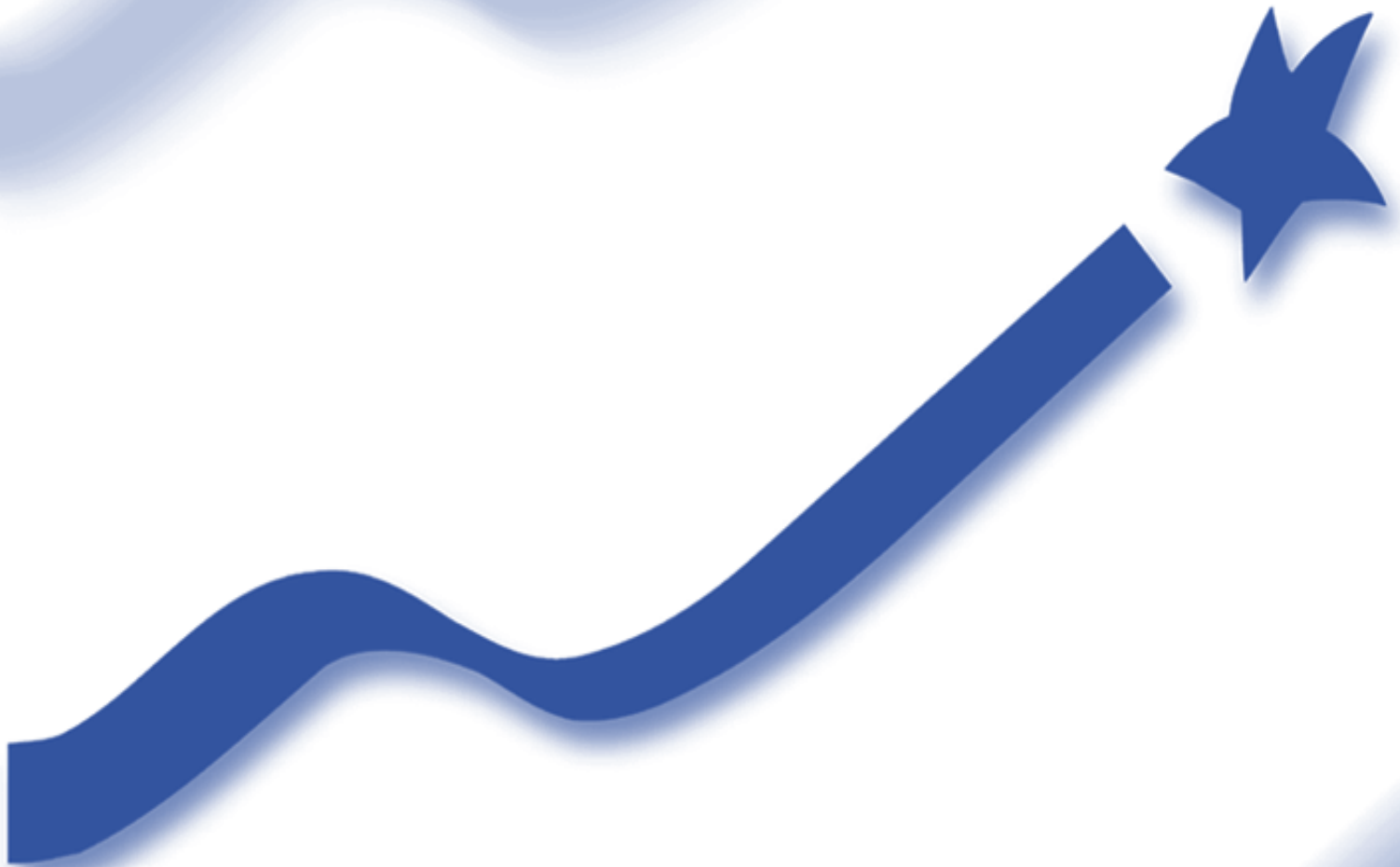

American Customer Satisfaction Index

Methodology Report



March 2005



American Customer Satisfaction Index™

Methodology

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American Customer Satisfaction Index (ACSI)

Methodology Report

March 2005

PREFACE

ACSI is designed, conducted, and analyzed by the National Quality Research Center (NQRC), Stephen M. Ross School of Business at the University of Michigan. The ACSI technical staff includes:

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I. INTRODUCTION

The American Customer Satisfaction Index (ACSI) is a uniform, national, cross-industry measure of satisfaction with the quality of goods and services available to household consumers in the United States. Established in 1994, ACSI is both a trend measure and a benchmark for companies to compare themselves with others in their own or other industries. It provides measures by which a large number of federal agencies, and two local government services, can compare user satisfaction with the quality of their services over time, and with services provided in the private sector.

Research shows that ACSI is predictive of corporate performance, growth in the Gross Domestic Product (GDP), and changes in consumer spending (Fornell, 2001; commentaries posted quarterly on the Web site: www.theacsi.org).

Produced by a consortium of the Stephen M. Ross School of Business at the University of Michigan, ASQ,¹ and CFI Group, ACSI is funded by multiple sources. These are: (1) annual fees from corporate subscribers, (2) ACSI-related research conducted for corporate subscribers, (3) licensing of the ACSI model, (4) Market Strategies, Inc., a major corporate sponsor, and (5) sponsorship of the measurement and analyses of e-business and e-commerce industries by Foresee Results.

The National Quality Research Center (NQRC) at Michigan's Ross School of Business is the research and production center for the index, analyses of data, and report writing. ASQ distributes published reports and news releases. CFI Group provides software design and assistance, as well as marketing consulting.

The ACSI statistical models, discussed in [Chapter II](#), provide customer satisfaction indices (on 0 to 100 scales) and indices of antecedents (drivers or causes) and outcomes of satisfaction with the products and services of specific companies, government agencies, and industries for ten economic sectors that market to U.S. household consumers. The sectors are broadly representative of the national economy: (1) Utilities, (2) Manufacturing/Nondurable Goods, (3) Manufacturing/Durable Goods, (4) Retail Trade, (5) Transportation and Warehousing, (6) Information, (7) Finance and Insurance, (8) Health Care and Social Assistance, (9) Accommodation and Food Services, and (10) Public Administration. ACSI also measures e-business and e-commerce, but the companies within these fall under the other economic sectors.

¹At the time of ACSI's establishment, this organization was called the American Society for Quality Control.

Each company or government service, industry, and sector is measured annually. The national index is updated quarterly, on a rolling basis, with new data for one or more measured sectors replacing data from the prior year.

A. HISTORY

Fifteen years ago, ASQ saw the need for a national measure of quality. In 1990-91, the organization commissioned National Economic Research Associates (NERA) to determine whether a national, cross-company, cross-industry measure existed or could be developed. NERA examined 60 different approaches to measuring quality. There was no standard definition of quality and indices for different categories of products and services in use in the United States were not comparable. It was not possible to assign values to the separate measures of quality in order to aggregate these into a national index. A key failing was the inability to obtain quality measures that translated to customer-perceived value.

NERA concluded that a comprehensive assessment of quality required a mechanism that assigned values to dimensions of quality that influence customer behavior and that any design that did not reflect the customer's voice and notion of value would not meet the goal of a national quality index. NERA recommended adaptation of the Swedish Customer Satisfaction Barometer to the United States.

According to the NERA report (National Economic Research Associates, 1991), the Swedish Barometer, established in 1989, used an econometric model designed by Claes Fornell and colleagues at the University of Michigan's NQRC that (1) was the most comprehensive effort to date to measure product and service quality; (2) illustrated the feasibility of using the survey approach to assess quality on a broad scale; and (3) recognized the necessity of relating measures of quality to customer behavior (Fornell, 1992).

With funding from ASQ and individual corporations, NQRC conducted an extensive design, development, and pretest phase in 1993. In the following year, the baseline American Customer Satisfaction Index was produced covering 7 sectors of the economy, 30 industries, and 180 companies. The baseline ACSI study demonstrated that household screening to identify qualified customers, interviews of these customers with the NQRC-designed survey questionnaire, and econometric modeling could be used on a large scale to produce comparable indices across a wide variety of companies and industries in the United States.

As of 2005, ACSI covers 41 industries (including those in e-business and e-commerce) and over 200 companies and federal or local government services. ACSI measures

satisfaction with companies that produce 43% of GDP and the specific products and services of these companies that account for 36%. The first ten years provided both point-in-time and trend measures of satisfaction based on approximately 650,000 interviews.

ACSI measures ten economic sectors in the North American Industry Classification System (NAICS) that produce products and services sold directly to household customers. These sectors are: (1) Utilities, (2) Manufacturing/Nondurable Goods, (3) Manufacturing/Durable Goods, (4) Retail Trade, (5) Transportation and Warehousing, (6) Information, (7) Finance and Insurance, (8) Health Care and Social Assistance, (9) Accommodation and Food Services, and (10) Public Administration.² The sectors included in ACSI produce 66% of the GDP.

Not included in ACSI are Agriculture/Forestry/Fishing and Hunting, Mining, Construction, Wholesale Trade, Real Estate/Rental/Leasing, Professional/Scientific/Technical Services, Management of Companies and Enterprises, Administrative Support/Waste Management and Remediation (although satisfaction with solid waste disposal provided by local governments is measured in ACSI), Educational Services (although satisfaction with some educational services provided by the federal government is measured), Arts/Entertainment/Recreation, and Other Services.

Within each sector, satisfaction is measured with large companies in representative industries. Within each industry, 2 to 30 companies are selected (although in most industries the number is 4 to 8 companies). The companies are chosen to be those with the largest U.S. market shares in each industry, whether or not the company is a domestic or a non-U.S. company. It is the customers of these companies who are identified by interview screening and then interviewed about their satisfaction with the specific company.

Each company, industry, and sector is measured annually. The national ACSI score is updated quarterly, on a rolling basis, with new data for one or more measured sectors replacing data from the prior year.

²While the NAICS groups nondurable goods and durable goods together in a single manufacturing sector, ACSI measures these as two separate sectors.

Table 1: Data Collection and Sector Update Schedule

| Sector | Data Collection Period | ACSI Release of Results |
|--|------------------------|-------------------------|
| Utilities, Transportation & Warehousing, Information, Health Care & Social Assistance, Accommodation & Food Services | January to March | May |
| Manufacturing/Durable Goods, E-Business | April to June | August |
| Manufacturing/Nondurable Goods | July to September | November |
| Retail Trade, Finance & Insurance, E-Commerce | October to December | February |
| Public Administration | Throughout the year | December |

The companies whose satisfaction is measured in ACSI as of early 2005 are listed in [Appendix A](#), along with their revenues and Fortune 1000 ranks.

B. METHODOLOGY IN BRIEF

The ACSI methodology is distinguished from other measures of quality by four significant characteristics:

1. ACSI has a uniform, customer-based definition of quality: “customer satisfaction with the quality of goods and services purchased and used.”
2. ACSI treats satisfaction with quality as a cumulative experience, rather than a most-recent-transaction experience.
3. ACSI uses a cause-and-effect model that measures satisfaction quantitatively as the result of survey-measured input of customer expectations, perceptions of quality, and perceptions of value (i.e., quality for cost).
4. The ACSI model links satisfaction quantitatively with customer-survey-measured outcomes: complaints (a negative outcome) and customer loyalty (a positive outcome). Customer loyalty is derived from measures of customer retention and price tolerance.

ACSI uses an empirically tested, cause-and-effect model. It is a multi-equation, latent variable, econometric model that produces four levels of composite index measures. These are: (1) a national customer satisfaction index; (2) indices for 10 sectors of the economy;

(3) indices for 41 industries; and (4) indices for over 200 major companies and federal or local government services, including indices for an “all others” category in each industry.

Input to the econometric modeling comes from surveys conducted on a computer-assisted-telephone-interviewing (CATI) system. Customers are selected randomly from national and regional probability samples of continental U.S households. Random-digit-dial (RDD) selection of households includes those with both listed and unlisted numbers. Selection of a respondent within the household based on the individual with the most recent birthday provides a representative distribution of respondents by age, gender, and other characteristics. For e-business and e-commerce companies, selecting user samples, screening respondents, and interviewing customers are all done on the Internet.

To be eligible for interview, either by telephone or online, a prospective respondent must qualify as the purchaser of specific products or services within defined time periods. These vary from three years for the purchase of major durables, to “in the last month” for frequently purchased consumer goods and services, to currently having utility services, insurance policies, or bank accounts in one’s own name. *Thus the definition of “customer” in the American Customer Satisfaction Index is an individual chosen randomly from a large universe of potential buyers who qualifies by recent experience as a purchaser/user of products or services of specific companies or agencies that supply household consumers in the continental United States.*

The process of qualifying respondents as customers of specific products and services and thus eligible for interview is described in [Chapter V](#), *Household Survey Sample*.

For federal agencies with high incidence of use by the public (for example, National Park Service visitors or Internal Revenue Service tax filers), respondent selection and customer screening are done in the same manner as for private sector companies (that is, from RDD samples of U.S. households). For agencies for which users/customers represent a specialized service (for example, Head Start parents, patent and trademark applicants, or beneficiaries of entitlement programs), the procedure differs. Each agency supplies the sampling frame of the customer population for a particular time period (or a large random sample of that population) to NQRC, which then draws a random sample from that frame.

Completed survey interviews are input to the econometric model described in [Chapter II](#), *Purpose, Econometric Modeling, and Index Properties*, which computes the indices at company or government service, industry, sector, and national levels.

II. PURPOSE, ECONOMETRIC MODELING, AND INDEX PROPERTIES

This chapter discusses the purpose of the American Customer Satisfaction Index; the ACSI model; what the desirable properties of the index should be; and the extent to which ACSI can be said to have these properties. ACSI aims to contribute toward more accurate and comprehensive information on economic output as a measure of national customer satisfaction and as a long-term indicator of economic returns for the nation and for individual companies.

A. PURPOSE OF MEASUREMENT

ACSI provides a perspective for understanding the economy and national, industry, and company competitiveness. The perspective is that of the customer's experience with the quality received from goods and services available in the U.S. marketplace.

Much attention has been focused on productivity as the key to competitiveness for companies and nations. Ideally, productivity should reflect not only efficiency in production, but also how quality and service are incorporated into market prices. In practice, however, productivity measures often fall short, particularly in the service sector where the value of improved or reduced quality is not easily captured.

Measurement of productivity relates to measurement of price changes. As noted by several economists (for example, Gordon, 1990), the measurement of prices would be straightforward if there were a single, generally accepted index of economic and social well being that would tell how much better or worse off consumers are each year. Without good measurement of both price and quality—and how these change over time—assessment of productivity is extremely difficult.

As an economic indicator, ACSI suggests a context within which to interpret both price and productivity changes. An objective of ACSI is to help with this interpretation by capturing the elusive character of a product (attributes, price, market fit) from the user perspective.

Economic data attempt to capture a myriad of transactions between buyers and sellers in many types of markets. ACSI measures the overall satisfaction of buyers in household consumer markets, but it is not limited to transactions *per se*. Rather, it is the subjective evaluations of the goods and services acquired and consumed in the United States that are measured. In the final analysis, all human decision making is subjective. It is the

customer's evaluation—not engineering standards—that ultimately affects the demand curve. Measurement of that evaluation, however, is not necessarily subjective.

Customer satisfaction also incorporates price, how well the companies have chosen their markets, and the resulting degree of fit between the nature of demand and the nature of supply. Further, customer satisfaction, in contrast to quality, assumes actual consumption experience. Since most products and services are repeat purchases, customer satisfaction has a large effect on demand.

B. ECONOMETRIC MODELING

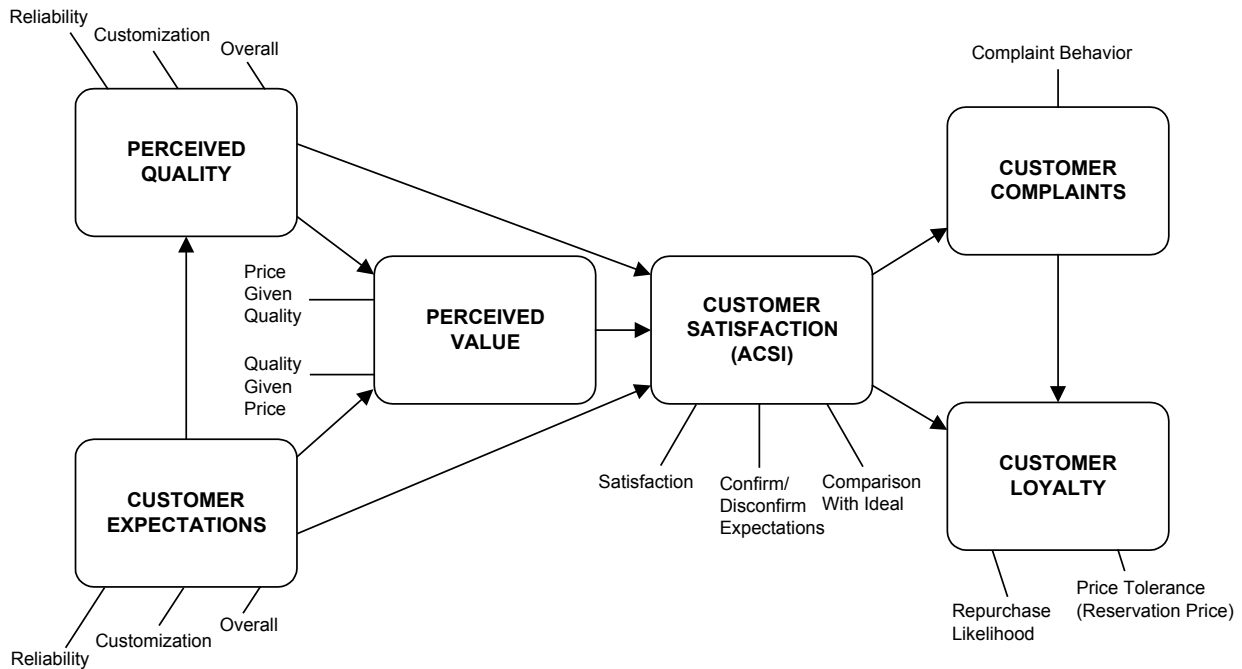
1. Model and Methodology

The ACSI methodology has four basic properties:

1. ACSI uses an econometric model with measures of an index of satisfaction (ACSI) and related indices for latent variables or constructs (boxes in [Figures 1, 1a, and 2](#)) that are general enough to be comparable across companies, industries, and sectors. These measures come from manifest variables (survey questions) that are inputs to the model. The latent variables and their relationships apply to public services and competitive product markets alike.
2. ACSI is embedded in a system of cause-and-effect relationships. This serves to validate the index from a nomological standpoint. Nomological validity, a form of construct validity, is the degree to which a construct behaves as it should behave within a system of related constructs called a nomological net (Bagozzi, 1980; Cronbach and Meehl, 1955). If the model predictions are supported, then the validity of ACSI is supported.
3. Consistent with its definition, satisfaction is measured as a latent variable (central box in [Figures 1, 1a, and 2](#)) using multiple manifest variables (questions). Any one concrete measure of satisfaction, such as a single survey question, is at best a proxy for latent satisfaction (Simon, 1974). Instead, ACSI uses several proxies that reflect overall consumption experience. These proxies are combined into an index on a 0 to 100 scale to operationalize satisfaction.

4. A primary objective is to estimate the effect of ACSI on customer loyalty, a construct of universal importance in the evaluation of current and future business performance. [Figure 1](#) shows the ACSI model used for the private sector, with an expanded version shown in [Figure 1a](#). [Figure 2](#) represents the model used for government services (applicable to nonprofits).

