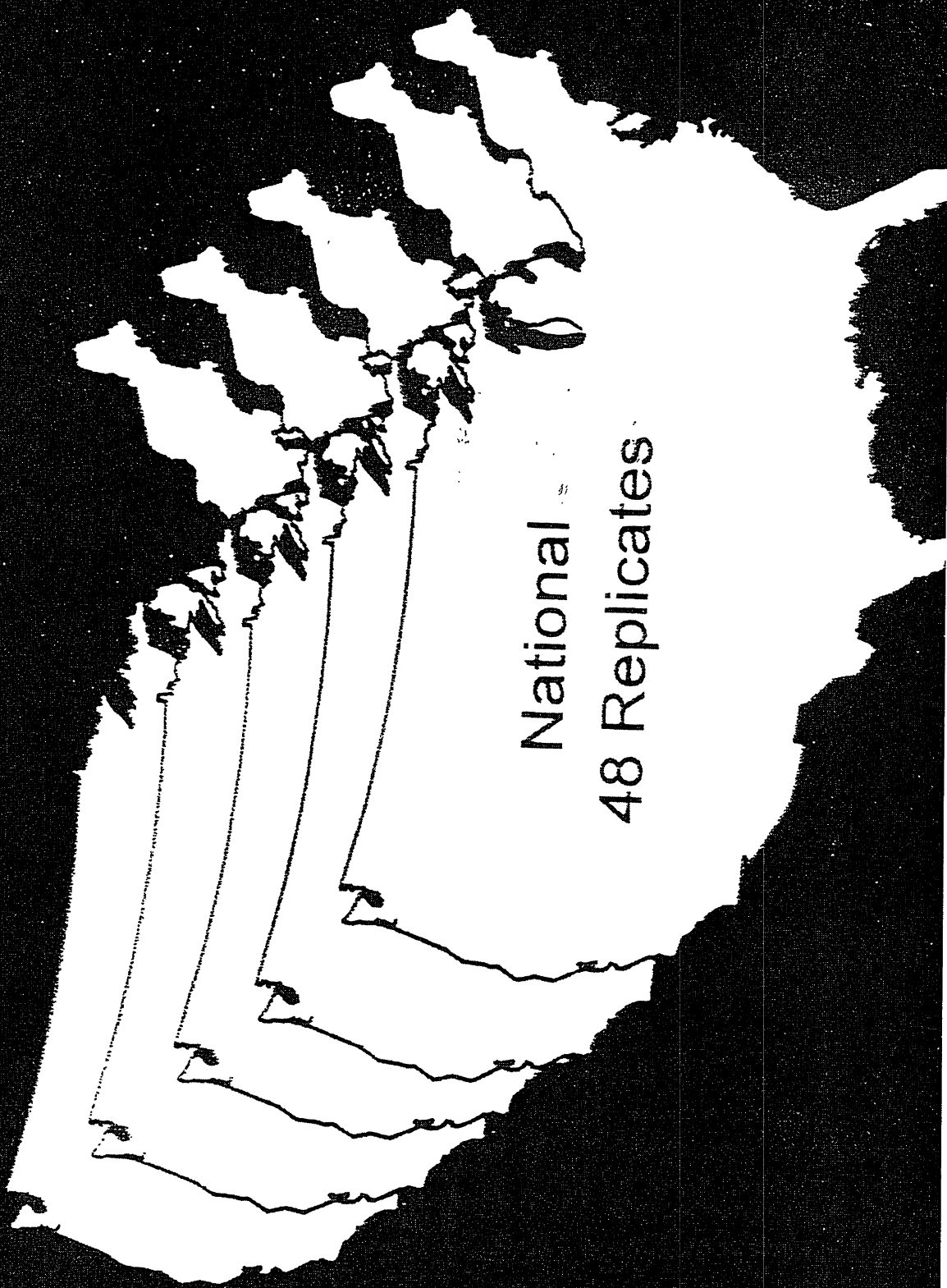
210,706 telephone numbers
sampled randomly

Screened: Recent experience
as a customer of the selected
companies

45,906 interviews



RANDOM DIGIT DIAL METHODOLOGY



National
48 Replicates

COMPANY AND BRAND INCIDENCE FOR ACSI

EXAMPLE: Computer Equipment

Overall Incidence = 30%

<u>Brand Name</u>	<u>Company Name</u>	<u>Market Share</u>
Compaq Deskpro	Compaq	2.6
Compaq LTE	Compaq	2.6
Compaq Portable	Compaq	2.6
Compaq SLT	Compaq	2.6
Apple II	Apple	4.6
Macintosh	Apple	4.6
Apple II	Apple	4.6
laserwriter Plus	Apple	4.6
110	Hewlett-Packard	10.9
Vectra LS	Hewlett-Packard	10.9
laserwriter C	Hewlett-Packard	10.9
inkjet	Hewlett-Packard	10.9
JR	International Business Machines	41.0
anut	International Business Machines	41.0
pprinter	International Business Machines	41.0
laserwriter	International Business Machines	41.0