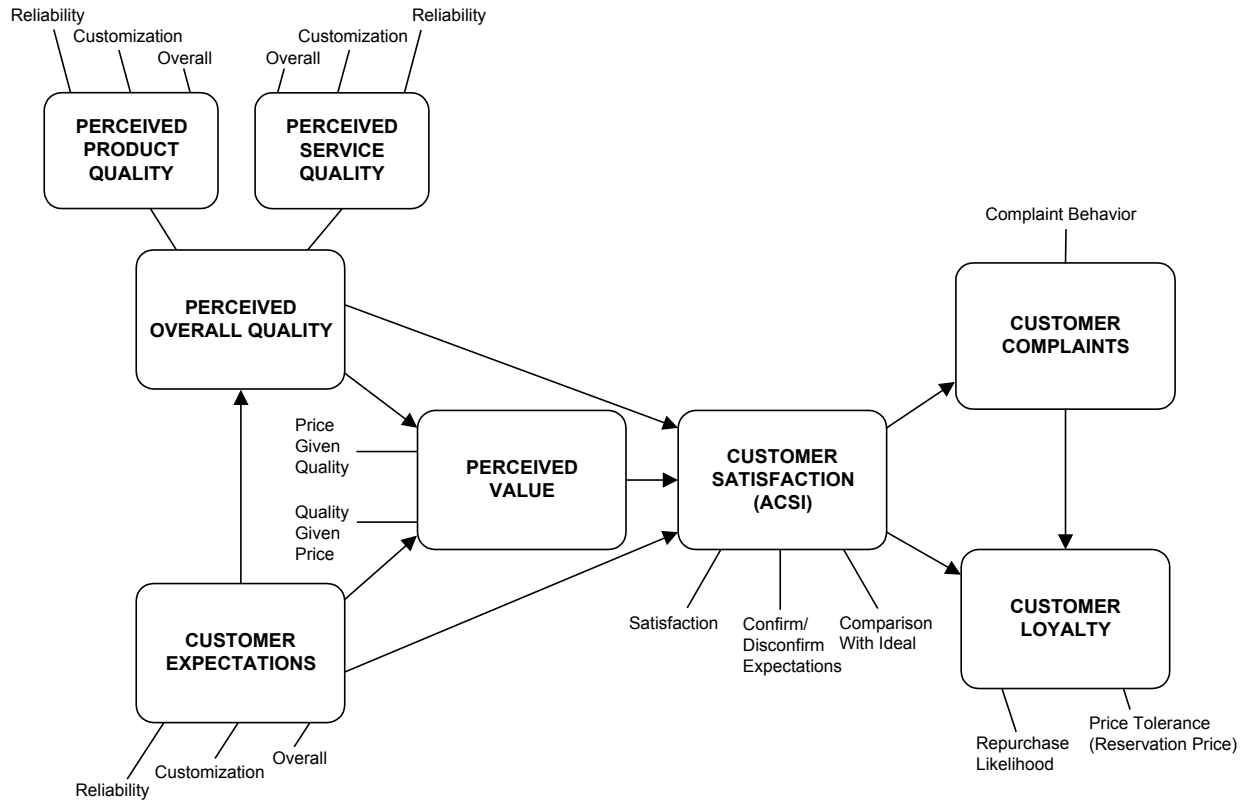
Figure 1. ACSI Model: Private Sector



Expansion of the Model to Measure Product Quality and Service Quality as Inputs to Perceived Overall Quality

In some industries, particularly those in the Manufacturing/Durable Goods and Retail Trade sectors, the product and the service required to maintain it are provided over different time periods. That is, there is an initial purchase followed by a period of maintenance. The service provider may not be the manufacturer. For retailing, products are manufactured by one company, but delivered by another. For those industries, ACSI uses the expanded model shown in [Figure 1a](#). Customer ratings of product and service quality are often statistically significantly different, with product quality rated higher than service quality.

Figure 1a. Expanded ACSI Model to Measure Product Quality and Service Quality as Inputs to Perceived Overall Quality



The Model for Government Services and Nonprofit Organizations

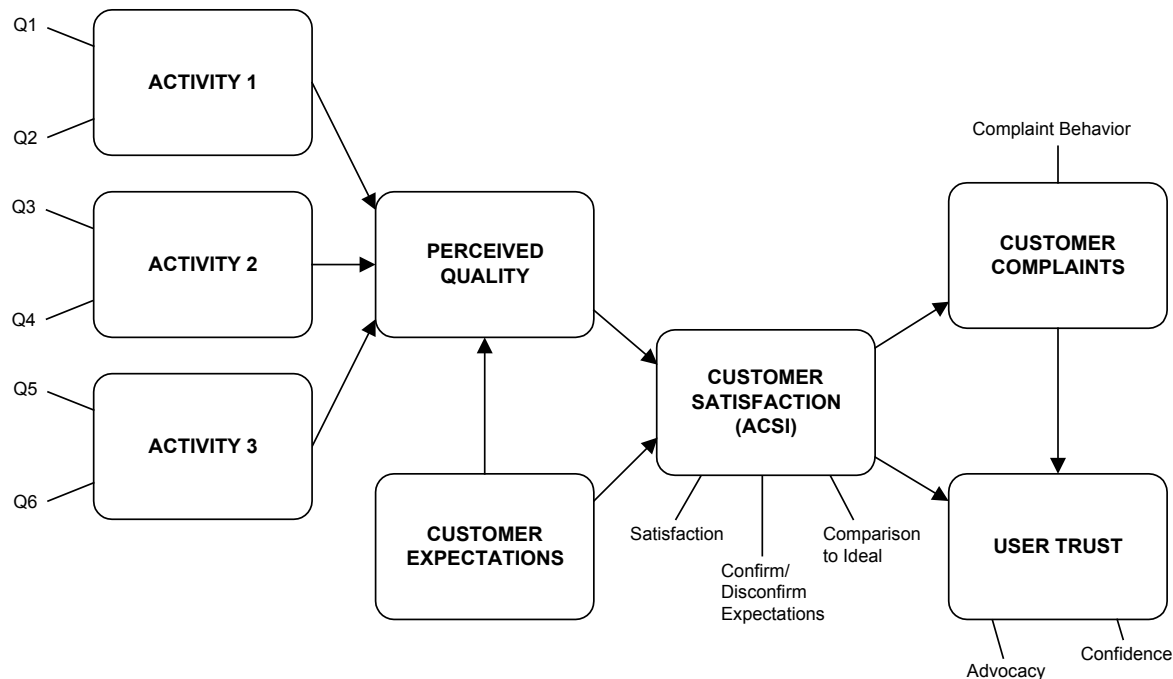
As researchers expanded ACSI by adding customer segments of a large number of federal government agencies, parts of the model structure needed to change. Repurchase likelihood and price tolerance are not relevant for most agencies as outcome measures. Likewise, perceived value in terms of price/quality relationships is not a driver as there is usually no direct charge (or very nominal charge) for tax-supported organizations.

Instead, the desired outcome of customer satisfaction for a majority of government agencies is user trust, for which the indicators are: (1) the degree to which the user/customer would recommend the agency’s services to others (advocacy); and (2) the extent to which the user has confidence in relying on the agency in the future (confidence). The antecedents, or drivers, of satisfaction vary within each agency as each provides different services.

[Figure 2](#) shows the ACSI model for government services. Major latent variables (indices) in

the model remain unchanged: customer expectations, perceived quality, customer satisfaction (ACSI), and customer complaints.

Figure 2. ACSI Model: Government Services and Nonprofit Organizations



2. The Customer Satisfaction Index (ACSI)

To estimate the customer satisfaction index (ACSI), the model software weights the three manifest variables (questions) that comprise satisfaction. Customers' responses for a company or government service are aggregated to produce its ACSI. Thus, the estimate is specific to each company or government service. The ACSI score is affected by all latent and manifest variables in the system as described later in this chapter (see [Section D](#), "The ACSI Equations").

3. ACSI Antecedents (Drivers or Causes of Satisfaction)

Customer satisfaction (ACSI) has three antecedents in the model: perceived quality, perceived value, and customer expectations. Perceived quality should have a direct, positive effect on satisfaction. As a general psychological phenomenon, satisfaction is primarily a function of a customer's quality experience with a product or service (Churchill and Surprenant, 1982; Fornell, 1992; Tse and Wilton, 1988; Westbrook and Reilly, 1983).

Quality experts (Deming, 1981; Juran and Gryna, 1988) delineate two primary components of this quality experience: (1) the degree to which a product or service provides key customer requirements (customization), and (2) how reliably these requirements are delivered (reliability). The greater the perceived quality, the greater the level of customer satisfaction (ACSI). This prediction is consistent with a growing number of studies in marketing and consumer research literature (Yi, 1991). As described previously, the drivers of satisfaction for government are tailored to the activities or services an agency provides to its customers.

The second determinant of customer satisfaction (ACSI) is perceived value, or the perceived level of product or service quality relative to the price paid. Adding perceived value incorporates price information into the model and increases the comparability of results across companies, industries, and sectors. Quality per dollar, or value, is a common denominator that consumers use to compare brands and categories alike (Johnson, 1984). Using value perceptions to measure performance also controls for differences in income and budget constraints across respondents (Hauser and Shugan, 1983; Lancaster, 1971), which allows comparisons of very high-priced and very low-priced products and services. As with perceived quality, the basic prediction is that as value increases, customer satisfaction improves. The differential impact of perceived quality and perceived value in the model provides important diagnostic information. As the impact of value increases relative to quality, price becomes a more important determinant of satisfaction.

The third determinant of customer satisfaction is the level of quality that customers expect to receive. These expectations should positively affect customer satisfaction because they serve as an anchor in the evaluation process (Oliver, 1980; Van Raaij, 1989). Expectations capture all of the customer's prior knowledge about and consumption experience with a company's products or services. Because each of these sources of information forecasts a company's ability to provide a positive customer experience, they should all have a positive effect on satisfaction. Customer expectations provide the anchor that is adjusted or updated in light of a customer's more recent purchase and consumption experience or what he or she has heard about the product or service.

Finally, customer expectations should be positively related to both perceived quality and perceived value. These relationships capture a customer's ability to learn from experience and predict quality and value (Howard, 1977). The size of these predictive relationships should vary with customer experience, as well as with factors such as the level of observation (individual customers versus markets), the nature of the information (price versus performance), and environmental changes (Johnson, Anderson, and Fornell, 1995).

4. ACSI Consequences (Outcomes of Satisfaction)

Following Hirschman's (1970) exit-voice theory, the immediate consequences of increased customer satisfaction are decreased customer complaints and increased customer loyalty (Fornell and Wernerfelt, 1987 and 1988). When dissatisfied, customers have the option of exiting (going to a competitor) or voicing their dissatisfaction in an attempt to receive retribution. Thus, an increase in satisfaction should decrease the incidence of complaints. Increased satisfaction should also increase customer loyalty. Customer loyalty is the ultimate dependent variable in the model because of its value as a proxy for customer retention and its effect on profitability.

The final relationship in the model is the effect of customer complaints on customer loyalty. The direction and size of this relationship measures, in large part, the effectiveness of a company's complaint-handling system (Fornell, 1992). When the relationship is positive, then a company is successful in turning complaining customers into loyal customers. When negative, complaining customers are predisposed to defect.

In the government model, as explained earlier, user trust replaces customer loyalty.

5. Manifest Variables (Questions) Used in the Model

[Tables 2 and 3](#) identify the manifest variables (questions) from the ACSI survey that are used in the model estimation, as well as which questionnaire items operationalize each latent variable (boxes in model diagrams). These are linked by numbers to the actual questions shown in [Appendix D: Customer Satisfaction Measurement Questionnaires—Private Sector and Government Services](#).

Most questions are asked on a 1 to 10 rating scale, running from low to high. The surveys used as input to the model are described in [Chapter IV, Questionnaires](#); [Chapter V, Household Survey Sample](#); [Chapter VI, Data Collection Via Telephone](#); and [Chapter VII, E-Business and E-Commerce Samples and Data Collection Via Internet](#).

Table 2. Survey Questions Used in the ACSI Private Sector Model

| Question Number* | Manifest Variable (Question) Description | Latent Variables (Indices) |
|-------------------------|---|-----------------------------------|
| 1 | Overall expectation of quality (pre-purchase) | Customer Expectations |
| 2 | Expectation regarding customization, or how well the product and service fits the customer's personal requirements (pre-purchase) | |
| 3 | Expectation regarding reliability, or how often things would go wrong (pre-purchase) | |
| 4P | Overall evaluation of quality experience with product (post-purchase) | Perceived Product Quality |
| 5P | Evaluation of customization experience, or how well the product fits the customer's personal requirements (post-purchase) | |
| 6P | Evaluation of reliability experience, or how often things have gone wrong with product (post-purchase) | |
| 4S** | Overall evaluation of quality experience with service (post-purchase) | Perceived Service Quality |
| 5S** | Evaluation of customization experience, or how well the service fits the customer's personal requirements (post-purchase) | |
| 6S** | Evaluation of reliability experience, or how often things have gone wrong with service (post-purchase) | |
| 9 | Rating of price given quality | Perceived Value |
| 10 | Rating of quality given price | |
| 11 | Overall satisfaction | Customer Satisfaction (ACSI) |
| 12 | Expectancy disconfirmation (performance that falls short of or exceeds expectations) | |
| 13 | Performance versus the customer's ideal product and service in the category | |
| 14 | Has the customer complained to the company within specified time period | Customer Complaints |
| 15 | Repurchase likelihood rating | Customer Loyalty |
| 16 | Price tolerance (increase) given repurchase | |
| 17 | Price tolerance (decrease) to induce repurchase | |

*Questionnaires are shown in [Appendix D](#). Question numbers not shown are not used in modeling.

**Used only in expanded model in [Figure 1a](#).

Table 3. Survey Questions Used in the ACSI Model for Government Services and Nonprofit Organizations

| Question Number* | Manifest Variable (Question) Description | Latent Variables (Indices) |
|-------------------------|--|---|
| 1 | Overall expectation of quality of services (pre-use) | Customer Expectations |
| | Activity 1 (Defined by agency) | Construct (Driver) of Perceived Quality |
| 2 | Rating of aspect of Activity 1 | |
| 3 | Rating of aspect of Activity 1 | |
| | Activity 2 (Defined by agency) | Construct (Driver) of Perceived Quality |
| 4 | Rating of aspect of Activity 2 | |
| 5 | Rating of aspect of Activity 2 | |
| | Activity 3 (Defined by agency) | Construct (Driver) of Perceived Quality |
| 6 | Rating of aspect of Activity 3 | |
| 7 | Rating of aspect of Activity 3 | |
| 10 | Overall evaluation of quality experience with services (post-use) | Perceived Quality |
| 11 | Overall satisfaction | Customer Satisfaction (ACSI) |
| 12 | Expectancy disconfirmation (performance that falls short of or exceeds expectations) | |
| 13 | Performance versus the user's ideal service in the category | |
| 14 | Has the user complained to the agency within specified time period | Customer Complaints |
| 15 | Willingness to recommend agency's services | User Trust |
| 16 | Confidence agency will do a good job in the future | |

*Question numbers not shown are not used in modeling.

Customer expectations are measured first by asking customers to think back and remember the level of quality they expected based on their knowledge and experience with a product or service (that is, “will” expectations as opposed to “should” expectations). Three expectation measures are collected: (1) overall expectations, (2) expectations regarding customization, and (3) expectations regarding reliability. For practical reasons, only overall expectations are asked for the government services model.

Customers then rate their recent experience with the product or service using three measures of perceived quality: (1) overall perceived quality, (2) perceived customization,

and (3) perceived reliability. For some industries, these three questions are repeated—once for the measure of product quality and a second time for the measure of service quality. Next, two questions tap perceived value: (1) a rating of quality received relative to price paid and (2) a rating of price paid relative to quality received.

As several authors have argued, there is no single standard for evaluating customer satisfaction. Instead, satisfaction should be reflected in a variety of comparison standards (Cadotte, Woodruff, and Jenkins, 1987; Johnson and Fornell, 1991; Woodruff, Cadotte, and Jenkins, 1983). Customer satisfaction (ACSI) is operationalized using three manifest variables: (1) an overall rating of satisfaction with a product or service to date, (2) the degree to which performance falls short of or exceeds expectations (expectancy confirmation/disconfirmation), and (3) a rating of performance relative to the customer's ideal product or service in the category. These manifest variables are the same as those developed for the Swedish Customer Satisfaction Barometer (Fornell, 1992) to measure satisfaction as a latent variable. Each manifest variable (question) is a qualitatively different benchmark or evaluation that customers use throughout their purchase and consumption experience. As a latent variable, ACSI extracts shared variance or that portion of each rating that is common to all three manifest variables. Thus, satisfaction is not confounded by either performance or expectations. Only the psychological distance between performance and expectations, and between performance and the customer's ideal point, are used to measure satisfaction. All ACSI models use these same three manifest variables to measure satisfaction.

Customer complaints are measured by whether or not a customer has indicated that he or she has complained within the same time period that qualifies the potential respondent as a customer.

Finally, two variables measure customer loyalty for private sector companies. The first is repurchase likelihood and the second is price tolerance (reservation price). The latter is constructed from two survey questions: (1) the degree to which a company could raise its price(s) as a percentage before the customer would definitely choose not to buy from that company the next time (given that the customer has indicated that he or she is likely to repurchase); and (2) the degree to which a company would have to lower its price(s) as a percentage before the customer would definitely choose to buy from that company the next time (given that the customer has indicated that he or she is unlikely to repurchase).

For government, the consequence of satisfaction is typically user trust, most often measured by (1) would the user recommend the agency's services to others (advocacy) and

(2) does the user have confidence that the agency will do a good job in the future (confidence).

C. INDEX PROPERTIES

In ACSI, customers are asked to evaluate products and services that they have purchased and used. A straightforward summary of what customers say in their responses to the questions described as manifest variables in [Tables 2 and 3](#) (for example, means and percentage distributions) may have certain simplistic appeal, but such an approach will fall short on any other criterion. For the index to be useful, it must meet criteria related to its objectives. If ACSI is to contribute to more accurate and comprehensive measurement of economic output, predict economic returns, provide useful information for economic policy, and become an indicator of economic health, it must satisfy certain properties in measurement. These are: (1) precision, (2) validity, (3) reliability, (4) predictive power, (5) coverage, (6) simplicity, (7) diagnostics, and (8) comparability.

1. Precision

Precision refers to the certainty about the recorded value of ACSI. Very high standards for precision are set, particularly at the national level, in order to detect changes from one period to the next. ACSI results show that the 90% confidence interval (on a 0 to 100 scale) for the national index is plus or minus 0.2 points. For each of the measured sectors, it is an average plus or minus 0.5 points. For industries, the confidence intervals are an average plus or minus 1.0 points for manufacturing industries and 1.1 points for private sector service industries. For the typical company, these are an average plus or minus 2.0 points for manufacturing companies and 2.5 points for service companies and government services. This level of precision is obtained as a result of great care in data collection, careful manifest variable specification, and latent variable modeling. According to ACSI research, latent variable modeling (using weighted averages of multiple questions to produce the indices shown in the boxes in the models in [Figures 1, 1a, and 2](#)) produces an average improvement of 22% in precision over use of responses from a single question.

2. Validity

Validity refers to the ability of the individual measures to represent the underlying latent variable (index) customer satisfaction (ACSI) and to relate effects and consequences in an expected manner. Discriminant validity, or the degree to which measured latent variables differ from other measured latent variables, also is evidenced. For example, there is not

only an important conceptual distinction between perceived quality and customer satisfaction, but there is an empirical distinction as well. That is, the covariance between the three manifest variables (questions) measuring ACSI is higher than the covariances between ACSI and any other latent variable in the system.

The nomological validity of the ACSI model can be examined by: (1) latent variable covariance accounted for and (2) explained variance (R^2). On average, the structural model accounts for 94% of the latent variable covariance structure. The average R^2 of the customer satisfaction equation in the model is .75. In addition, all coefficients relating the latent variables (indices) of the model have the expected sign. All but a few are statistically significant.

In measures of customer satisfaction, there are several threats to validity. The most serious of these is the skewness of the frequency distributions as respondents tend to disproportionately use the high scores on a scale. Skewness is addressed by using a fairly high number of scale categories (1–10) and by using a multiple-indicator approach (Fornell, 1992 and 1995). It is an established fact that validity typically increases with the use of more categories (Andrews, 1984), and it is particularly so when the respondent has good knowledge about the subject matter and when the distribution of responses is highly skewed. An index of satisfaction is much preferred over a categorization of respondents as either “satisfied” or “dissatisfied.” Satisfaction is a matter of degree—it is not a binary concept. If measured as binary, precision is low, validity is suspect, and predictive power is poor.

3. Reliability

Reliability of a measure is determined by its signal-to-noise ratio. That is, the extent to which the variation of the measure is due to the “true” underlying phenomenon versus random effects. High reliability is evident if a measure is stable over time or equivalent with identical measures (Fornell, 1992). Signal-to-noise in the items that make up the index (in terms of variances) is about 4 to 1.

4. Predictive Power and Financial Implications of ACSI

An important aspect of ACSI is its ability to predict economic returns. The model, of which ACSI is a part, uses two proxies for economic returns as criterion variables: (1) customer retention (estimated from a nonlinear transformation of a measure of repurchase likelihood) and (2) price tolerance (reservation price). The manifest variables included in the index are weighted in such a way that the proxies and ACSI are maximally correlated (subject to certain constraints). Unless such weighting is done, the index is more

likely to include matters that may be satisfying to the customer, but for which he or she is not willing to pay.

The empirical evidence for predictive power is available from both the Swedish data and ACSI data. Using data from the Swedish Customer Satisfaction Barometer (SCSB), a 1-point increase in SCSB each year over five years yields, on the average, a 6.6% increase in current return-on-investment (Anderson, Fornell, and Lehmann, 1994). Of the companies traded on the Stockholm Stock Market Exchange, it is also evident that changes in SCSB have been predictive of stock returns. Similar findings exist for ACSI (Fornell, 2001).

A basic tenet underlying ACSI is that satisfied customers represent a real, albeit intangible, economic asset to a company. By definition, an economic asset generates future income streams to the owner of that asset. Therefore, if customer satisfaction is indeed an economic asset, it should be possible to use ACSI for prediction of company financial results. It is, of course, of considerable importance that the financial consequences of ACSI are specified and documented. If it can be shown that ACSI is related to financial returns, then the index has value.

Faculty, doctoral students, and consultants have done considerable research on the linkage between ACSI and economic returns, analyzing both accounting and stock market returns from measured companies. The pattern from all of these studies suggests a statistically strong and positive relationship. Specifically:

- There is a positive and significant relationship between ACSI and accounting return-on-assets.
- There is a positive and significant relationship between ACSI and the market value of common equity. When controlling for accounting book values of total assets and liabilities, a five-unit gain (on the 0 to 100 scale used for ACSI) is associated with an average of 15% increase in market value. There are also significant and positive relationships between ACSI and market-to-book values and price/earnings ratios. There is a negative relationship between ACSI and risk measures, implying that companies with high loyalty and customer satisfaction have less variability and stronger financial positions.
- There is a positive and significant relationship between ACSI and the long-term adjusted financial performance of companies. Tobin's q is generally accepted as the best measure of long-term performance. It is defined as the ratio of a company's present value of expected cash flows to the replacement costs of its assets.

Controlling for other factors, ACSI has a significant relationship to Tobin’s q (Mazvancheryl, Anderson, and Fornell, 2004).

- At the more macro level, ACSI predicts S&P’s 500 corporate earnings well. Recent findings suggest a similar predictive power for consumer spending.

The ACSI scores of approximately 130 publicly traded companies display a statistically positive relationship with the traditional performance measures used by companies and security analysts (that is, return-on-assets, return-on-equity, price-earnings ratio, and the market-to-book ratio). In addition, companies with higher ACSI scores display stock price returns above the market-adjusted average (Fornell, Mithas, Morgeson, and Krishnan, 2005). ACSI also is positively correlated with “market value added.” This evidence indicates that the ACSI methodology produces a useful measure for customer satisfaction that is forward-looking and relevant to a company’s economic performance.

5. Coverage

ACSI covers a substantial portion of the U.S. economy. In terms of revenues, it is 36% of GDP. Total revenues of the measured companies account for 43% of GDP, but ACSI measures only products and services sold to household consumers in the domestic market. The economic sectors and industries covered are discussed in [Chapter III](#). Within each industry, the number of companies measured varies from 2 to 30. (See [Appendix A: Companies and Government Services Evaluated by Customers in ACSI](#).)

The national index and the indices for each industry and sector are reflective of the total value (quality times sales) of products and services provided by companies at each respective level of aggregation. Relative revenues are used to determine each company’s contribution to its respective industry index. In turn, relative revenues by each industry are used to determine each industry’s contribution to its respective sector index. To calculate the national index, the percentage contributions of each sector to GDP are used to top-weight the sector indices. Mathematically, this is defined as:

$$\text{Index for Industry } i \text{ in Sector } s \text{ at time } t = I_{ist} = \frac{\sum_f^F S_{fist} I_{fist}}{\sum_f^F S_{fist}}$$

$$\text{Index for Sector } s \text{ at time } t = I_{st} = \frac{\sum_i^I S_{ist} I_{ist}}{\sum_i^I S_{ist}}$$

where

S_{fst} = Sales by firm f , industry i , sector s at time t

I_{fst} = Index for firm f , industry i , sector s at time t

and

$$S_{ist} = \sum_f^F S_{fst} = \text{Total Sales for Industry } i \text{ at time } t$$

$$S_{st} = \sum_i^I S_{ist} = \text{Total Sales for Sector } s \text{ at time } t$$

ACSI is updated on a quarterly basis. For each quarter, new indices are estimated for one or more sectors with total replacement of all data annually. The national index is comprised of the most recent estimate for each sector

$$\text{National Index at time } t = I_t = \sum_{t=T-3}^T \sum_s^S \frac{S_{st} I_{st}}{\sum_{t=T-3}^T \sum_s^S S_{st}}$$

where $I_{st} = 0$ for all t in which the index for a sector is not estimated, and $I_{st} = I_{st}$ for all quarters in which an index is estimated. In this way, the national index represents company, industry, and sector indices for the prior year.

6. Simplicity

Given the complexity of model estimation, ACSI maintains reasonable simplicity. It is calibrated on a 0 to 100 scale. Whereas the absolute values of ACSI are of interest, much of the index's value, as with most other economic indicators, is found in changes over time, which can be expressed as percentages.

7. Diagnostics

As evident from the model specification in [Figures 1, 1a, and 2](#), the ACSI methodology estimates the relationships between customer satisfaction and its causes as seen by the customer: customer expectations, perceived quality, and perceived value. Also estimated are the relationships between ACSI, customer loyalty [as measured by customer retention and price tolerance (reservation price)], and customer complaints. ACSI generates information about levels of satisfaction, expectations, and so forth, as well as the

antecedents (causes) and consequences (outcomes) of satisfaction. For example, it is possible to estimate the impact of product and service reliability, the effect of increased customization (fitness for use), the role of expectations, and the expected economic return-on-investment in customer satisfaction as the result of improved customer retention.

There are, however, certain limitations with respect to diagnostics. Cassell (1993) reports on the advantages of the approach chosen in ACSI to measure satisfaction at the corporate rather than the leading-brand level in terms of unbiased estimates. This refers to the manifest and latent variables, but not necessarily to the coefficients that relate the index to causes and consequences. For the coefficients to be unbiased and consistent, the standard statistical assumptions apply. Further, it is not realistic to believe that all diagnostics are equally useful. For companies selling many different products to different markets, it is obvious that any set of diagnostics that do not relate to specific brands are of limited value.

8. Comparability

A fundamental question is whether or not it is possible to compare the satisfaction levels (ACSI) of different customers, companies, industries, and sectors. As evident from welfare economics, any interpersonal comparison of utility is complicated. In ACSI, as in any measurement that uses surveys as input, it is not certain that the questionnaire scales have the same meaning to each respondent. The ACSI methodology addresses this difficulty by treating customer satisfaction as a latent (nonobservable) construct at a higher level of abstraction where there is a basis for comparing things that are fundamentally different (Johnson and Fornell, 1991). This is not to suggest that such comparisons are without error, but that the error is reasonably small relative to what is gained. ACSI meets a reasonable criterion of comparability (across individuals, companies, and so forth). “Objective” factors such as degree of industry concentration and heterogeneity in demand and supply can account for the variation in the index. Results show that much of this variation across industries and sectors is, in fact, accounted for by variables of industrial organization.

A further discussion of ACSI and results in its 1994 baseline year is given in Fornell, Johnson, Anderson, Cha, and Bryant (1996). A ten-year history of ACSI is described in “The American Customer Satisfaction Index at Ten Years: ACSI 1994-2004, A Summary of Findings: Implications for the Economy, Stock Returns and Management” (Fornell, VanAmburg, Morgeson, Anderson, Bryant, and Johnson, 2005). Scores for companies and government services across all years of measurement are updated quarterly on the Web site: www.theacsi.org.

D. THE ACSI EQUATIONS

The formal expression of the model depicted in [Figure 1](#) can be written as a series of equations estimated by partial least squares (PLS). The systematic part of the predictor relationships is the conditional expectation of predictands for given values of predictors. The general equation is thus specified as stochastic:

$$E[\eta | \eta, \xi] = B\eta + \Gamma\xi$$

where $\eta' = (\eta_1, \eta_2, \dots, \eta_m)$ and $\xi' = (\xi_1, \xi_2, \dots, \xi_n)$ are vectors of unobserved endogenous and exogenous variables, respectively; B ($m \times m$) is a matrix of coefficient parameters for η ; and Γ ($m \times n$) is a matrix of coefficient parameters for ξ . This implies that $E[\eta\xi'] = E[\xi\xi'] = E[\zeta] = 0$, where $\zeta = \eta - E[\eta|\eta, \xi]$.

The equation that relates the latent variables in the model shown in [Figure 1](#) is:

$$\begin{bmatrix} \eta_1 \\ \eta_2 \\ \eta_3 \\ \eta_4 \\ \eta_5 \end{bmatrix} = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 \\ \beta_{21} & 0 & 0 & 0 & 0 \\ \beta_{31} & \beta_{32} & 0 & 0 & 0 \\ 0 & 0 & \beta_{43} & 0 & 0 \\ 0 & 0 & \beta_{53} & \beta_{54} & 0 \end{bmatrix} \begin{bmatrix} \eta_1 \\ \eta_2 \\ \eta_3 \\ \eta_4 \\ \eta_5 \end{bmatrix} + \begin{bmatrix} \gamma_{11} \\ \gamma_{21} \\ \gamma_{31} \\ 0 \\ 0 \end{bmatrix} \xi + \begin{bmatrix} \zeta_1 \\ \zeta_2 \\ \zeta_3 \\ \zeta_4 \\ \zeta_5 \end{bmatrix}$$

where

- ξ = Customer Expectations
- η_1 = Perceived Quality
- η_2 = Perceived Value
- η_3 = Customer Satisfaction (ACSI)
- η_4 = Customer Complaints
- η_5 = Customer Loyalty

The general equations for relating the latent variables to empirical variables are:

$$\mathbf{y} = \Lambda_{\mathbf{y}}\boldsymbol{\eta} + \boldsymbol{\varepsilon}$$

$$\mathbf{x} = \Lambda_{\mathbf{x}}\boldsymbol{\xi} + \boldsymbol{\delta}$$

where $\mathbf{y}' = (y_1, y_2, \dots, y_p)$ and $\mathbf{x}' = (x_1, x_2, \dots, x_q)$ are the measured endogenous and exogenous variables, respectively. $\Lambda_{\mathbf{y}}$ ($p \times m$) and $\Lambda_{\mathbf{x}}$ ($q \times n$) are the corresponding regression coefficient matrices. By implication from PLS estimation (Fornell and Bookstein, 1982), we have $E[\boldsymbol{\varepsilon}] = E[\boldsymbol{\delta}] = E[\boldsymbol{\eta}\boldsymbol{\varepsilon}'] = E[\boldsymbol{\xi}\boldsymbol{\delta}'] = 0$. The corresponding equations in the model are:

$$\begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \begin{bmatrix} \lambda_{11} \\ \lambda_{21} \\ \lambda_{31} \end{bmatrix} \boldsymbol{\xi} + \begin{bmatrix} \delta_1 \\ \delta_2 \\ \delta_3 \end{bmatrix}$$

and

$$\begin{bmatrix} y_1 \\ y_2 \\ y_3 \\ y_4 \\ y_5 \\ y_6 \\ y_7 \\ y_8 \\ y_9 \\ y_{10} \\ y_{11} \end{bmatrix} = \begin{bmatrix} \lambda_{11} & 0 & 0 & 0 & 0 \\ \lambda_{21} & 0 & 0 & 0 & 0 \\ \lambda_{31} & 0 & 0 & 0 & 0 \\ 0 & \lambda_{12} & 0 & 0 & 0 \\ 0 & \lambda_{22} & 0 & 0 & 0 \\ 0 & 0 & \lambda_{13} & 0 & 0 \\ 0 & 0 & \lambda_{23} & 0 & 0 \\ 0 & 0 & \lambda_{33} & 0 & 0 \\ 0 & 0 & 0 & \lambda_{14} & 0 \\ 0 & 0 & 0 & 0 & \lambda_{15} \\ 0 & 0 & 0 & 0 & \lambda_{25} \end{bmatrix} \begin{bmatrix} \eta_1 \\ \eta_2 \\ \eta_3 \\ \eta_4 \\ \eta_5 \end{bmatrix} + \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \varepsilon_3 \\ \varepsilon_4 \\ \varepsilon_5 \\ \varepsilon_6 \\ \varepsilon_7 \\ \varepsilon_8 \\ \varepsilon_9 \\ \varepsilon_{10} \\ \varepsilon_{11} \end{bmatrix}$$

where:

- x_1 = Customer Expectations About Overall Quality
- x_2 = Customer Expectations About Reliability
- x_3 = Customer Expectations About Customization
- y_1 = Overall Quality
- y_2 = Reliability
- y_3 = Customization
- y_4 = Price Given Quality
- y_5 = Quality Given Price
- y_6 = Overall Satisfaction
- y_7 = Confirmation of Expectations
- y_8 = Distance to Ideal Product (Service)
- y_9 = Formal or Informal Complaint Behavior
- y_{10} = Repurchase Intention
- y_{11} = Price Tolerance (Reservation Price)

E. THE ACSI FORMULA

The general form of ACSI is as follows:

$$ACSI = \frac{E[\xi] - Min[\xi]}{Max[\xi] - Min[\xi]} \times 100$$

where ξ is the latent variable for customer satisfaction (ACSI), and $E[.]$, $Min[.]$ and $Max[.]$ denote the expected, the minimum, and the maximum value of the variable, respectively.

The minimum and the maximum values are determined by those of the corresponding manifest variables

$$Min[\xi] = \sum_{i=1}^n w_i Min[x_i]$$

and

$$Max[\xi] = \sum_{i=1}^n w_i Max[x_i]$$

where x_i 's are the manifest variables of the latent customer satisfaction, w_i 's are the weights, and n is the number of measurement variables. In calculating ACSI, unstandardized weights must be used if unstandardized measurement variables are used.

In ACSI, there are three indicators for customer satisfaction that range from 1 to 10. Then the calculation is simplified to:

$$ACSI = \frac{\sum_{i=1}^3 w_i \bar{x}_i - \sum_{i=1}^3 w_i}{9 \sum_{i=1}^3 w_i} \times 100$$

where w_i 's are the unstandardized weights.

III. SELECTION OF ECONOMIC SECTORS, INDUSTRIES, COMPANIES, AND GOVERNMENT SERVICES

The selection of sectors, industries, companies, and government services is premised on obtaining a representation of the U.S. economy that provides goods and services to households by measuring companies with total sales that represent a significant proportion of the GDP. In addition to U.S.-based companies that produce the nation's GDP, ACSI includes goods and services produced by foreign companies with major U.S. market shares. For reasons of both efficiency and precision, analysis is at the aggregate company level, rather than at the product or brand level (Cassel, 1993). The ACSI score for an individual company thus reflects the proportional mix of its product and service offerings. For government, analysis is at the level of certain services provided to specific segments of the population.

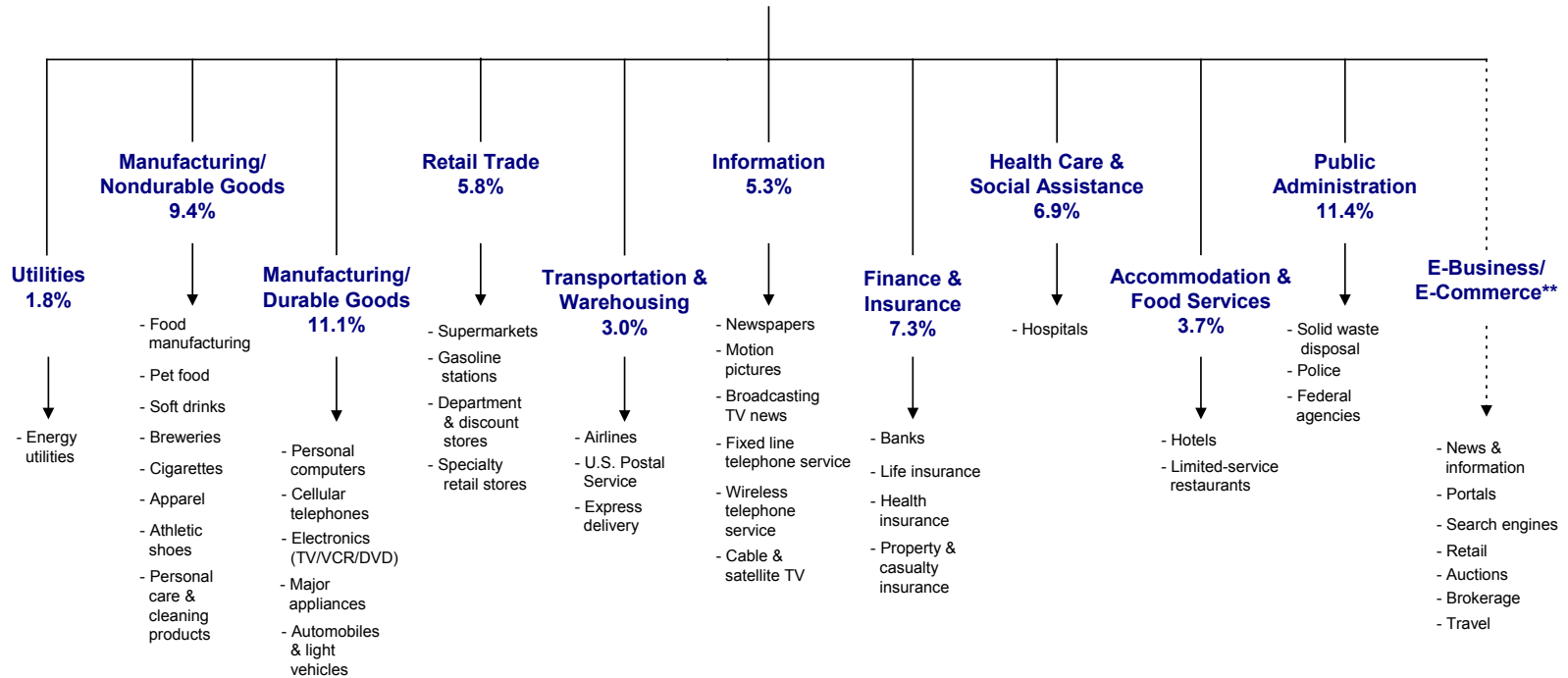
ACSI includes ten sectors of the economy that sell to household consumers: (1) Utilities, (2) Manufacturing/Nondurable Goods, (3) Manufacturing/Durable Goods, (4) Retail Trade, (5) Transportation and Warehousing, (6) Information, (7) Finance and Insurance, (8) Health Care and Social Assistance, (9) Accommodation and Food Services, and (10) Public Administration. Additionally, ACSI measures two online groups of industries whose companies are included in the prior sectors: e-business and e-commerce.