ACSI ★

SAMPLE COMPARISONS

ACSI CUSTOMERS

1990 Census
Age 18-84

Baseline 1994 4th Qtr Update

45,906 12,230 181,366,000

n

Age

18-34
35-54
55-64

%

%

%

30
40
30

32
40
28

38
35
28

Race/Ethnic

White
Black
American Indian
Asian
Other
Hispanic (any race)

%

%

%

87
7
1
2
3
5

86
8
1
2
3
5

82
11
1
3
3
8

SAMPLE COMPARISONS CUSTOMER SAMPLE SKEWS ON SEX AND EDUCATION

ACSI CUSTOMERS

1990 Census
Age 18-84

Baseline 1994 4th Qtr Update

SEX

Male

Female

	%	%	
Male	37	38	48
Female	63	62	52

Education

Less Than High School

High School Graduate

Some College

College Graduate

Post Graduate

	%	%	
Less Than High School	6	7	25
High School Graduate	30	30	30
Some College	30	31	25
College Graduate	22	21	13
Post Graduate	12	11	7

Median HH Income

\$35,030

\$37,260

\$30,056

ACSI



BRAND EXTENSION OF COMPANY PRODUCTS

EXAMPLE: Food Processing - Cold Meats, Franks, Poultry

Brand Name

Armour
Eckrich
Golden Star Turkey
Hebrew National
Butcher's Best Poultry
Flyers Chicken
Holly Farms Bologna
Louis Kemp
Ball Park Franks
Hillshire Sausage
Jimmy Dean Sausage
Little Sausages
Big & Juicy Frankfurters
Louis Rich
Oscar Mayer
Select-A-Size Lunchmeat

Company Name

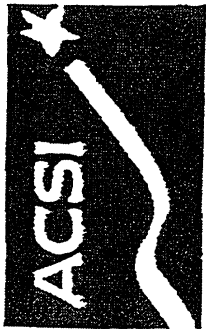
ConAgra
ConAgra
ConAgra
ConAgra
Tyson Food
Tyson Food
Tyson Food
Tyson Food
Sara Lee
Sara Lee
Sara Lee
Sara Lee
Kraft
Kraft
Kraft
Kraft