Government spending accounts for approximately 11% of GDP. ACSI includes federal and local, but not state government. Local government is represented in ACSI by two services that reach most of the public: solid waste disposal and police. [Figure 3](#) shows the sectors and industries measured in ACSI.

Figure 3



The ACSI: National Economy, Sectors, and Industries*



*The percentage shown is the contribution of each sector to the GDP. The 10 measured sectors produce 65.7% of GDP.

**E-Business / E-Commerce is a portion of other sectors.

IV. QUESTIONNAIRES

A. SCREENING QUESTIONNAIRES

There are multiple versions of questionnaires to screen respondents (for information about selection of respondents, see [Chapter V](#), *Household Survey Sample*). Different versions of screening questionnaires are employed because product usage is determined specifically; relevant time periods for purchase/usage vary; and all brand names must be linked to parent companies. [Table 4](#) shows the relevant time periods for qualifying customers.

**Table 4. Time Periods for Purchase and Use to Qualify as Customer
(All purchases must be new, not used)**

Currently

- Have active checking account, savings account, or bank loan in own name.
- Have life, homeowner's, automobile, property/casualty, or health insurance in own name.
- Have garbage and trash collection (solid waste disposal) provided by local government (asked only of those living in metropolitan areas).
- Have telephone service in home or cellular service in own name.
- Have cable or satellite TV service in home.
- Have electric or natural gas service in home.

Within past week

- Read a newspaper that was subscribed to or purchased.

Within past month

- Purchased and consumed food (five categories).
- Purchased and smoked cigarettes (asked only if 21 or older).
- Purchased and consumed beer (asked only if 21 or older).
- Purchased and consumed soft drinks or pop.
- Own a dog or cat and purchased pet food.
- Watched a national TV news program.

Within past three months

- Purchased food from a fast food or pizza (limited-service) restaurant to eat in the restaurant, for carry out, or ordered for home delivery.
- Purchased gasoline for own automobile.
- Shopped for groceries at a supermarket or other store.
- Purchased personal care or cleaning products (five categories).

Within past six months

- Shopped for merchandise at a department or discount store or specialty retail store.
- Used a parcel delivery, overnight, or two-day mail delivery service for sending a letter, a document, or a package either from home or work.
- Visited a U.S. Post Office to buy stamps, pick up mail, or use any of the counter services.

Within past year

- Flew as a passenger on a scheduled airline.
- Stayed overnight at a hotel for business or pleasure.
- Went to a motion picture theater, rented or purchased a videotape or DVD, or watched a movie on pay-per-view.
- Purchased apparel (multiple categories) or athletic shoes.
- Qualified as a user/customer of federal services. (Use of specific services within the past year is the criterion for qualifying as the user/customer for most federal services. A few have longer or shorter time periods.)

Within past two years

- Purchased a cellular phone.

Within past three years

- Purchased a personal computer for home.
- Purchased a television or videocassette recorder/DVD player.
- Purchased a major appliance such as washer, dryer, stove, refrigerator, or dishwasher.
- Used hospital services as inpatient or outpatient.
- Had contact with local police (asked only of those living in metropolitan areas).

More than six months, but within three years

- Purchased or (personally) leased an automobile, van, or light truck.

For examples of the screening questionnaires for the major appliance industry and for the supermarket industry, see [Appendix C: Example Screening Questionnaires and Brand/Company Identification](#).

B. BRAND/COMPANY IDENTIFICATION

Because customers often respond with a brand name rather than a company name when asked about the purchase of goods or services, all of the brands produced by the companies measured in ACSI are programmed into the computer-assisted-telephone-interviewing (CATI) system. For many industries, customers may also respond with a subsidiary name rather than a parent company name (as with brand names, the CATI system links all subsidiary names to parent companies). For a description of how brand and subsidiary names are linked with company names, see [Chapter VI, Data Collection via Telephone](#).

Highlighting and entering the brand in the CATI system automatically designates the interview by company name, although the brand name appears on the interview screen for all questions asked of the respondent. Examples of the brand and subsidiary lists for the major appliance industry and the supermarket industry are shown in [Appendix C](#).

If the respondent answers with a brand name for a company not measured, the response is coded under the “all others” category. The respondent is not administered the complete questionnaire for the particular product, but only items used in the ACSI score.

C. QUESTIONNAIRE

The satisfaction questionnaire items are shown in [Chapter II, Tables 2 and 3](#). These items are the product of multiyear empirical testing in the United States. The private sector questionnaire has had few modifications since the first wave of measurement in 1994. The examples used in questionnaires are tailored to be relevant to each industry, but the basic question format is constant across all industries. Questions for federal government are customized for each measured service. The generic questionnaires for interviews for the private sector and government services are shown in [Appendix D](#).

The number of substantive questions used in the ACSI models are as follows: 15 for [Figure 1](#) (private sector model), 18 for [Figure 1a](#) (expanded model), and 14 for [Figure 2](#) (government services model). Respondents are also asked six demographic questions and, on occasion, optional questions that are not used for modeling. Identification of the respondent’s geographic location is coded from the sample. The substantive contents of the questions are as follows:

Questions Used for Private Sector Models (Figures 1 and 1a)

- Three questions on customer's expectations before purchase/use of products/services.
- Three questions on customer's perceived quality based on actual experience with products/services (overall quality, customization, reliability). (These are expanded to six questions for the model in Figure 1a.)
- Two questions on perceived value—price given quality and quality given price.
- One question on overall satisfaction with products/services.
- One question on products/services exceeding or falling short of expectations.
- One question on comparison with ideal products/services.
- One question on complaints.
- One question on repurchase likelihood.
- Two questions on price tolerance.

ACSI is comparable across industries, as the questions are the same for each. Examples that the interviewers provide to illustrate quality, customization, and reliability are customized by industry to make these questions relevant to the specific product or service.

Questions Used for Government Services and Nonprofit Organization Model (Figure 2)

- One question on user's expectations before use of services.
- Six questions rating three activities. The agency identifies activities it provides that are inputs to perception of quality (for example, customer service, information, services provided).
- One question on user's perceived quality based on actual experience with services.
- One question on overall satisfaction with services.
- One question on services exceeding or falling short of expectations.
- One question on comparison with ideal services.
- One question on complaints.
- Two questions on user trust.

V. HOUSEHOLD SURVEY SAMPLE

A. HOUSEHOLD SAMPLE AND TELEPHONE NUMBER SELECTION

This chapter discusses the random selection of adults and identification of customers of specific products and services in households for private sector companies and for government services with high incidence of use. For other government services, sample selection is random from population frames of users (for example, program beneficiaries or applicants).

1. Selection of Household Numbers for Screening

The universe from which the sample is drawn for private sector companies and high-incidence government services is households with telephones in the continental United States. Numbers to be dialed are selected using Genesys CSS, the sample design and generation system offered by Marketing Systems Group (Marketing Systems Group, 2004).

Interviewing is done quarterly, with data collected for one or more of the ten measured economic sectors each quarter. Regional samples are selected and screened for customers of companies that have regional markets (for example, energy utilities and cable television service).

Creation of the Random-Digit Database

A modified Epsem (equal probability of selection method) is used to select numbers to be dialed. Replicate samples are screened successively to maintain national (or regional) representation for companies with both high and low incidence of purchase. The same RDD method is used for national replicates and for the targeted regional RDD samples. RDD includes listed and unlisted telephones.

Samples are generated using a database of “working blocks,” prescreened to remove identifiable nonresidential numbers. A *block* (also known as a *100-bank* or a *bank*) is a set of 100 contiguous numbers identified by the first two digits of the last four digits of a telephone number. For example, in the telephone number 255-4200, “42” is the block, and 4200-4299 the numbers in it. A block is termed to be *working* if one or more listed telephone numbers are found in that block.

Each exchange is assigned to a single county. Nationally, about 72% of all exchanges appear to fall totally within single-county boundaries. For those overlapping county and/or

state lines, the exchanges are assigned to the county of plurality or the county with the highest number of listed residents within the exchange. This assignment prevents overrepresentation of these exchanges.

Sample Stratification

Samples are generated using stratified sampling procedures. A separate sample is selected from the sampling units in each stratum. The database used has been stratified by county.

Prior to sample selection, the sample is allocated proportionally across all strata in the defined geography using several frame adjustment options. The sampling frame determines the way a sample is distributed across geography at the county level.

The sample is distributed by county in proportion to the total active blocks (with one or more listed numbers) in the exchanges assigned to that county. Rather than being an estimate of target population, all frame units are represented with equal probability across counties. Active blocks in each exchange are counted with each database update. The number of active blocks in an exchange is multiplied by 100 (the number of possible ten-digit telephone numbers in a block) to calculate the total possible phone numbers. Sample is allocated to each county in proportion to its share of these possible ten-digit telephone numbers.

Sample Selection

After the sample has been allocated, sample selection is made. Samples of random numbers are systematically selected with equal probability across all eligible blocks. All blocks within a county are organized in ascending order by area code, exchange, and block number.

Once the quota has been allocated to all counties in the frame, a sampling interval is calculated for each county by summing all the eligible blocks in the county and dividing that sum by the number of sampling points assigned to the county. From a random start between zero and the sampling interval, blocks are systematically selected from each county. Once a block has been selected, a two-digit random number in the range of 00 to 99 is appended to the exchange and block to form a ten-digit telephone number.

Telephone numbers selected for use are marked on the database to protect against reuse in the same calendar year.

Dual-Sample Frame for Manufacturing/Durable Goods

Currently, a dual-sample frame is used for the Manufacturing/Durable Goods sector. This is because of the enormous number of households that need to be screened to identify and interview purchasers (within the last three years) of companies with low market shares in the automobile and light vehicle industry. The dual frame consists of both RDD national samples, as used for the other sectors of the economy, and purchased lists of automotive vehicle owners.³ The vehicle owners also are eligible to be screened for purchase and use of other products and services measured in ACSI.

Throughout interviewing for the Manufacturing/Durable Goods sector, the sample from each frame is monitored for demographic characteristics to ensure that similar types of customers are interviewed in each frame.

2. Household Sample Size

There is no fixed sample size for initial screening of households. There is a quota of 250 customer interviews per company and 260 per federal government service. For only a few companies and services with low incidence, fewer than 250 interviews may be completed.

3. Callbacks and Household Substitution

If the household is not reached on the initial call, three callbacks are made on different days at different time periods. If no contact is made after this total of four attempts, a substitute number is selected and the process is repeated. All telephone interviewing is conducted from 5 p.m. to 9 p.m. local time, Monday through Friday; 9 a.m. to 9 p.m. Saturday; and 10 a.m. to 9 p.m. on Sunday. Scheduled callbacks can be completed from 8 a.m. to 9 p.m. local time, upon request from the respondent.

B. SELECTION OF DESIGNATED RESPONDENT WITHIN HOUSEHOLD

Eligible respondents for screening are defined as adults age 18 to 84, except that for the brewery (beer) and cigarette industries, only those 21 and older are eligible. The adult to be interviewed is selected randomly by asking for the individual age 18 to 84 with the most recent birthday. No substitution of respondent within the household is allowed. If that respondent is unreachable or unwilling, a new household is dialed.

³Lists of licensed vehicle registrations from the 43 states from which such information is available (plus the District of Columbia) are purchased from R.L. Polk (Southfield, Michigan).

C. SCREENING HOUSEHOLD RESPONDENTS TO IDENTIFY QUALIFIED CUSTOMERS

The designated respondent is qualified as a customer from questions about the purchase of products and services within specified time periods for up to ten industries. No single respondent is interviewed about more than three companies (none of which are competing in the same industry or product category).

Once a respondent qualifies as the customer of three measured companies, screening is discontinued. If the respondent qualifies for one or two out of ten, he or she is interviewed about the products or services of these companies. If the respondent does not qualify as a customer for three measured companies, but has purchased goods or services from another company within the industries for which he or she was screened, the respondent is asked three satisfaction questions about that company. These interviews are aggregated within each industry as “all others.” Qualification as a customer is based on purchase/usage during the time periods shown in [Chapter IV, Table 4](#), and the questions shown in [Appendix B: ACSI Industry Definitions and Customer Identification](#).

There are multiple screening questionnaires to cover the measured industries. If more than ten industries are measured during the quarterly field interviewing period, ten are selected to start. As the quota of interviews for an industry is filled, the screening questionnaire for that industry is dropped and one for another industry is added. Once the number of companies for which the respondent qualifies is determined, the interviewer then proceeds with the customer satisfaction questionnaire for each of these.

Standard errors and confidence intervals for the companies are based on the completed sample size. Because all latent constructs used in the ACSI model are weighted averages of multiple questions, the final measures have more precision than single questions have with these sample sizes (see [Chapter II, Section C-1](#), “Precision”).

D. INTERVIEW RESULTS

1. Response and Cooperation Rates

In 2003, ACSI telephone interviewers completed 51,297 private sector company interviews with 36,952 customer respondents (an average of 1.4 interviews per respondent) plus 10,140 interviews with users of federal government services.

To standardize the reporting of random-digit-dial telephone survey results, the American Association of Public Opinion Research (AAPOR) has produced *Standard Definitions*:

Final Dispositions of Case Codes and Outcome Rates for Surveys (American Association of Public Opinion Research, 2004).

The ACSI methodology is unusual among surveys for several reasons. First, the design calls for four attempts (initial call and three callbacks at different times of day and different days) on each sampled phone number rather than an unlimited number of calls. Secondly, a randomly selected adult (age 18 to 84) in the household is then screened to determine if he/she has been the customer of specific companies within specific time periods. Thirdly, interviews for any company or government service are discontinued once a quota of 250 to 260 interviews is completed. Call results, therefore, do not exactly fit AAPOR categories. [Appendix E: Response and Cooperation Rates](#) reports the disposition of each of the sampled telephone numbers that produced the interviews.

Using AAPOR standards, the Cooperation Rate is 94.2% and the Response Rate (RR3) is 22.7%. The calculations of these are shown in [Appendix E](#).

2. Refusal Conversions

If the person who answers at a household refuses for anyone in the household to be interviewed, or if an identified qualified customer refuses, an attempt is made by a more experienced interviewer on a different day to contact the household or customer to obtain cooperation. Refusal conversions account for 8% to 10% of completed interviews.

E. PROFILE OF INTERVIEWED CUSTOMERS

[Appendix F](#) gives a demographic profile of interviewed customers for private sector companies. All are between the ages of 18 and 84, or 21 and 84 if interviewed about breweries or cigarettes. The sample, screened to purchasing adults in telephone households,⁴ has expected differences from all adults ages 18 to 84 in the direction of having higher socioeconomic characteristics of education and income and less representation of non-whites. The higher proportions of females (62% compared to 51% in the population) is partially attributable to the mix of companies measured in ACSI. Many of these produce household and food products purchased disproportionately by women.

⁴In 2000, 99% of owner-occupied households and 95% of renter-occupied households had telephone service. By 2003, according to the Bureau of Labor Statistics, cellular-only households had grown to approximately 4.5%. Interviews are not allowed on cellular numbers.

VI. DATA COLLECTION VIA TELEPHONE

The National Quality Research Center, Ross School of Business, works closely with its telephone sampling and interviewing sources to fulfill the unusual interviewing requirements called for by the ACSI sampling design described in the previous chapter. The interviewing requirements are unusual because of the need to screen households to identify customers of about 200 companies and the users of specific government-provided services, and to maintain nationally (or regionally) representative samples of the customers of each of these. Both industries and companies have greatly varying incidence of usage in U.S. households. This incidence ranges from 100% use of the U.S. Postal Service to a far lower percentage of adults who have stayed within the past year at one of several hotel chains with low household penetration and market share.

Customers for some federal government services are in such low incidence that it is not feasible to find them by screening households (for example applicants for certain grants, benefits, patents, or trademarks). For these, the federal agency provides the population frame in the form of a list of the total population or a very large random sample of it. From this frame, a random sample for interview is selected.

Most respondents in ACSI are identified by telephone screening. This screening is made more complex because many customers respond with brand names or subsidiary/divisional names of companies rather than with parent company names. A further complexity is that a qualified respondent can be a customer for a product or service from more than one industry, and is thus eligible for interview about more than one company (up to a maximum of three).

To accommodate these requirements, the computer-assisted-telephone-interviewing (CATI) system and the database created during interviewing are programmed and designed to have the following capabilities:

1. Assign multiple screening questionnaires and multiple company interview questionnaires to each designated respondent.
 - A respondent is administered only a portion of possible screening questionnaires (maximum ten). As interviews for each industry are completed, the screening questionnaire for another industry is added.
 - A respondent is eligible for interviews in a maximum of three industries, but only for one company within any industry. He or she may not be interviewed more than once for the same company if it is measured in another industry.

- The quota of company interviews for some industries in the Manufacturing/Nondurable Goods sector can be filled by multiple products from multiple screenings. For example, the Colgate-Palmolive Company has products in several categories in the personal care and cleaning products industry and Sara Lee Corporation has products in various categories of the food manufacturing industry.
 - A respondent who does not qualify as a customer of one of the measured companies, but has purchased or used the products or services for which screened from another company, can be administered the three ACSI satisfaction questions about the “other company”—if this respondent has not already been interviewed for a maximum of three companies.
 - Demographic questions are asked of a responding customer only once, but can be linked to each company interview that the customer completes.
2. Fill interview quotas for low-incidence companies.
- Screen respondents for use of products or services of industries with varying incidence of use.
 - Identify respondent purchases from specific companies with varying market shares.
 - Within industries, if a respondent is a customer for products or services from more than one company, select the company with the lowest market share as the subject of the interview.
3. Associate product, brand, and subsidiary names with parent companies.
- A specialized database includes all identifiable brand names and subsidiaries of each measured company. This database is incorporated in the CATI program for ACSI. Names associated with the companies in each industry come up on the screen for interviewer use (see examples for the major appliance industry and for the supermarket industry in [Appendix C: Example Screening Questionnaires and Brand/Company Identification](#)). Over 5,000 brand and subsidiary names are in the database, which is updated every quarter. The brand database was initialized using the *Brands and Their Companies* database of Gale Research, Inc. (Southfield, Michigan). It is updated at the start of each interviewing period by checking the Web pages of measured companies and by using sources such as business media reports on acquisitions and mergers and company annual reports.

- The program allows the customer being interviewed to identify to the interviewer which product or brand he or she purchased, and the brand database associates the brand with the parent company.
 - The program inserts the name of the brand or subsidiary identified by the responding customer into the company interview questionnaire so that the linkage is transparent to the customer who is then interviewed using the specific brand or subsidiary name.
4. Monitor representativeness of sample for each industry throughout interviewing period.
- Demographics are tracked and reviewed weekly throughout the field interviewing period. Because both list and random-digit-dial (RDD) samples are used for the Manufacturing/Durable Goods sector, demographics of each sample are tracked separately and in combination. Interviewing is switched over to RDD only if the list sample shows beyond expected deviations from the demographics of the RDD sample.

Interviews for the baseline 1994 American Customer Satisfaction Index were conducted simultaneously for all sectors, industries, and companies between May 10 and July 22, 1994. Since then, interviews have been conducted quarterly for one or more sectors per quarter. The field interviewing schedule is shown in [Table 1](#) in Chapter I, *Introduction*. The University of Michigan competitively bids sampling and interviewing work periodically.⁵

⁵Pretest interviewing in 1993 and sampling, interviewing, data collection, and consulting from 1997 to 1999 were provided by Wirthlin Worldwide (McClellan, Virginia), now part of Harris Interactive. For the years 1994 to 1996 and 2000 to 2004, ACSI sampling, interviewing, data collection, and consulting have been provided by Market Strategies, Inc. (Livonia, Michigan).

VII. E-BUSINESS AND E-COMMERCE SAMPLES AND DATA COLLECTION VIA INTERNET

Since 2000, the American Customer Satisfaction Index has been expanded to add measurement of customer satisfaction with companies that sell products and services on the Internet. These companies are in three e-business industries (news and information, portals, and search engines) and in four e-commerce industries (retail, auctions, brokerage, and travel). Internet interviewing is appropriate for obtaining customer evaluations for these Internet-based companies.

A. SAMPLE SELECTION

Samples are drawn from the Survey Spot Panel developed and maintained by Survey Sampling International (Survey Sampling International, 2004). Survey Spot is an online panel with 1,329,409 active members 18 years or older in the United States. Respondents give explicit permission to receive invitations for surveys and receive incentives via a monthly cash drawing system that rewards respondents for participation in surveys, regardless of whether they qualify for participation in a particular survey.

For ACSI, a series of random samples are drawn from the panel so as to match the age and gender demographics of the population based on the 2000 census. The selected sample persons are then invited by e-mail to visit the MSInteractive Web site and complete the survey. Invitations are sent out in three waves for each interview period, and reminder e-mails are sent to nonresponders.

B. SCREENING TO QUALIFIED CUSTOMERS

During the screening process for the e-business and e-commerce interviews, individuals are informed that they are not eligible to participate unless they are between the ages of 18 and 84 and are U.S. citizens. To qualify as a customer for any of the industries, the respondent has to have used one of the measured companies or an “other” company in the industry.

C. DATA COLLECTION VIA INTERNET

For e-business and e-commerce, the standard private sector ACSI questionnaire shown in [Appendix D](#) is reformatted for screen display and ease of respondent use. Customers who qualify on the basis of screening proceed through a series of screens on the Internet and input responses to survey questions on their computers.

In 2004, 7,348 Internet interviews were conducted with 6,150 customer respondents (an average of 1.2). Internet interviewing results are reported in [Appendix E: Response and Cooperation Rates](#) following the tabulation of telephone interviews.

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***APPENDIX A:
COMPANIES AND GOVERNMENT
SERVICES EVALUATED BY
CUSTOMERS IN ACSI***

COMPANIES AND GOVERNMENT SERVICES IN ACSI (2005)

| Companies/Government Services by Sector & Industry | 2003 Total Revenues of US Companies (millions \$) ⁶ | 2003 Revenues in US Domestic Market Segments Measured in ACSI (millions \$) (Estimated) | Worldwide Revenues of Non-US Companies (millions \$) | Fortune Rank by Revenue 4/5/04 |
|--|--|---|--|--------------------------------|
| UTILITIES SECTOR | | | | |
| Energy Utilities | | | | |
| | | (Residential revenue) | | |
| Allegheny Energy, Inc. | 2,742 | 806 | | 605 |
| Ameren Corporation | 4,593 | 1,240 | | 382 |
| American Electric Power Company, Inc. | 15,441 | 1,127 | | 132 |
| CenterPoint Energy, Inc. | 9,772 | 1,780 | | 201 |
| Cinergy Corp. | 4,416 | 490 | | 393 |
| CMS Energy Corporation | 6,017 | 1,486 | | 307 |
| Consolidated Edison, Inc. | 9,827 | 3,862 | | 198 |
| Dominion Resources, Inc. | 12,078 | 5,677 | | 164 |
| DTE Energy Company | 7,062 | 2,097 | | 273 |
| Duke Energy Corporation | 23,483 | 6,857 | | 75 |
| Edison International | 12,156 | 4,765 | | 163 |
| Energy East Corporation | 4,919 | 1,845 | | 354 |
| Entergy Corporation | 9,195 | 2,685 | | 217 |
| Exelon Corporation | 15,812 | 6,122 | | 126 |
| FirstEnergy Corp. | 12,318 | 4,262 | | 158 |
| FPL Group, Inc. | 9,630 | 4,430 | | 205 |
| KeySpan Corporation | 6,915 | 3,617 | | 274 |
| National Grid Transco plc | 6,247 | 3,785 | | NL |
| NiSource Inc. | 6,401 | 1,741 | | 292 |
| Northeast Utilities | 6,065 | 1,759 | | 304 |
| Pepco Holdings, Inc. | 7,271 | 2,545 | | 270 |
| PG&E Corporation | 11,221 | 2,962 | | 179 |
| PPL Corporation | 5,587 | 1,067 | | 324 |
| Progress Energy, Inc. | 9,027 | 1,363 | | 224 |
| Public Service Enterprise Group Incorporated | 11,340 | 2,994 | | 176 |
| Reliant Energy, Inc. | 11,707 | 2,576 | | 166 |
| Sempra Energy | 7,887 | 3,581 | | 257 |
| Southern Company | 11,251 | 3,623 | | 178 |
| TXU Corp. | 11,325 | 2,492 | | 177 |
| Xcel Energy Inc. | 7,939 | 4,390 | | 254 |
| Total Energy Utilities | 279,644 | 88,026 | 0 | |
| TOTAL UTILITIES SECTOR | 279,644 | 88,026 | 0 | |

⁶The asterisk under "Total Revenues" means that the company's total revenue is shown under a larger category for that company.

| Companies/Government Services by Sector & Industry | 2003 Total Revenues of US Companies (millions \$)⁶ | 2003 Revenues in US Domestic Market Segments Measured in ACSI (millions \$) (Estimated) | Worldwide Revenues of Non-US Companies (millions \$) | Fortune Rank by Revenue 4/5/04 |
|---|--|--|---|---------------------------------------|
|---|--|--|---|---------------------------------------|

MANUFACTURING/NONDURABLE GOODS SECTOR

Food Manufacturing (baked goods, cereal, confectionery products, canned & packaged fresh foods, meat & cheese)

| | | | | |
|---------------------------------|----------------|----------------|---------------|--------|
| Campbell Soup Company | 6,678 | 5,626 | | 280 |
| ConAgra Foods, Inc. | 22,053 | 19,848 | | 84 |
| Dole Food Company, Inc. | 4,608 | 1,898 | | 380 |
| General Mills, Inc. | 10,506 | 10,987 | | 186 |
| H.J. Heinz Company | 9,328 | 3,842 | | 213 |
| Hershey Foods Corporation | 4,173 | 3,338 | | 415 |
| Kellogg Company | 8,812 | 5,264 | | 233 |
| Kraft Foods Inc. | * | 21,907 | | 15 |
| Mars, Incorporated | 17,000 | 12,240 | | NL |
| Nestlé S.A. | | 1,592 | 39,788 | Non-US |
| Quaker Foods (PepsiCo, Inc.) | * | 1,500 | | 63 |
| Sara Lee Corporation | 18,291 | 5,233 | | 104 |
| Tyson Foods, Inc. | 24,459 | 21,909 | | 72 |
| Total Food Manufacturing | 125,908 | 115,184 | 39,788 | |

| Companies/Government Services by Sector & Industry | 2003 Total Revenues of US Companies (millions \$)⁶ | 2003 Revenues in US Domestic Market Segments Measured in ACSI (millions \$) (Estimated) | Worldwide Revenues of Non-US Companies (millions \$) | Fortune Rank by Revenue 4/5/04 |
|---|--|--|---|---------------------------------------|
| Pet Food | | | | |
| Del Monte Foods Company | 2,171 | 412 | | 670 |
| Hill's Pet Nutrition, Inc. (Colgate-Palmolive Company) | * | 1,316 | | 196 |
| The Iams Company (The Procter & Gamble Company) | * | 2,000 | | 28 |
| Mars, Incorporated | * | 1,700 | | NL |
| Nestlé Purina PetCare Company (Nestlé S.A.) | * | 1,592 | * | Non-US |
| Total Pet Food | 2,171 | 7,020 | 0 | |
| Soft Drinks | | | | |
| Cadbury Schweppes plc | | 2,903 | 8,538 | Non-US |
| The Coca-Cola Company | 39,585 | 19,292 | | 91+112+989 |
| PepsiCo, Inc. | 40,473 | 16,835 | | 62+190+498 |
| Total Soft Drinks | 80,058 | 39,030 | 8,538 | |
| Breweries | | | | |
| Adolph Coors Company | 4,000 | 2,410 | | 430 |
| Anheuser-Busch Companies, Inc. | 14,147 | 11,182 | | 142 |
| Miller Brewing Company (SABMiller plc) | | 3,465 | 8,295 | Non-US |
| Total Breweries | 18,147 | 17,057 | 8,295 | |
| Cigarettes | | | | |
| Philip Morris USA Inc. (Altria Group, Inc.) | 69,704 | 17,001 | | 15 |
| Reynolds American Inc. | 5,267 | 2,633 | | 341 |
| Total Cigarettes | 74,971 | 19,634 | 0 | |

| Companies/Government Services by Sector & Industry | 2003 Total Revenues of US Companies (millions \$)⁶ | 2003 Revenues in US Domestic Market Segments Measured in ACSI (millions \$) (Estimated) | Worldwide Revenues of Non-US Companies (millions \$) | Fortune Rank by Revenue 4/5/04 |
|---|--|--|---|---------------------------------------|
| Apparel (casual clothes, jeans & sportswear, underwear & hosiery) | | | | |
| Jones Apparel Group, Inc. | 4,375 | 4,375 | | 399 |
| Levi Strauss & Co. | 4,091 | 2,496 | | 422 |
| Liz Claiborne, Inc. | 4,241 | 3,305 | | 407 |
| Sara Lee Corporation | * | 4,311 | | 104 |
| VF Corporation | 5,207 | 5,207 | | 343 |
| Total Apparel | 17,914 | 19,694 | 0 | |
| Athletic Shoes | | | | |
| NIKE, Inc. | 10,697 | 3,020 | | 184 |
| Reebok International Ltd. | 3,485 | 1,591 | | 477 |
| Total Athletic Shoes | 14,182 | 4,611 | 0 | |
| Personal Care & Cleaning Products (cleaners, detergent, shampoo, soap, toothpaste) | | | | |
| The Clorox Company | 4,171 | 3,354 | | 416 |
| Colgate-Palmolive Company | 9,903 | 2,872 | | 196 |
| The Dial Corporation (Henkel KGaA) | | 873 | 11,844 | Non-US |
| The Procter & Gamble Company | 43,377 | 18,876 | | 28 |
| Unilever | | 6,143 | 53,674 | Non-US |
| Total Personal Care & Cleaning Products | 57,451 | 32,118 | 65,518 | |
| TOTAL MANUFACTURING/NONDURABLE GOODS SECTOR | 390,802 | 254,348 | 122,139 | |

| Companies/Government Services by Sector & Industry | 2003 Total Revenues of US Companies (millions \$)⁶ | 2003 Revenues in US Domestic Market Segments Measured in ACSI (millions \$) (Estimated) | Worldwide Revenues of Non-US Companies (millions \$) | Fortune Rank by Revenue 4/5/04 |
|---|--|--|---|---------------------------------------|
|---|--|--|---|---------------------------------------|

MANUFACTURING/DURABLE GOODS SECTOR

Personal Computers

| | | | | |
|---------------------------------|----------------|---------------|----------|-----|
| Apple Computer, Inc. | 6,207 | 3,338 | | 301 |
| Dell Inc. | 41,444 | 26,524 | | 31 |
| Gateway, Inc. | 3,402 | 3,402 | | 484 |
| Hewlett-Packard Company | 73,061 | 13,223 | | 11 |
| Total Personal Computers | 124,114 | 46,487 | 0 | |

Cellular Telephones

| | | | | |
|----------------------------------|---------------|--------------|---------------|--------|
| Kyocera Corporation | | 1,052 | 10,932 | Non-US |
| Motorola, Inc. | 27,058 | 2,606 | | 61 |
| Nokia Corporation | | 2,656 | 37,031 | Non-US |
| Samsung Electronics Co., Ltd. | | 1,183 | 7,563 | Non-US |
| Total Cellular Telephones | 27,058 | 7,497 | 55,526 | |

Electronics (TV/VCR/DVD)

| | | | | |
|---------------------------------------|--|--------------|----------|--|
| TV, VCR, DVD aggregated | | 9,670 | 0 | |
| Total Electronics (TV/VCR/DVD) | | 9,670 | 0 | |

Major Appliances (washer, dryer, stove, refrigerator, dishwasher)

| | | | | |
|-------------------------------|----------------|---------------|----------|-----|
| General Electric Company | 134,187 | 4,562 | | 5 |
| Maytag Corporation | 4,792 | 4,538 | | 361 |
| Whirlpool Corporation | 12,176 | 7,875 | | 161 |
| Total Major Appliances | 151,155 | 16,975 | 0 | |

| Companies/Government Services by Sector & Industry | 2003 Total Revenues of US Companies (millions \$)⁶ | 2003 Revenues in US Domestic Market Segments Measured in ACSI (millions \$) (Estimated) | Worldwide Revenues of Non-US Companies (millions \$) | Fortune Rank by Revenue 4/5/04 |
|---|--|--|---|---------------------------------------|
| Automobiles & Light Vehicles | | | | |
| Bayerische Motoren Werke AG (BMW) | | 10,494 | 52,122 | Non-US |
| DaimlerChrysler AG | | 82,186 | 171,529 | Non-US |
| Chrysler | | * | * | |
| Dodge | | * | * | |
| Jeep | | * | * | |
| Mercedes-Benz | | * | * | |
| Ford Motor Company | 164,496 | 98,698 | | 4 |
| Ford | * | * | | |
| Lincoln, Mercury | * | * | | |
| Volvo | * | * | | |
| General Motors Corporation | 195,695 | 142,857 | | 3 |
| Buick | * | * | | |
| Cadillac | * | * | | |
| Chevrolet | * | * | | |
| GMC | * | * | | |
| Oldsmobile | * | * | | |
| Pontiac | * | * | | |
| Saturn Corporation | * | * | | |
| Honda Motor Co., Ltd. | | 31,040 | 67,479 | Non-US |
| Hyundai Motor Company | | 6,546 | 20,900 | Non-US |
| Mazda Motor Corporation | | 7,355 | 19,730 | Non-US |
| Nissan Motor Co., Ltd. | | 21,576 | 56,905 | Non-US |
| Toyota Motor Corporation | | 51,382 | 163,637 | Non-US |
| Volkswagen AG | | 21,705 | 109,234 | Non-US |
| Total Automobiles & Light Vehicles | 360,191 | 473,839 | 661,536 | |
| TOTAL MANUFACTURING/DURABLE GOODS SECTOR | 662,518 | 554,468 | 717,062 | |

| Companies/Government Services by Sector & Industry | 2003 Total Revenues of US Companies (millions \$)⁶ | 2003 Revenues in US Domestic Market Segments Measured in ACSI (millions \$) (Estimated) | Worldwide Revenues of Non-US Companies (millions \$) | Fortune Rank by Revenue 4/5/04 |
|---|--|--|---|---------------------------------------|
|---|--|--|---|---------------------------------------|

RETAIL TRADE SECTOR

Supermarkets

| | | | | |
|----------------------------|----------------|----------------|----------|-----|
| Albertson's, Inc. | 34,436 | 34,436 | | 38 |
| The Kroger Co. | 53,791 | 53,791 | | 19 |
| Publix Super Markets, Inc. | 16,848 | 16,848 | | 117 |
| Safeway Inc. | 35,553 | 35,553 | | 37 |
| SUPERVALU INC. | 20,210 | 20,210 | | 99 |
| Winn-Dixie Stores, Inc. | 12,168 | 12,168 | | 162 |
| Wal-Mart Stores, Inc. | * | 20,430 | | 1 |
| Total Supermarkets | 173,006 | 193,436 | 0 | |

Gasoline Stations

| | | | | |
|--------------------------------|----------------|----------------|----------------|--|
| Gasoline stations (aggregated) | 559,236 | 731,806 | 434,299 | |
| Total Gasoline Stations | 559,236 | 731,806 | 434,299 | |

Department & Discount Stores

| | | | | |
|---|----------------|----------------|----------|-----|
| Army and Air Force Exchange Service (AAFES) | 6,500 | 6,500 | | NL |
| Dillard's, Inc. | 7,864 | 7,864 | | 258 |
| Federated Department Stores, Inc. | 15,264 | 15,264 | | 134 |
| J.C. Penney Corporation, Inc. | 32,923 | 32,923 | | 43 |
| Kmart Corporation | 26,032 | 26,032 | | 67 |
| Kohl's Corporation | 10,282 | 10,282 | | 189 |
| The May Department Stores Company | 16,518 | 16,518 | | 147 |
| Sears, Roebuck and Co. | 41,124 | 41,124 | | 32 |
| Target Corporation | 44,988 | 44,988 | | 23 |
| Wal-Mart Stores, Inc. | 258,681 | 153,790 | | 1 |
| Total Department & Discount Stores | 460,176 | 355,285 | 0 | |

| Companies/Government Services by Sector & Industry | 2003 Total Revenues of US Companies (millions \$)⁶ | 2003 Revenues in US Domestic Market Segments Measured in ACSI (millions \$) (Estimated) | Worldwide Revenues of Non-US Companies (millions \$) | Fortune Rank by Revenue 4/5/04 |
|---|--|--|---|---------------------------------------|
| Specialty Retail Stores | | | | |
| Best Buy Co., Inc. | 22,673 | 22,673 | | 78 |
| Circuit City Stores, Inc. | 9,954 | 9,954 | | 195 |
| Costco Wholesale Corporation | 42,546 | 42,546 | | 29 |
| The Home Depot, Inc. | 64,816 | 64,816 | | 13 |
| Lowe's Companies, Inc. | 31,263 | 31,263 | | 50 |
| SAM'S CLUB (Wal-Mart Stores, Inc.) | * | 34,357 | | 1 |
| Total Specialty Retail Stores | 171,252 | 205,609 | 0 | |
| TOTAL RETAIL TRADE SECTOR | 1,363,670 | 1,486,136 | 434,299 | |

| Companies/Government Services by Sector & Industry | 2003 Total Revenues of US Companies (millions \$)⁶ | 2003 Revenues in US Domestic Market Segments Measured in ACSI (millions \$) (Estimated) | Worldwide Revenues of Non-US Companies (millions \$) | Fortune Rank by Revenue 4/5/04 |
|---|--|--|---|---------------------------------------|
|---|--|--|---|---------------------------------------|

TRANSPORTATION & WAREHOUSING SECTOR

Airlines

| | | | | |
|-------------------------------------|---------------|---------------|----------|-----|
| American Airlines (AMR Corporation) | 17,440 | 17,440 | | 110 |
| Continental Airlines, Inc. | 8,870 | 8,870 | | 231 |
| Delta Air Lines, Inc. | 13,303 | 13,303 | | 150 |
| Northwest Airlines Corporation | 9,510 | 9,510 | | 207 |
| Southwest Airlines Co. | 5,937 | 5,937 | | 310 |
| United Airlines (UAL Corporation) | 13,724 | 13,724 | | 145 |
| US Airways Group, Inc. | 6,846 | 6,846 | | 276 |
| Total Airlines | 75,630 | 75,630 | 0 | |

U.S. Postal Service⁷

| | | | | |
|----------------------------------|---------------|---------------|----------|--|
| U.S. Postal Service | 58,126 | 58,126 | 0 | |
| Total U.S. Postal Service | 58,126 | 58,126 | 0 | |

Express Delivery

| | | | | |
|---|---------------|---------------|----------|----|
| FedEx Corporation | 22,487 | 15,588 | | 82 |
| United Parcel Service, Inc. | 33,485 | 25,000 | | 42 |
| U.S. Postal Service—Express & Priority Mail | 5,634 | 5,634 | 0 | NL |
| Total Express Delivery | 61,606 | 46,222 | 0 | |

| | | | | |
|--|----------------|----------------|----------|--|
| TOTAL TRANSPORTATION & WAREHOUSING SECTOR | 195,362 | 179,978 | 0 | |
|--|----------------|----------------|----------|--|

⁷This measures USPS monopoly mail and counter services only. The USPS's Express Mail and Priority Mail services are included in the competitive Express Delivery industry.