American Customer
Satisfaction Index™

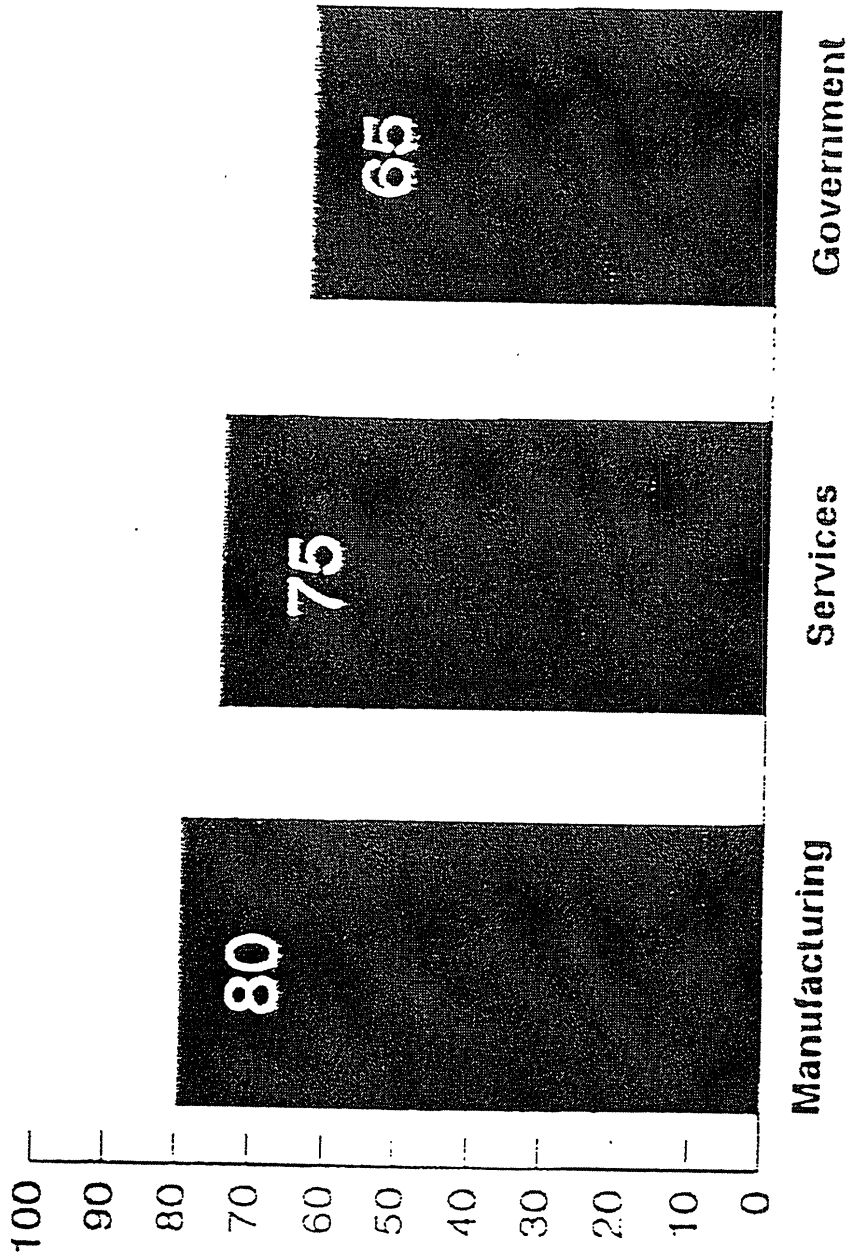
1994 ACSI = 74.5

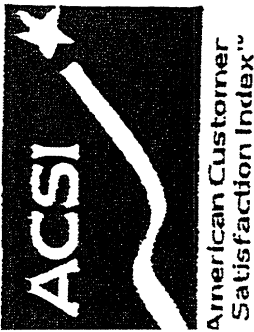
What Does This Mean?



American Customer Satisfaction Index™

ACSI



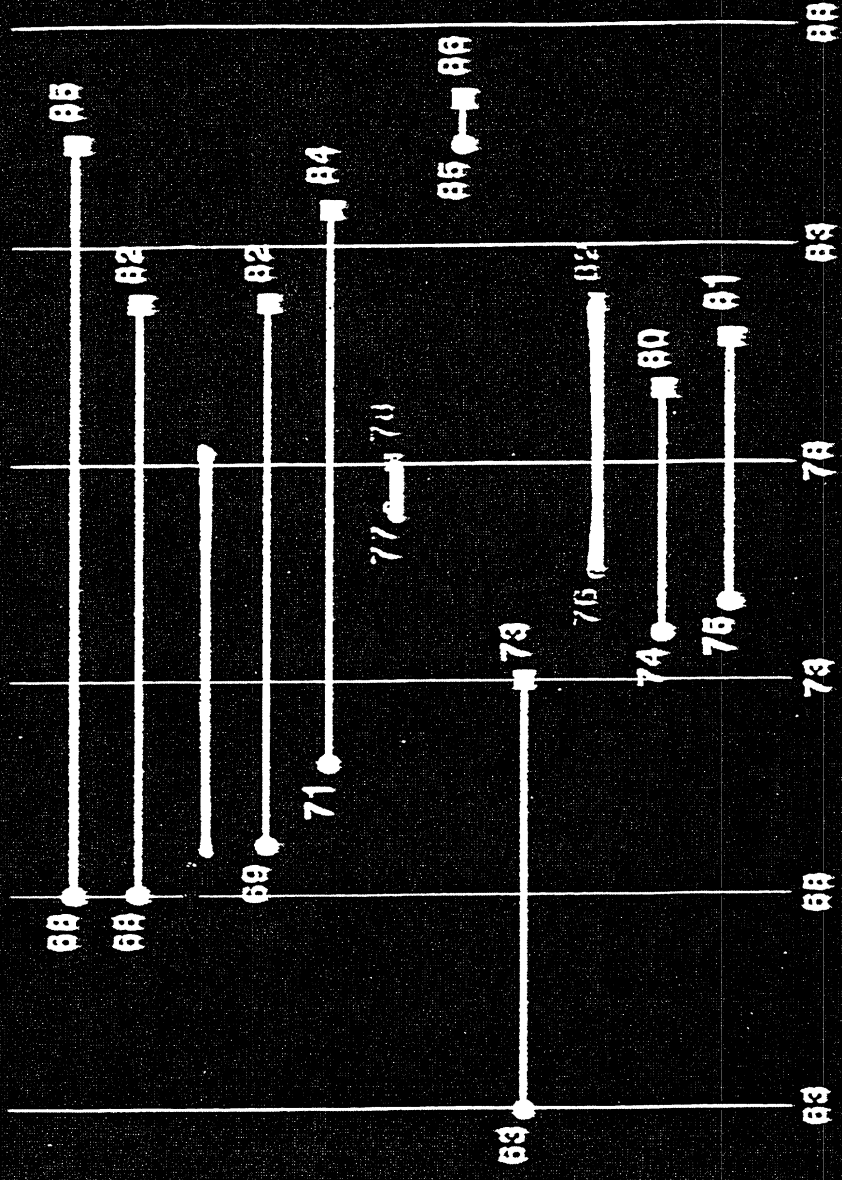


Sector		ACSI
1	Manufacturing / nondurables	82
2	Manufacturing / durables	79
3	Transportation / Communications / Utilities	75
4	Retail	76
5	Finance / Insurance	75
6	Services	74
7	Public Administration / Government	64
	National	<u>74.5</u>