| Companies/Government Services by Sector & Industry | 2003 Total Revenues of US Companies (millions \$)⁶ | 2003 Revenues in US Domestic Market Segments Measured in ACSI (millions \$) (Estimated) | Worldwide Revenues of Non-US Companies (millions \$) | Fortune Rank by Revenue 4/5/04 |
|---|--|--|---|---------------------------------------|
|---|--|--|---|---------------------------------------|

INFORMATION SECTOR

Newspapers

| | | | |
|---|--------|--------|---|
| Newspapers [aggregate of Advance Publications, Inc. (Time Warner Inc.); Dow Jones & Company, Inc.; Gannett Company, Inc.; Knight-Ridder, Inc.; The New York Times Company; The Times Mirror Company; Tribune Company] | 22,806 | 22,806 | 0 |
|---|--------|--------|---|

| | | | |
|-------------------------|---------------|---------------|----------|
| Total Newspapers | 22,806 | 22,806 | 0 |
|-------------------------|---------------|---------------|----------|

Motion Pictures (motion pictures, video, DVD)

| | | | |
|---|--------|--------|--|
| Motion pictures (motion pictures, video, DVD) (aggregated nationally) | 34,000 | 34,000 | |
|---|--------|--------|--|

| | | | |
|------------------------------|---------------|---------------|----------|
| Total Motion Pictures | 34,000 | 34,000 | 0 |
|------------------------------|---------------|---------------|----------|

Broadcasting TV News

| | | | |
|---|--------|--------|---|
| Broadcasting TV News (aggregate of ABC, CBS, CNN, Fox, NBC) | 38,470 | 38,470 | 0 |
|---|--------|--------|---|

| | | | |
|-----------------------------------|---------------|---------------|----------|
| Total Broadcasting TV News | 38,470 | 38,470 | 0 |
|-----------------------------------|---------------|---------------|----------|

Fixed Line Telephone Service

| | | | |
|---|--------|--------|-----|
| AT&T Corp. | 34,529 | 9,484 | 40 |
| BellSouth Corporation | 22,635 | 16,957 | 80 |
| MCI, Inc. | 27,315 | 6,375 | NL |
| Qwest Communications International Inc. | 14,936 | 4,230 | 136 |
| SBC Communications Inc. | 40,843 | 28,842 | 33 |
| Sprint FON Group (Sprint Corporation) | 26,917 | 7,923 | 65 |
| Verizon Communications Inc. | 67,752 | 23,510 | 12 |

| | | | |
|---|----------------|---------------|----------|
| Total Fixed Line Telephone Service | 234,927 | 97,321 | 0 |
|---|----------------|---------------|----------|

| Companies/Government Services by Sector & Industry | 2003 Total Revenues of US Companies (millions \$)⁶ | 2003 Revenues in US Domestic Market Segments Measured in ACSI (millions \$) (Estimated) | Worldwide Revenues of Non-US Companies (millions \$) | Fortune Rank by Revenue 4/5/04 |
|--|--|--|---|---------------------------------------|
| Wireless Telephone Service | | | | |
| Cingular Wireless LLC (BellSouth Corporation, SBC Communications Inc.) | | 32,178 | | NL |
| Nextel Communications, Inc. | 10,820 | 10,820 | | 183 |
| Sprint PCS Group (Sprint Corporation) | * | 12,690 | | 65 |
| T-Mobile USA, Inc. (Deutsche Telekom AG) | | 8,358 | 70,200 | Non-US |
| Verizon Wireless (Cellco Partnership) | 67,752 | 22,489 | | 12 |
| Total Wireless Telephone Service | 78,572 | 86,535 | 70,200 | |
| Cable & Satellite TV | | | | |
| Charter Communications, Inc. | 4,819 | 4,819 | | 358 |
| Comcast Corporation | 21,263 | 21,263 | | 89 |
| Cox Communications, Inc. | 5,759 | 5,759 | | 318 |
| The DIRECTV Group, Inc. | 10,121 | 10,121 | | NL |
| EchoStar Communications Corporation | 5,551 | 5,551 | | 327 |
| Time Warner Cable | 43,877 | 16,129 | | 27 |
| Total Cable & Satellite TV | 91,390 | 63,642 | 0 | |
| TOTAL INFORMATION SECTOR | 500,165 | 342,774 | 70,200 | |

| Companies/Government Services by Sector & Industry | 2003 Total Revenues of US Companies (millions \$)⁶ | 2003 Revenues in US Domestic Market Segments Measured in ACSI (millions \$) (Estimated) | Worldwide Revenues of Non-US Companies (millions \$) | Fortune Rank by Revenue 4/5/04 |
|---|--|--|---|---------------------------------------|
|---|--|--|---|---------------------------------------|

FINANCE & INSURANCE SECTOR

Banks

| | | | | |
|-----------------------------|----------------|----------------|----------|--------|
| Bank of America Corporation | 62,427 | 62,427 | | 24+140 |
| J.P. Morgan Chase & Co. | 65,817 | 65,817 | | 26+88 |
| Wachovia Corporation | 24,474 | 24,474 | | 73 |
| Wells Fargo & Company | 31,800 | 31,800 | | 49 |
| Total Banks | 184,518 | 184,518 | 0 | |

Life Insurance

| | | | | |
|--|----------------|----------------|----------|-----|
| MetLife, Inc. | 36,261 | 36,261 | | 36 |
| New York Life Insurance Company | 25,700 | 25,700 | | 70 |
| The Northwestern Mutual Life Insurance Company | 17,060 | 17,060 | | 115 |
| Prudential Financial, Inc. | 27,907 | 27,907 | | 57 |
| Total Life Insurance | 106,928 | 106,928 | 0 | |

Health Insurance

| | | | | |
|--|----------------|----------------|--|-----|
| Aetna Inc. | 17,976 | 17,976 | | 108 |
| Blue Cross and Blue Shield Association | 182,700 | 182,700 | | NL |
| UnitedHealth Group Incorporated | 28,823 | 28,823 | | 54 |
| Total Health Insurance | 229,499 | 229,499 | | |

Property & Casualty Insurance

| | | | | |
|---|----------------|----------------|----------|-----|
| The Allstate Corporation | 32,149 | 32,149 | | 47 |
| Farmers Group, Inc. (Zurich Financial Services) | 3,281 | 3,281 | | NL |
| GEICO (Berkshire Hathaway Inc.) | 63,859 | 7,784 | | 14 |
| The Progressive Corporation | 11,892 | 11,892 | | 165 |
| State Farm Mutual Automobile Insurance Company | 56,065 | 56,065 | | 18 |
| Total Property & Casualty Insurance | 167,246 | 111,171 | 0 | |

| | | | | |
|---|----------------|----------------|----------|--|
| TOTAL FINANCE & INSURANCE SECTOR | 688,191 | 632,116 | 0 | |
|---|----------------|----------------|----------|--|

| Companies/Government Services by Sector & Industry | 2003 Total Revenues of US Companies (millions \$)⁶ | 2003 Revenues in US Domestic Market Segments Measured in ACSI (millions \$) (Estimated) | Worldwide Revenues of Non-US Companies (millions \$) | Fortune Rank by Revenue 4/5/04 |
|---|--|--|---|---------------------------------------|
|---|--|--|---|---------------------------------------|

HEALTH CARE & SOCIAL ASSISTANCE SECTOR

Hospitals

| | | | |
|-----------------------------------|----------------|----------------|----------|
| Hospitals (aggregated nationally) | 451,220 | 451,220 | 0 |
| Total Hospitals | 451,220 | 451,220 | 0 |

| | | | |
|---|----------------|----------------|----------|
| TOTAL HEALTH CARE & SOCIAL ASSISTANCE SECTOR | 451,220 | 451,220 | 0 |
|---|----------------|----------------|----------|

| Companies/Government Services by Sector & Industry | 2003 Total Revenues of US Companies (millions \$)⁶ | 2003 Revenues in US Domestic Market Segments Measured in ACSI (millions \$) (Estimated) | Worldwide Revenues of Non-US Companies (millions \$) | Fortune Rank by Revenue 4/5/04 |
|---|--|--|---|---------------------------------------|
|---|--|--|---|---------------------------------------|

ACCOMMODATION & FOOD SERVICES SECTOR

Hotels

| | | | | |
|---|---------------|---------------|--------------|--------|
| Global Hyatt Corporation | 3,600 | 3,600 | | NL |
| Hilton Hotels Corporation | 3,853 | 3,082 | | 438 |
| Holiday Inn (InterContinental Hotels Group PLC) | | 5,210 | 6,192 | Non-US |
| Marriott International, Inc. | 9,198 | 7,358 | | 216 |
| Ramada Franchise Systems Inc. (Cendant Corporation) | 18,192 | 1,820 | | 106 |
| Starwood Hotels & Resorts Worldwide, Inc. | 3,801 | 2,802 | | 441 |
| Total Hotels | 38,644 | 23,872 | 6,192 | |

Limited-Service Restaurants

| | | | | |
|--|----------------|---------------|----------|-----|
| Burger King Corporation | 125,839 | 4,000 | | NL |
| Domino's, Inc. | 1,333 | 1,247 | | 951 |
| Little Caesar Enterprises, Inc. | 435 | 435 | | NL |
| McDonald's Corporation | 17,141 | 6,943 | | 114 |
| Papa John's International, Inc. | 917 | 416 | | NL |
| Wendy's International, Inc. | 3,149 | 2,191 | | 507 |
| YUM! Brands, Inc. | 8,380 | * | | 245 |
| KFC | * | 1,576 | | |
| Pizza Hut | * | 1,802 | | |
| Taco Bell | * | 1,802 | | |
| Total Limited-Service Restaurants | 157,194 | 20,412 | 0 | |

| | | | | |
|---|----------------|---------------|--------------|--|
| TOTAL ACCOMMODATION & FOOD SERVICES SECTOR | 195,838 | 44,284 | 6,192 | |
|---|----------------|---------------|--------------|--|

| Companies/Government Services by Sector & Industry | 2003 Total Revenues of US Companies (millions \$)⁶ | 2003 Revenues in US Domestic Market Segments Measured in ACSI (millions \$) (Estimated) | Worldwide Revenues of Non-US Companies (millions \$) | Fortune Rank by Revenue 4/5/04 |
|---|--|--|---|---------------------------------------|
|---|--|--|---|---------------------------------------|

PUBLIC ADMINISTRATION SECTOR

| | | | | |
|---|---------------|---------------|----------|--|
| Federal Agencies | 19,855 | 19,855 | | |
| Total Federal Government | 19,855 | 19,855 | | |
| Solid Waste Disposal | 14,861 | 14,861 | | |
| Police | 48,217 | 48,217 | | |
| Total Local Government | 63,078 | 63,078 | | |
| TOTAL PUBLIC ADMINISTRATION SECTOR | 82,933 | 82,933 | 0 | |

| Companies/Government Services by Sector & Industry | 2003 Total Revenues of US Companies (millions \$)⁶ | 2003 Revenues in US Domestic Market Segments Measured in ACSI (millions \$) (Estimated) | Worldwide Revenues of Non-US Companies (millions \$) | Fortune Rank by Revenue 4/5/04 |
|---|--|--|---|---------------------------------------|
|---|--|--|---|---------------------------------------|

E-BUSINESS

News & Information

| | | | |
|--|--------|-----|--------|
| ABCNEWS.com (The Walt Disney Company) | 27,061 | 383 | 60 |
| CNN.com (Time Warner Inc.) | * | 295 | 27 |
| MSNBC.com (NBC, Microsoft Corporation) | * | 344 | 5 & 46 |
| NYTimes.com (The New York Times Company) | 3,227 | 60 | 499 |
| USATODAY.com (Gannett Co., Inc.) | 6,711 | 102 | 278 |

Portals

| | | | |
|---|--------|-------|-----|
| America Online, Inc. (Time Warner Inc.) | 43,877 | 6,982 | 27 |
| MSN (Microsoft Corporation) | 32,187 | 1,855 | 46 |
| Yahoo! Inc. | 1,625 | 1,625 | 813 |

Search Engines

| | | | |
|-------------------------|-----|-----|----|
| AltaVista (Yahoo! Inc.) | 46 | 23 | NL |
| Ask Jeeves, Inc. | 107 | 107 | NL |
| Google Inc. | 962 | 962 | NL |

| | | | |
|-------------------------|----------------|---------------|----------|
| TOTAL E-BUSINESS | 115,803 | 12,738 | 0 |
|-------------------------|----------------|---------------|----------|

| Companies/Government Services by Sector & Industry | 2003 Total Revenues of US Companies (millions \$)⁶ | 2003 Revenues in US Domestic Market Segments Measured in ACSI (millions \$) (Estimated) | Worldwide Revenues of Non-US Companies (millions \$) | Fortune Rank by Revenue 4/5/04 |
|---|--|--|---|---------------------------------------|
|---|--|--|---|---------------------------------------|

E-COMMERCE

Retail

| | | | | |
|-------------------------|-------|-------|--|-----|
| 1-800-FLOWERS.COM, Inc. | 604 | 265 | | NL |
| Amazon.com, Inc. | 5,264 | 5,264 | | 342 |
| barnesandnoble.com inc. | 5,565 | 425 | | 325 |
| Buy.com Inc. | 800 | 800 | | NL |

Auctions

| | | | | |
|---|-------|-------|--|-----|
| eBay Inc. | 2,165 | 2,165 | | 673 |
| priceline.com Incorporated | 864 | 864 | | NL |
| uBid, Inc. (Petters Group Worldwide, LLC) | 225 | 225 | | NL |

Brokerage

| | | | | |
|--------------------------------|-------|-------|--|-----|
| The Charles Schwab Corporation | 4,328 | 350 | | 402 |
| E*TRADE Financial Corp. | 2,008 | 2,008 | | 707 |

Travel

| | | | | |
|---|-------|-------|--|-----|
| Expedia, Inc. (IAC/InterActiveCorp) | 1,000 | 1,000 | | NL |
| Orbitz, Inc. (Cendant Corporation) | 242 | 242 | | NL |
| Travelocity.com L.P. (Sabre Holdings Corporation) | 2,045 | 368 | | 700 |

| | | | | |
|-------------------------|---------------|---------------|----------|--|
| TOTAL E-COMMERCE | 25,110 | 13,976 | 0 | |
|-------------------------|---------------|---------------|----------|--|

| Companies/Government Services by Sector & Industry | 2003 Total Revenues of US Companies (millions \$)⁶ | 2003 Revenues in US Domestic Market Segments Measured in ACSI (millions \$) (Estimated) | Worldwide Revenues of Non-US Companies (millions \$) | Fortune Rank by Revenue 4/5/04 |
|---|--|--|---|---------------------------------------|
| TOTAL MEASURED U.S. COMPANIES AND GOVERNMENT SERVICES (millions of \$) | 4,951,256 | 4,142,997 | 1,349,892 | |
| GROSS DOMESTIC PRODUCT (GDP) (2nd Q 2004) | 11,649,300 | 11,649,300 | | |
| ACSI-MEASURED COMPANIES AS % OF GDP | 42.5% | 35.6% | | |
| WORLDWIDE TOTAL REVENUES OF NON-US COMPANIES MEASURED IN ACSI (millions of \$) | | | 1,349,892 | |

NL = Not listed in Fortune 1000.

SOURCES:

Annual reports of individual companies.

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Statistical Abstracts of the United States 2003.

Press clippings from *The Wall Street Journal*, *The New York Times*, *Business Week*.

"The Fortune 1000 Ranked Within Industries," *Fortune*, April 5, 2004.

Hoover's Handbook of World Business 2004 (Hoover's Business Press).

U.S. Trade and Industry Outlook 2004.

GDP from *www.bea.gov*

***APPENDIX B:
ACSI INDUSTRY DEFINITIONS AND
CUSTOMER IDENTIFICATION***

ACSI INDUSTRY DEFINITIONS AND CUSTOMER IDENTIFICATION

Utilities Sector

Industry: Energy Utilities

Customer identified by these questions:

“Which company provides your electric service?”

“Do you have natural gas service?”

(IF YES) “Which company provides your natural gas service?”

Manufacturing/Nondurable Goods Sector

Industry: Food Manufacturing

Categories:

- baked goods (bread, cake, flour, cookies, crackers)
- cereal (cold or hot)
- confectionery products (chocolate, cocoa, chocolate candy)
- canned & packaged fresh foods (soup, canned vegetables or fruits, pickles, ketchup, packaged salads, fresh vegetables or fruits with a brand name)
- meat & cheese (packaged cold meats, franks, sausage, poultry, cheese)

Customers identified by any of several questions:

“Have you purchased and consumed any baked goods, bread, cakes, flour, cookies, or crackers in the last month?”

“Have you purchased and consumed cold or hot cereal in the last month?”

“Have you purchased and consumed chocolate, cocoa, or chocolate candy in the last month?”

“Have you purchased and consumed any canned goods such as soup, vegetables, fruits, pickles, ketchup, or packaged salads with a brand name in the last month?”

“Have you purchased and consumed any cold meats, franks, sausage, poultry, or cheese in the last month?”

Industry: Pet Food

Customers identified by two-part question:

“Does your household have a cat or a dog?”
(IF YES) “Which brands of pet food have you purchased for your dog or cat to eat in the last month?”

Industry: Soft Drinks

Customers identified by question:

“Have you purchased and consumed soft drinks or pop in the last month?”

Industry: Breweries

Customers identified by two-part question:

“Are you 21 years of age or older?”
(IF YES) “Have you purchased and consumed beer in the last month?”

Industry: Cigarettes

Customers identified by two-part question:

“Are you 21 years of age or older?”
“Have you purchased and smoked cigarettes in the last month?”

Industry: Apparel

Categories:

- casual clothes
- jeans & sportswear
- underwear & hosiery (underwear, pantyhose, hosiery, socks, tee-shirts, turtlenecks)

Customers identified by questions:

“Have you purchased casual clothes in the last year?”
“Have you purchased jeans or sportswear in the last year?”
“Have you purchased underwear, pantyhose, hosiery, socks, tee-shirts, or turtlenecks in the last year?”

Industry: Athletic Shoes

Customers identified by question:

“Have you purchased athletic, running, or jogging shoes in the last year?”

Industry: Personal Care & Cleaning Products

Categories:

- cleaners (bleach, ammonia, cleansers, cleaning compounds)
- detergent
- shampoo
- soap
- toothpaste

Customers identified by any of several questions:

“Have you purchased bleach, ammonia, cleansers, or cleaning compounds in the last three months?”

“Have you purchased detergent in the last three months?”

“Have you purchased shampoo in the last three months?”

“Have you purchased soap in the last three months?”

“Have you purchased toothpaste in the last three months?”

Manufacturing/Durable Goods Sector

Industry: Personal Computers

Customers identified by question:

“Have you purchased a new personal computer for your home in the past three years?”

Industry: Cellular Telephones

Customers identified by question:

“Have you purchased a new cellular phone in the past two years?”

Industry: Electronics (TV/VCR/DVD)

Customers identified by either of two questions:

“Have you purchased a new television within the last three years for personal use?”

“Have you purchased a new VCR or DVD player within the last three years for personal use?”

(NOTE: TV/VCR/DVD combinations are recorded.)

Industry: Major Appliances (washer, dryer, stove, refrigerator, dishwasher)

Customers identified by question:

“Have you purchased a new major appliance such as a washer, dryer, stove, refrigerator, or dishwasher in the past three years?”

Industry: Automobiles & Light Vehicles

Customers identified by question:

“Have you purchased a NEW automobile/van/light truck between six months and three years ago, which you still own, or have you personally leased a NEW automobile/van/light truck during that time period, even if you still don’t own it?”

Retail Trade Sector

Industry: Supermarkets

Customers identified by question:

“Have you shopped for groceries at a supermarket or another store that sells a wide variety of goods including groceries in the past three months?”

Industry: Gasoline Stations

Customers identified by question:

“Have you purchased gasoline for your automobile in the past three months?”

Industry: Department & Discount Stores

Customers identified by question:

“Have you shopped at a department or discount store for merchandise NOT INCLUDING GROCERIES in the past six months? By department or discount store, I mean a store selling a wide variety of goods and arranged in several departments.”

Industry: Specialty Retail Stores

Customers identified by question:

“Within the past six months, have you shopped at a wholesale warehouse club, or a store that specializes in selling only certain products or goods? Some examples of specialty stores are those that mostly sell home improvement products, toys, electronics, computer products, office products, pet supplies, clothes, books, music, and so forth.”

Transportation & Warehousing Sector

Industry: Airlines

Customers identified by question:

“Have you flown on a scheduled airline in the past year?”

Industry: U.S. Postal Service

Customers identified by question:

“Have you visited a U.S. Post Office in the past six months to buy stamps, pick up mail, or use any of the counter services?”

Industry: Express Delivery

Customers identified by question:

“Have you used a parcel delivery, overnight or two-day mail delivery service for sending a letter, a document, or a package from either your home or your place of work in the past six months?”

Information Sector

Industry: Newspapers

Customers identified by question:

“Have you read a newspaper, which you purchased or subscribed to, in the last week?”

Industry: Motion Pictures (motion pictures, video, DVD)

Customers identified by question:

“Have you been to a motion picture theater or rented or purchased a video tape or DVD, or watched a movie on pay-per-view in the past year?”

Industry: Broadcasting TV News

Customers identified by question:

“Have you watched a national TV news program in the last month?” (This DOES NOT include shows like “Dateline,” “Primetime,” “60 Minutes,” or “20/20.” This DOES include national network news on CNN, ABC, CBS, NBC, and Fox. Also includes “Good Morning America” and “Today.”)

Industry: Fixed Line Telephone Service

Customers identified by questions:

“Which company provides your LONG DISTANCE telephone service?”

“Which company provides your LOCAL telephone service?”

Industry: Wireless Telephone Service

Customers identified by question:

“Do you currently have cellular phone service in your name?”

Industry: Cable & Satellite TV

Customers identified by question:

“Do you currently subscribe to cable television or satellite television service?”

Finance & Insurance Sector

Industry: Banks

Customers identified by question:

“Do you have an active checking account, savings account, or bank loan in your name at a bank, not a credit union?”

Industry: Life Insurance

Customers identified by question:

“Do you have life insurance in your own name?”

Industry: Health Insurance

Customers identified by question:

“Do you have healthcare insurance?”

Industry: Property & Casualty Insurance

Customers identified by question:

“Do you have homeowner’s insurance, or automobile insurance, or other property or casualty insurance in your own name?”

Health Care & Social Assistance Sector

Industry: Hospitals

Customers identified by question:

“Have you used the services of a hospital in the past three years?” (That includes a parent that used the hospital services for a child.)

Accommodation & Food Services Sector

Industry: Hotels

Customers identified by question:

“Have you stayed overnight at a hotel when traveling for business or pleasure in the United States in the past year?”

Industry: Limited-Service Restaurants

Customers identified by question:

“Have you purchased food from a fast food restaurant or pizza restaurant, to eat in the restaurant, for carry out, or ordered for home delivery, in the last three months?”

Public Administration Sector

Solid Waste Disposal

Customers identified by the question:

“Does your local government provide your garbage and trash collection service?”

Police

Customers identified by question:

“Have you had any contact with your local police in the past three years—either asking your police for information or help, being stopped for a traffic violation or some other violation, or any other way in which you may have talked to police officers or the desk at a police station?”

Federal Government

Customers are identified by qualifying questions specific to each federal service.

E-Business (online interviewing)

Customers for all industries are identified by the questions:

“Are you a resident of the United States?”

“Have you used a portal, news site, or search engine?”

Industry: News & Information

Customers identified by the question:

“Which of the following News and Information sites did you access in the past three months?” (*Check all that apply*)

Industry: Portals

Customers identified by the question:

“Once you have connected to the Internet, which portals do you use most often to search the Internet, find Web sites, etc.?” (*Check all that apply*)

Industry: Search Engines

Customers identified by the question:

“Which of the following search engines did you use in the past three months?” (*Check all that apply*)

E-Commerce (online interviewing)

Customers for all industries are identified by the questions:

“Are you a resident of the United States?”

“Have you used a financial service, auction/reverse auction, retailer, or travel site?”

Industry: Retail

Customers identified by the question:

“From which retailers have you purchased merchandise on the Internet in the past three months?” (*Check all that apply*)

Industry: Auctions

Customers identified by the question:

“From which auction and/or reverse auction sites on the Internet have you purchased merchandise in the past three months?” (*Check all that apply*)

Industry: Brokerage

Customers identified by the question:

“From which financial services companies did you make a financial transaction (such as buying stocks, bonds, or mutual funds), or receive financial consulting/planning assistance on the Internet in the past three months?” (Note: this does not include online bill paying or banking.) (*Check all that apply*)

Industry: Travel

Customers identified by question:

“From which Internet travel company did you make a reservation (for a flight, hotel room or a rental car, or any vacation travel package) in the past six months?” (*Check all that apply*)

***APPENDIX C:
EXAMPLE SCREENING QUESTIONNAIRES
AND BRAND/COMPANY IDENTIFICATION***

**American Customer Satisfaction Index
Introduction**

[ASK TO SPEAK TO PERSON RESIDING AT HOUSEHOLD WHO HAS HAD THE MOST RECENT BIRTHDAY, BETWEEN 18 AND 84 YEARS OF AGE]

Hello, I'm _____ calling on behalf of the University of Michigan. We are conducting research on how satisfied users are with services provided by federal government agencies and private companies as part of the American Customer Satisfaction Index. You may have read something about the American Customer Satisfaction Index in *USA Today*, *The Wall Street Journal*, or your local newspaper. Your name will be confidential, and I will ask you only about products and services you have recently purchased and used. Your participation is voluntary and you may stop at any time or skip any question you do not wish to answer. Your opinions are important because you have been chosen randomly to represent consumers across the United States.

**Example ACSI Screening Questionnaire
Major Appliances**

Have you purchased a new major appliance such as a washer, dryer, stove, refrigerator, or dishwasher in the past three years?

- | | |
|--------------|--|
| 1 YES | (Continue) |
| 2 NO | (R. does not qualify for this industry; go to next screener) |
| 3 DON'T KNOW | (R. does not qualify for this industry; go to next screener) |
| 4 REFUSED | (R. does not qualify for this industry; go to next screener) |

Which brand did you purchase?

- | | |
|-------------------------|---|
| [INSERT CO./BRAND LIST] | (Continue) |
| OTHER (SPECIFY) _____ | (Continue) |
| DON'T KNOW/REFUSED | (R. does not qualify for this industry; continue screening) |

Example ACSI Company/Brand Database Major Appliances

The following is a listing of the brands linked to measured companies in the computer-assisted-telephone-interviewing (CATI) system by the ACSI Company/Brand Database for this industry.

| | |
|-------------------------------|--------------------------|
| Accellis | Maytag Corporation |
| Admiral | Maytag Corporation |
| Advantium | General Electric Company |
| Amana | Maytag Corporation |
| Amana Distinctions | Maytag Corporation |
| Atlantis | Maytag Corporation |
| Avanti | Maytag Corporation |
| Crosley | Maytag Corporation |
| Dynasty | Maytag Corporation |
| Equator | Maytag Corporation |
| Estate | Whirlpool Corporation |
| GarageWorks | Whirlpool Corporation |
| GE | General Electric Company |
| GE Advantium | General Electric Company |
| GE Monogram | General Electric Company |
| GE Monogram Advantium | General Electric Company |
| GE Nautilus | General Electric Company |
| GE Profile | General Electric Company |
| GE Profile Advantium | General Electric Company |
| GE Profile Arctica | General Electric Company |
| GE Profile Harmony | General Electric Company |
| GE Profile Prodigy | General Electric Company |
| GE Profile Spacemaker | General Electric Company |
| GE Profile Spectra | General Electric Company |
| GE Profile Ultimate Advantium | General Electric Company |
| GE Profile Wizard | General Electric Company |
| GE Spacemaker | General Electric Company |
| GE Spectra | General Electric Company |
| GE Triton | General Electric Company |
| GE Ultimate Advantium | General Electric Company |
| Gemini | Maytag Corporation |
| General Electric | General Electric Company |
| Gladiator | Whirlpool Corporation |
| Haier | Maytag Corporation |
| Hotpoint | General Electric Company |
| Inglis | Whirlpool Corporation |
| Jade | Maytag Corporation |
| Jenn-Air | Maytag Corporation |
| Jenn-Air Designer | Maytag Corporation |
| Jenn-Air Expressions | Maytag Corporation |
| Jenn-Air Luxury | Maytag Corporation |
| Jenn-Air ProStyle | Maytag Corporation |
| Jetclean | Maytag Corporation |
| KitchenAid | Whirlpool Corporation |
| KitchenAid Architect | Whirlpool Corporation |
| KitchenAid Briva | Whirlpool Corporation |
| KitchenAid Ensemble | Whirlpool Corporation |

Example ACSI Screening Questionnaire Supermarkets

Have you shopped for groceries at a supermarket or another store that sells a wide variety of goods including groceries in the past three months?

- | | |
|--------------|--|
| 1 YES | (Continue) |
| 2 NO | (R. does not qualify for this industry; go to next screener) |
| 3 DON'T KNOW | (R. does not qualify for this industry; go to next screener) |
| 4 REFUSED | (R. does not qualify for this industry; go to next screener) |

Which supermarket or other store have you shopped for groceries at most frequently in the past three months? (IF MORE THAN ONE, EMPHASIZE MOST FREQUENTLY)

- | | |
|-------------------------|--|
| [INSERT CO./BRAND LIST] | (R. qualifies for this industry; before going to questionnaire, continue to screen for remaining groups) |
| OTHER (SPECIFY) _____ | (R. does not qualify for this industry; continue screening) |
| DON'T KNOW/REFUSED | (R. does not qualify for this industry; continue screening) |

Example ACSI Company/Brand Database Supermarkets

The following is a listing of the store chains linked to measured companies in the CATI system by the ACSI Company/Brand Database for this industry.

| | |
|------------------------------|----------------------------|
| Acme Markets | Albertson's, Inc. |
| Albertson's | Albertson's, Inc. |
| American Stores | Albertson's, Inc. |
| Baker's | The Kroger Co. |
| Bell Markets | The Kroger Co. |
| Bigg's | SUPERVALU INC. |
| Buttrey Food and Drug Stores | Albertson's, Inc. |
| Cala Foods | The Kroger Co. |
| Carr-Gottstein | Safeway Inc. |
| Carrs | Safeway Inc. |
| City Market | The Kroger Co. |
| City Markets | Winn-Dixie Stores, Inc. |
| Cub Foods | SUPERVALU INC. |
| Dillon's Food Stores | The Kroger Co. |
| Dominick's | Safeway Inc. |
| Dominick's Fresh Stores | Safeway Inc. |
| Farm Fresh | SUPERVALU INC. |
| Food4less | The Kroger Co. |
| Foods Co. | The Kroger Co. |
| Fred Meyer | The Kroger Co. |
| Fresh Stores | Safeway Inc. |
| Fry's Food & Drug Stores | The Kroger Co. |
| Fry's Marketplace | The Kroger Co. |
| Genuardi's | Safeway Inc. |
| Gerbes Supermarkets | The Kroger Co. |
| Hilander | The Kroger Co. |
| Hornbacher's | SUPERVALU INC. |
| Jay C | The Kroger Co. |
| Jewel | Albertson's, Inc. |
| Jewel-Osco | Albertson's, Inc. |
| Kessel Food Markets | The Kroger Co. |
| King Soopers | The Kroger Co. |
| Kroger | The Kroger Co. |
| Lucky Stores | Albertson's, Inc. |
| Marketplace | Winn-Dixie Stores, Inc. |
| Max Foods | Albertson's, Inc. |
| Owen's Market | The Kroger Co. |
| Pavilions | Safeway Inc. |
| Pay Less Super Markets | The Kroger Co. |
| Pricerite | The Kroger Co. |
| Publix | Publix Super Markets, Inc. |
| QFC (Quality Food Centers) | The Kroger Co. |
| Quality Food Centers (QFC) | The Kroger Co. |
| Ralphs | The Kroger Co. |
| Randalls | Safeway Inc. |
| Sack & Save | Winn-Dixie Stores, Inc. |
| Safeway | Safeway Inc. |

| | |
|------------------------------|-------------------------|
| Save Rite | Winn-Dixie Stores, Inc. |
| Save-A-Lot | SUPERVALU INC. |
| Scott's Food | SUPERVALU INC. |
| Seessel's | Albertson's, Inc. |
| Shaw's | Albertson's, Inc. |
| Shop 'N Save | SUPERVALU INC. |
| Shoppers Food Warehouse | SUPERVALU INC. |
| Simon David | Safeway Inc. |
| Smith's Food & Drug Centers | The Kroger Co. |
| Smitty's | Albertson's, Inc. |
| Star Markets | Albertson's, Inc. |
| Super One Foods | Albertson's, Inc. |
| Super Saver | Albertson's, Inc. |
| Supervalu | SUPERVALU INC. |
| Thriftway | Winn-Dixie Stores, Inc. |
| Tom Thumb Food & Drug Stores | Safeway Inc. |
| Vons | Safeway Inc. |
| Wal-Mart | Wal-Mart Stores, Inc. |
| Wal-Mart Neighborhood Market | Wal-Mart Stores, Inc. |
| Wal-Mart Supercenter | Wal-Mart Stores, Inc. |
| Winn-Dixie | Winn-Dixie Stores, Inc. |
| Winn-Dixie Marketplace | Winn-Dixie Stores, Inc. |

***APPENDIX D:
CUSTOMER SATISFACTION
MEASUREMENT QUESTIONNAIRES—
PRIVATE SECTOR AND
GOVERNMENT SERVICES***

ACSI Questionnaire
For Private Sector Companies
(For input to models in Figures 1 and 1a)

NOTE: The questionnaire for most companies used for the model in Figure 1 is shown first; followed by a section of six questions to be substituted for Q4, Q5, Q6 for the expanded model in Figure 1a in which product quality and service quality are measured separately.

INTRODUCTION

[ASK TO SPEAK TO PERSON RESIDING AT HOUSEHOLD WHO HAS HAD THE MOST RECENT BIRTHDAY, BETWEEN 18 AND 84 YEARS OF AGE]

Hello, I'm _____ calling on behalf of the University of Michigan. We are conducting research on how satisfied users are with services provided by federal government agencies and private companies as part of the American Customer Satisfaction Index. You may have read something about the American Customer Satisfaction Index in *USA Today*, *The Wall Street Journal*, or your local newspaper. Your name will be confidential, and I will ask you only about products and services you have recently purchased and used. Your participation is voluntary and you may stop at any time or skip any question you do not wish to answer. Your opinions are important because you have been chosen randomly to represent consumers across the United States.

(INSERT SCREENER QUESTIONS APPROPRIATE TO PRODUCT/SERVICE)

In the questionnaire where the words [SCREENER INSERT] appear, the CATI (computer-assisted-telephone-interviewing) program inserts the name of the company, product, brand, service, store, restaurant, hotel, etc., that the respondent has named in response to the screener questions. Within a specific question, once the [SCREENER INSERT] has been mentioned, second or third mentions may be more generic wordings for the product/service/outlet category.

(To begin/Next), think back to before you purchased your [SCREENER INSERT] and remember your expectations about that particular [SCREENER INSERT]. I am going to ask you three questions about your expectations. The first concerns your expectations of the overall quality of your [SCREENER INSERT]; the other two questions consider your expectations of specific requirements of the [SCREENER INSERT], and your expectations of potential problems with the [SCREENER INSERT]. Each time we will use a scale of 1 to 10, although the meaning of the scale will change slightly from question to question.

Let's begin:

Q1. Before you purchased [SCREENER INSERT], you probably knew something about this particular [SCREENER INSERT]. Now, think back and remember your expectations of the overall quality of the [SCREENER INSERT]. Please give me a rating on a 10-point scale on which "1" means your expectations were "not very high" and "10" means your expectations were "very high."

How would you rate your expectations of the overall quality of [SCREENER INSERT]?

1 TO 10 _____

11 Don't know
12 Refused

(ROTATE Q2 AND Q3)

- Q2. (Again/At that same time), you probably thought about things you personally require from a [SCREENER INSERT], such as [INSERT PRODUCT ATTRIBUTES]. Using a 10-point scale on which “1” now means “not very well” and “10” means “very well,” how well did you expect your [SCREENER INSERT] to meet your personal requirements?

1 TO 10 _____

- 11 Don't know
12 Refused

- Q3. (Again/At the same time), thinking about your expectations before you purchased (or your recent experiences with) [SCREENER INSERT] . . . you probably thought about how often things could go wrong with the [SCREENER INSERT] regarding such things as [INSERT PRODUCT ATTRIBUTES]. Using a 10-point scale, on which “1” now means “very often” and “10” means “not very often,” how often did you expect that things could go wrong with your [SCREENER INSERT]?

1 TO 10 _____

- 11 Don't know
12 Refused

Next, I want you to think about your actual experience with your [SCREENER INSERT]. I am going to ask you five questions, the first deals with your overall experience with [SCREENER INSERT]. The next two questions deal with how well the [SCREENER INSERT] met your personal requirements, and how often things go wrong with [SCREENER INSERT]. The other two questions are about specific characteristics of the product or service...

- Q4. First, please consider all your experiences in the past [INSERT TIME PERIOD FROM SCREENER] with your [SCREENER INSERT]. Using a 10-point scale, on which “1” means “not very high” and “10” means “very high,” how would you rate the overall quality of your [SCREENER INSERT]?

1 TO 10 _____

- 11 Don't know
12 Refused

(ROTATE Q5 AND Q6)

- Q5. Now thinking about your personal requirements for a [SCREENER INSERT], such as [INSERT PRODUCT ATTRIBUTES], please tell me how well your [SCREENER INSERT] has actually met your requirements. Using a 10-point scale on which “1” now means “not very well” and “10” means “very well,” how well has your [SCREENER INSERT] actually met your personal requirements?

1 TO 10 _____

- 11 Don't know
12 Refused

Q6. Now please think about how often things go wrong with the [SCREENER INSERT], regarding such things as [INSERT PRODUCT ATTRIBUTES]. Using a 10-point scale on which “1” now means “very often,” and “10” means “not very often,” how often have things actually gone wrong with your [SCREENER INSERT]?

1 TO 10 _____

- 11 Don't know
- 12 Refused

Q7 (OPTIONAL QUESTION ABOUT CHARACTERISTICS OF PRODUCT/SERVICE)

1 TO 10 _____

- 11 Don't know
- 12 Refused

Q8 (OPTIONAL QUESTION ABOUT CHARACTERISTICS OF PRODUCT/SERVICE)

1 TO 10 _____

- 11 Don't know
- 12 Refused

Now I want you to consider the value of your [SCREENER INSERT] in terms of both (ROTATE: PRICE AND QUALITY/QUALITY AND PRICE).

(ROTATE Q9 AND Q10)

Q9. (FIRST/NEXT) Given the quality of your [SCREENER INSERT], how would you rate the price that you paid (or prices that you pay) for [SCREENER INSERT]? Please use a 10-point scale on which “1” means “very poor price given the quality” and “10” means “very good price given the quality.”

1 TO 10 _____

- 11 Don't know
- 12 Refused

Q10. (FIRST/NEXT) Given the price that you paid (or prices that you pay at) for your [SCREENER INSERT], how would you rate the quality of your [SCREENER INSERT]? Please use a 10-point scale on which “1” means “very poor quality given the price” and “10” means “very good quality given the price.”

1 TO 10 _____

- 11 Don't know
- 12 Refused

Satisfaction includes many things. Let's move on and talk about your overall satisfaction with your [SCREENER INSERT].