Figure 16



ACSI RANGE 1994 Selected Industries



● LOW ■ HIGH



CUSTOMER COMPLAINTS VS ACSI

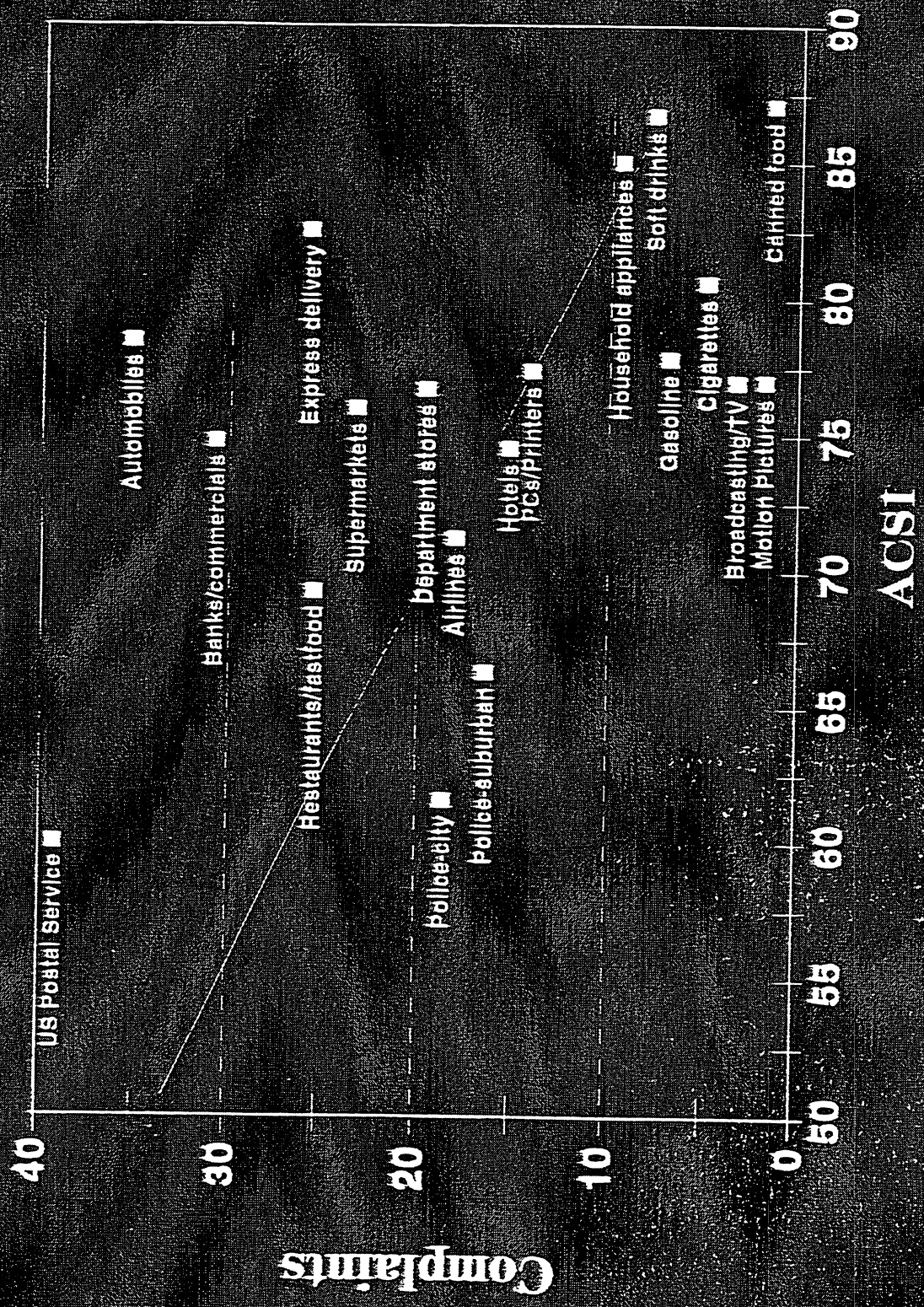


Figure 18