Q11 First, please consider all your experiences to date with your [SCREENER INSERT]. Using a 10-point scale on which "1" means "very dissatisfied" and "10" means "very satisfied," how satisfied are you with your [SCREENER INSERT]?

1 TO 10 _____

- 11 Don't know
- 12 Refused

Q12. Considering all of the expectations that we have discussed, to what extent has your [SCREENER INSERT] fallen short of your expectations or exceeded your expectations? Using a 10-point scale on which "1" now means "falls short of your expectations" and "10" means "exceeds your expectations," to what extent has your [SCREENER INSERT] fallen short of or exceeded your expectations?

1 TO 10 _____

- 11 Don't know
- 12 Refused

Q13. Forget your [SCREENER INSERT] for a moment. Now, I want you to imagine an ideal [INSERT GENERIC NAME FOR SCREENER INSERT]. (PAUSE) How well do you think your [SCREENER INSERT] compares with that ideal [INSERT GENERIC NAME FOR SCREENER INSERT]? Please use a 10-point scale on which "1" means "not very close to the ideal," and "10" means "very close to the ideal."

1 TO 10 _____

- 11 Don't know
- 12 Refused

Next, I want you to think about any communication you may have had with the company that produced your [SCREENER INSERT] regarding complaints about your experience.

Q14. Have you complained to the company about your [SCREENER INSERT] within the past [INSERT SCREENER TIME PERIOD]?

- 1 Yes
- 2 No
- 3 Don't know
- 4 Refused

{IF Q14 = 1, ASK Q14A; OTHERWISE GO TO Q15}

Q14A. How well, or poorly, was your most recent complaint handled? Using a 10-point scale on which "1" means "handled very poorly" and "10" means "handled very well," how would you rate the handling of your complaint?

1 TO 10 _____

- 11 Don't know
- 12 Refused

Q15. The next time you are going to [INSERT PURCHASE/USE/SHOP AT] a [SCREENER INSERT], how likely is it that it will be a [SCREENER INSERT] again? Using a 10-point scale on which "1" means "very unlikely" and "10" means "very likely," how likely is it that it will be a [SCREENER INSERT] again?

1 TO 10 _____

- 11 Don't know
- 12 Refused

{IF Q15 = 6-10, ASK Q16; OTHERWISE GO TO Q17}

Q16. Let us imagine that [SCREENER INSERT] raises its prices. If other [COMPANIES/SUPPLIERS] remain at the same prices, how much can [SCREENER INSERT] raise its price before you definitely would not choose a(n) [SCREENER INSERT] the next time you purchase a [INSERT GENERIC NAME FOR SCREENER INSERT]?

Please provide your answer in percentages up to 25%

0 TO 25 _____

- 26 26% or higher
- 101 Never would [PURCHASE/USE/SHOP AT] any other [SCREENER INSERT]
- 102 Don't know
- 103 Refused

{IF Q15 = 1-5, ASK Q17; OTHERWISE GO TO QD1 CONTINUE/END}

Q17. Let us now imagine that [SCREENER INSERT] lowers its prices. If other [COMPANIES/SUPPLIERS] remain at the same prices, how much must [SCREENER INSERT] lower its price before you would definitely choose a(n) [SCREENER INSERT] the next time you purchase a [INSERT GENERIC NAME FOR SCREENER INSERT]?

Please provide your answer in percentages up to 25%

0 TO 25 _____

- 26 26% or higher
- 101 Never would [PURCHASE/USE/SHOP AT] any other [SCREENER INSERT]
- 102 Don't know
- 103 Refused

NOTE: FOR THE EXPANDED MODEL IN FIGURE 1A, SUBSTITUTE THIS INTRODUCTION AND QUESTIONS 4P, 4S, 5P, 5S, 6P, 6S FOR QUESTIONS 4, 5, 6.

Up to this point I have asked you about your expectations prior to your recent experiences with [your] [SCREENER INSERT]. Now I am going to ask you several questions about your ACTUAL EXPERIENCES with [your] [SCREENER INSERT]. Some deal with your experience with the product itself. Others are about your experience with service for that product.

Q4P. First, please consider all your experiences in the last [INSERT TIME PERIOD FROM SCREENER] with your [SCREENER INSERT]. Using a 10-point scale, on which “1” means “not very high” and “10” means “very high,” how would you rate the overall quality of your [SCREENER INSERT]?

1 TO 10 _____

- 11 Don't know
- 12 Refused

Q4S. Now please consider all your experiences in the last [INSERT TIME PERIOD FROM SCREENER] with service for your [SCREENER INSERT]. Using a 10-point scale, on which “1” means “not very high” and “10” means “very high,” how would you rate the overall quality of service you have received for that [SCREENER INSERT]?

1 TO 10 _____

- 11 Don't know
- 12 Refused

(RANDOMIZE Q5 AND Q6 SERIES)

Q5P. Now thinking about your personal requirements for a [SCREENER INSERT] such as [INSERT PRODUCT ATTRIBUTES], please tell me how well your [SCREENER INSERT] has actually met your requirements. Using a 10-point scale on which “1” now means “not very well” and “10” means “very well,” how well has your [SCREENER INSERT] actually met your personal requirements?

1 TO 10 _____

- 11 Don't know
- 12 Refused

Q5S. Now thinking about your personal requirements for service for your [SCREENER INSERT], such as [INSERT SERVICE ATTRIBUTES], please tell me how well service for your [SCREENER INSERT] has actually met your personal requirements. Using a 10-point scale on which “1” now means “not very well” and “10” means “very well,” how well has service for your [SCREENER INSERT] actually met your personal requirements?

1 TO 10 _____

- 11 Don't know
- 12 Refused

Q6P. Now please think about how often things go wrong with the [SCREENER INSERT], regarding such things as [INSERT PRODUCT ATTRIBUTES]. Use a 10-point scale on which “1” now means “very often,” and “10” means “not very often,” how often have things actually gone wrong with your [SCREENER INSERT]?

1 TO 10_____

11 Don't know

12 Refused

Q6S. Now please think about how often things go wrong with the service for your [SCREENER INSERT], regarding such things as [INSERT SERVICE ATTRIBUTES]. Using a 10-point scale on which “1” now means “very often,” and “10” means “not very often,” how often have things actually gone wrong with the service for your [SCREENER INSERT]?

1 TO 10_____

11 Don't know

12 Refused

**ACSI Questionnaire for
Government Services**
(For input to model in Figure 2)

INTRODUCTION

Hello, I'm (NAME) calling on behalf of the University of Michigan. We are conducting research on how satisfied users are with services provided by Federal government agencies and private companies as part of the American Customer Satisfaction Index. You may have read something about the American Customer Satisfaction Index in *USA Today*, *The Wall Street Journal*, or your local newspaper.

Today I want to ask you about services you may have received from the (AGENCY/PROGRAM). The purpose of the research is to help this government agency improve its services to you and to people like you. Your answers are voluntary, but your opinions are very important for this research. Your name will be held completely confidential and never connected to your answers. This interview will take 8-10 minutes* and is authorized by Office of Management and Budget Control No. _____.

[ADD ANY NEEDED SCREENING QUESTIONS HERE]

Now, I am going to ask you some questions about the [AGENCY] [ACTIVITIES/SERVICES/PRODUCTS] with which you have had experience.

Q1. Before you used the [AGENCY/PROGRAM], you probably knew something about the [AGENCY/PROGRAM]. Now think back and remember your expectations of the overall quality of the [AGENCY/PROGRAM]. Please give me a rating on a 10-point scale on which "1" means your expectations were "not very high" and "10" means your expectations were "very high."

How would you rate your expectations of the overall quality of [AGENCY/PROGRAM]?

1 TO 10 _____

11 Don't know
12 Refused

Now, let's think about _____

Q2. [QUESTION RATING AN ASPECT OF ACTIVITY 1] Again, we will use a 10-point scale on which...

1 TO 10 _____

11 Don't know
12 Refused

*Insert 15-17 minutes for RDD samples for which respondents can be interviewed about two agencies.

Q3. [SECOND QUESTION RATING AN ASPECT OF ACTIVITY 1]

1 TO 10 _____

11 Don't know
12 Refused

And next, considering _____

Q4. [QUESTION RATING AN ASPECT OF ACTIVITY 2]

1 TO 10 _____

11 Don't know
12 Refused

Q5. [SECOND QUESTION RATING AN ASPECT OF ACTIVITY 2]

1 TO 10 _____

11 Don't know
12 Refused

And thinking about _____

Q6. [QUESTION RATING AN ASPECT OF ACTIVITY 3]

1 TO 10 _____

11 Don't know
12 Refused

Q7. [SECOND QUESTION RATING AN ASPECT OF ACTIVITY 3]

1 TO 10 _____

11 Don't know
12 Refused

Q8. [OPTIONAL QUESTION ABOUT SERVICES]

Q9. [OPTIONAL QUESTION ABOUT SERVICES]

Q10. Please consider all your experiences in the past two years with the [AGENCY/SERVICES/ PRODUCTS]. Using a 10-point scale, on which "1" means "not very high" and "10" means "very high," how would you rate the *overall quality* of the [AGENCY/SERVICES/PRODUCTS]?

1 TO 10 _____

11 Don't know
12 Refused

Satisfaction includes many things. Let's move on and talk about your overall satisfaction with the [AGENCY].

Q11. First, please consider all your experiences to date with the [AGENCY/SERVICES/PRODUCTS]. Using a 10-point scale on which "1" means "very dissatisfied" and 10 means "very satisfied," how *satisfied* are you with the [AGENCY/SERVICES/PRODUCTS]?

1 TO 10 _____

- 11 Don't know
- 12 Refused

Q12. Considering all of your expectations, to what extent has the [AGENCY/SERVICES/PRODUCTS] fallen short of your expectations or exceeded your expectations? Using a 10-point scale on which "1" now means "falls short of your expectations" and "10" means "exceeds your expectations," to what extent has the [AGENCY] fallen short of or exceeded your expectations?

1 TO 10 _____

- 11 Don't know
- 12 Refused

Q13. Forget the [AGENCY] for a moment. Now, I want you to imagine an ideal [AGENCY/SERVICES/PRODUCTS]. (PAUSE) How well do you think the [AGENCY] compares with that ideal [AGENCY/SERVICES/PRODUCTS]? Please use a 10-point scale on which "1" means "not very close to the ideal" and "10" means "very close to the ideal."

1 TO 10 _____

- 11 Don't know
- 12 Refused

Next, I want you to think about any communication you may have had with the [AGENCY] regarding complaints about your experience.

Q14. Have you complained to the [AGENCY] in the past year?

- 1 Yes
- 2 No
- 3 Don't know
- 4 Refused

{IF Q14 = 1, ASK Q14A – 14B; OTHERWISE GO TO Q15}

Q14A. How well, or poorly, was your most recent complaint handled? Using a 10-point scale on which "1" means "handled very poorly" and "10" means "handled very well," how would you rate the handling of your complaint?

1 TO 10 _____

- 11 Don't know/not relevant/did not use
- 12 Refused

Q14B. How difficult or easy was it to make your most recent complaint? Using a 10-point scale on which "1" means "very difficult" and "10" means "very easy," how difficult or easy was it to make a complaint?

1 TO 10 _____

- 11 Don't know/not relevant/did not use
- 12 Refused

Q15. If asked, how willing would you be to say positive or good things about the job the [AGENCY] is doing in [SPECIFIC SERVICE]? Using a 10-point scale on which "1" means "not at all willing" and "10" means "very willing," how willing would you be to say good things about the agency's handling of [SPECIFIC SERVICE]?

1 TO 10 _____

- 11 Don't know
- 12 Refused

Q16. How confident are you that [AGENCY] will do a good job in the future of providing [SPECIFIC SERVICE]? Using a 10-point scale on which "1" means "not at all confident" and "10" means "very confident," how confident are you that [AGENCY] will do a good job in the future providing [SPECIFIC SERVICE]?

1 TO 10 _____

- 11 Don't know
- 12 Refused

**ACSI Questionnaire
Demographics**

Now, we need to ask a few demographic questions for the ACSI consumer profile...

QD1. What is your age, please?

[RECORD NUMBER OF YEARS 18-84] _____

- 98 Don't know
 - 99 Refused
-

QD2. What is the highest level of formal education you completed? (READ CODES 1 - 5)

- 1 Less than high school
 - 2 High school graduate
 - 3 Some college or associate degree
 - 4 College graduate
 - 5 Post-Graduate
 - 6 Don't know
 - 7 Refused
-

QD3. Are you of Hispanic, Latino or Spanish origin?

- 1 Yes
 - 2 No
 - 3 Don't know
 - 4 Refused
-

QD4. Do you consider your race(s) as:
(READ CODES 1 - 5; ACCEPT UP TO FIVE MENTIONS)

- 1 White
 - 2 Black/African American
 - 3 American Indian/Alaska Native
 - 4 Asian
 - 5 Native Hawaiian or other Pacific Islander
 - 6 (DO NOT READ) Other race
 - 7 Don't know
 - 8 Refused
-

QD5. What was your total annual family income in 2004? (READ CODES 1 - 7)

- 1 Under \$20,000
 - 2 \$20,000 but less than \$30,000
 - 3 \$30,000 but less than \$40,000
 - 4 \$40,000 but less than \$60,000
 - 5 \$60,000 but less than \$80,000
 - 6 \$80,000 but less than \$100,000
 - 7 \$100,000 or more
 - 8 Don't know
 - 9 Refused
-

[QD6] [RECORD GENDER BY OBSERVATION]

- 1 Male
 - 2 Female
-

[MOVE IN DMA FROM SAMPLE]: _____

[MOVE IN MSA CODE FROM SAMPLE]: _____

[MOVE IN STATE FROM SAMPLE]: _____

[MOVE IN MET STATUS CODE FROM SAMPLE]: _____

***APPENDIX E:
RESPONSE AND COOPERATION RATES***

**DISPOSITION OF SAMPLED TELEPHONE NUMBERS AND
RESPONSE AND COOPERATION RATES (2003 ACSI)**

| | | |
|-----------|---|----------------|
| U | UNIVERSE OF SAMPLED TELEPHONE NUMBERS | 592,415 |
| | | |
| | Noneligible housing units | |
| | Disconnect/out of service | 43,701 |
| | Business | 33,947 |
| | Secondary line | 282 |
| | Fax/modem | 25,074 |
| | Number changed | 517 |
| | Wrong phone number | 477 |
| | Cellular phone | 1,179 |
| | TOTAL NONELIGIBLE HOUSING UNITS | 105,177 |
| | | |
| | Noneligible respondents | |
| | Noncustomer of any companies or government services | 8,496 |
| | Noneligible, age | 5,038 |
| | Noneligible, non-English speaking or hard of hearing | 11,879 |
| | Noneligible, other | 642 |
| NE | TOTAL NONELIGIBLE RESPONDENTS | 26,055 |
| | | |
| | Quota-filled, so respondent noneligible for interview | |
| | Customer of quota-filled company | 4,487 |
| | Scheduled for callback, but company quotas filled or interview period ended | 55,580 |
| QF | TOTAL QUOTA-FILLED | 60,067 |
| | | |
| EU | ELIGIBLE UNIVERSE OF SAMPLED TELEPHONE NUMBERS | 401,116 |

| | Interviewed customers | |
|------------|--|----------------|
| I | Complete interview | 36,952 |
| P | Partial interview | 199 |
| I+P | TOTAL INTERVIEWS | 37,151 |
| | | |
| | Refusals | |
| R | TOTAL QUALIFIED CUSTOMER REFUSAL | 2,067 |
| | | |
| | Unknown eligibility/no contact with potential household or customer—noninterview | |
| | Housing unit, unknown if eligible customer respondent. Household refusal before screening for eligible customer respondent | 143,996 |
| | Unknown if a housing unit. No answer after repeated calls (4), different times of day over multiple days | 160,059 |
| | Answering machine for repeated calls (4) over multi-day period | 35,927 |
| | Busy or no answer, all calls (4) | 22,016 |
| UE | TOTAL UNKNOWN ELIGIBILITY | 361,998 |

Using the codes shown in the left column of the above table, survey cooperation and response rates are calculated according to American Association of Opinion Research (AAPOR) reporting standards.⁸

Based on completed (not partial) interviews, the cooperation rate for those screened and identified as customers is:

$$\text{COOPERATION RATE (AAPOR(2))} = (I)/(I+P)+R$$

$$\text{COOP} = 36,952/(37,151)+(2,067) = 94.2\%$$

$$\text{RESPONSE RATE} = I/(I+P)+R+e(\text{UE})$$

where **e** is the incidence of identified customers in all households able to be screened. The numbers used in estimating this incidence are:

$$e = (I+P+R+QF)/(I+P+R+QF+NE)$$

$$e = (36,952+199+2,067+60,067)/(36,952+199+2,067+60,067+26,055) = 79.2\%$$

⁸American Association of Public Opinion Research (2004), *Standard Definitions: Final Disposition of Case Codes and Outcome Rates for Surveys*.

However, knowing that the cooperation rate is 94.2%, rather than 100%, a response rate is now calculated where both **e** and COOP rates are applied to the quota-filled cases and consider that amount to be completed interviews. By applying the **e** and COOP rate, we have accounted for the fact that some of the respondents would have refused or broken off the interview if we had asked them to complete more of the interview. The response rate then is:

$$\text{RESPONSE RATE (AAPOR RR(3))} = (I + \text{COOP}(QF)) / (I + P + R + QF + NE + e(UE))$$

$$\text{RR} = 36,952 + .94(60,067) / 36,952 + 199 + 2,067 + 60,067 + 26,055 + .79(361,998) = 22.7\%$$

RESPONSE RATES FOR INTERNET INTERVIEWS (2004 ACSI)

| E-Commerce Interview Results | |
|-------------------------------------|--|
| 20,553 | Users who came to the site (9.8% of those sent e-mail invitations). |
| 12,092 | Respondents who were screened out because interviews for the company from which they had purchased were already completed. |
| 3,857 | Qualified respondents. |
| 3,680 | Qualified respondents who completed the interview, including the demographic questions (97%). |
| 3,834 | Completed company interviews (an average of 1.0 company interviews per qualified respondent). |

| E-Business Interview Results | |
|-------------------------------------|--|
| 4,795 | Users who came to the site (13.3% of those sent e-mail invitations). |
| 2,147 | Respondents who were screened out because interviews for the company from which they had purchased were already completed. |
| 2,596 | Qualified respondents. |
| 2,470 | Qualified respondents who completed the interview, including the demographic questions (95%). |
| 3,514 | Completed company interviews (an average of 1.4 company interviews per qualified respondent). |

***APPENDIX F:
SAMPLE PROFILE***

2003 ACSI CUSTOMER SAMPLE (AGE 18-84)

| Demographic Characteristic | 2000 Census (%) | 2003 ACSI Customers (%) |
|--------------------------------|--------------------|-------------------------------|
| Age | | |
| 18-34 | 31 | 24 |
| 35-54 | 41 | 43 |
| 55-84 | 27 | 32 |
| Income | | |
| | | (2002) |
| Under \$20,000 | 22 | 12 |
| \$20,000-30,000 | 13 | 11 |
| \$30,000-40,000 | 12 | 12 |
| \$40,000-60,000 | 19 | 18 |
| \$60,000-80,000 | 14 | 14 |
| \$80,000-100,000 | 8 | 11 |
| \$100,000 or more | 12 | 14 |
| Refused/don't know | — | 10 |
| Race | | |
| White | 77 | 84 |
| Black/African American | 13 | 8 |
| American Indian | 2 | 2 |
| Asian | 4 | 2 |
| Other | 7 | 5 |
| Ethnicity | | |
| % Hispanic/Latino | 13 | 5 |
| Gender | | |
| Male | 49 | 38 |
| Female | 51 | 62 |
| Educational attainment | | |
| Less than high school graduate | 20 | 5 |
| High school graduate | 29 | 24 |
| Some college | 27 | 32 |
| College graduate | 15 | 24 |
| Postgraduate | 9 | 16 |