

Appendix B

Survey Methodology

Study Design

The survey was conducted for the Office of Technology Assessment (OTA) from March 24 to July 15, 1989, by Schulman, Ronca, & Bucuvalas, Inc. (SRBI). The core of the 1989 survey remained a national survey of the 500 largest U.S. industries, 50 largest utilities, and 33 major unions. The 1989 survey contained comparable questions to core survey items from the 1982 OTA survey. (See table B-1 for a summary of the methodology of the 1989 and 1982 surveys.)

Sampling Design

The purpose of the sampling design was to provide comparability with OTA's 1982 survey, while expanding the ability to generalize the results to a broader population. The 1989 survey results were based on four samples. First, all Fortune 500 companies were selected to provide information on genetic monitoring and screening at large corporations in the United States. The procedure for specifying this population was to use the Fortune 500 listing of manufacturers and utilities from the previous year. This procedure, which was identical to the procedure used in the 1982 survey, produced an independent census of the current Fortune 500 population rather than a panel of previously surveyed organizations.

Second, the 50 largest private utility companies in the United States were surveyed to provide coverage of large utilities. This sampling was based on the most recent *Fortune Magazine* listing prior to the survey. As with the Fortune 500 listing, this produced a current census of the 50 largest utilities.

Third, a sample of large unions was developed by OTA to provide broad coverage of a wide variety of unions. The 1982 sample of unions was based on 11 unions with the largest number of members working for Fortune 500 companies, identified from the 1979 Directory of National Unions and Employees Association published by the U.S. Department of Labor. This publication was discontinued in the early 1980s, so no comparable list was available for the 1989 survey. A broader sample of unions was desired, in any case, since the 1989 survey had been expanded to include a cross-section of medium and large companies with 1,000 or more employees. Therefore, a sample of 33 large unions was identified by OTA for the 1989 survey.

Fourth, the 1989 survey added a stratified cross-section sample of large- and medium-sized companies with at least 1,000 employees that did not belong to the Fortune 500 group, to provide results projectable to the universe of companies with 1,000 or more employees. Public

organizations, such as nonprofit groups and governmental organizations, were excluded. The number of employees in the company was defined as the total number of persons employed company-wide in the United States, rather than the number of employees at company headquarters or at a particular establishment.

The sample of companies with 1,000 or more employees was stratified by company size. The sample was divided into four size strata: companies with 10,000 or more employees, companies with 5,000 to 9,999 employees, companies with 2,500 to 4,999 employees, and companies with 1,000 to 2,499 employees. Companies were randomly selected within each strata from Dun & Bradstreet lists. The final sample consisted of 100 companies with 10,000 or more employees, 100 companies with 5,000 to 9,999 employees, 300 companies with 2,500 to 4,999 employees, and 350 companies with 1,000 to 2,499 employees. Such division by size allowed the survey to oversample the largest companies and obtain a relatively high sampling incidence of these firms.

Table B-I-Summary of Methodology

Samples	
Fortune 500 companies . . .	Sampled in 1989 and 1982.
50 largest utilities	Sampled in 1989 and 1982.
Unions	33 unions in 1989 and 11 unions in 1982.
Companies with 1,000+ employees	
	1,000 sampled in 1989. Not sampled in 1982.
Designated respondent	
Private companies:	
Chief health officer	Designated respondent in 1989 and 1982. Received version of questionnaire for health officers.
Chief personnel officer. .	Designated respondent in 1989 only. Received different questionnaire version for personnel officers.
Unions:	
Union president	Designated respondent in 1989 and 1982.
Followup methodology	
Reminder letters	Sent in 1989 and 1982.
Remailing questionnaires to nonresponders	Sent to all nonresponders in 1989 and 1982.
Telephone followup to nonresponders	All Fortune 500 and utilities in 1989. Only 200 largest companies in 1982.
Actual telephone interviews with non-responders to mail survey	Done as a last resort in 1989 and 1982.

SOURCE: Office of Technology Assessment, 1990.

In addition, companies with certain standard industrial code (SIC) groups were oversampled to obtain sufficient numbers of oversampled companies and permit analysis of certain types of SIC groups. The oversampled SIC groups covered pharmaceuticals (SIC 2834), other chemical companies (rest of SIC group 28), petroleum (SIC group 29), semiconductors (SIC 3674), other electronics companies (SIC 3675-3679), and electric utilities other than the 50 largest utilities (SIC 4911 and 4931). A target subsample size of 50 companies was adopted for each of the oversampled industry groups. In order to achieve this subsample size, a sufficient number of companies with 1,000 or more employees in each oversampled group were randomly selected to supplement the core cross-section sample so that the final sample included 50 companies in the oversampled group. In cases where there were 50 or less U.S. companies in an oversampled group with 1,000 or more employees, all companies in that group with 1,000 or more employees were included in the final sample.

Questionnaire Development

A survey questionnaire was developed by the contractor in concert with OTA according to the detailed research objectives set forth by OTA. The OTA advisory panel reviewed the questionnaire at the March 1989 panel meeting after a pretest was conducted between February 17 and March 1, 1989. The findings of the pretest were used to revise the questionnaire.

The 1989 survey contained comparable questions to core survey items from the 1982 survey. This provided OTA with the necessary comparability to the 1982 survey so that changes in the workplace over time could be assessed. However, the method was altered to increase the usefulness of the information. The central components were:

1. The content of the questionnaire was broadened to include the use of genetic monitoring and screening in the workplace in the context of other types of employee testing. The survey was expanded to deal with attitudes of employers toward the proper and improper uses of genetic monitoring and screening in the workplace. The survey also covered more areas related to the applications of genetic monitoring and screening in personnel matters, as well as applications for employee health.
2. As in 1982, the survey was directed to the chief health officer, to answer questions dealing with the medical applications of genetic monitoring and screening. A different questionnaire was also directed to the chief personnel officer focusing on personnel applications (e.g., recruitment, placement, advancement, and retention) of genetic monitoring and screening.
3. The universe of Fortune 500 companies was supplemented by a sample of non-Fortune 500 large- and

medium-sized employers so that the extent of genetic monitoring and screening in the workplace could be examined more broadly.

4. Telephone recontact was attempted with all non-respondents in the Fortune 500 and 50 largest utility companies.

5. The identity of companies returning questionnaires was anonymous in 1982. In order to improve tracking of the sample and prevent duplicate responses, the 1989 survey used questionnaires with identification numbers on peel-off labels. The respondent was encouraged to leave the label on the questionnaire when it was returned, but this was voluntary. All labels were removed after receipt of the questionnaires, making the data both anonymous and confidential.

Confidentiality

The 1982 survey used a postcard system to verify which companies had returned questionnaires. Each questionnaire was sent to the company along with a postcard. Substantially more questionnaires were returned (n=373) than postcards (n=307). This raised the possibility that more than one survey was completed by the same organization, since respondents are normally more likely to return a postcard without a questionnaire, so that he or she would not be subject to followup. In fact, a few organizations returned more than one questionnaire in 1989, i.e., the original questionnaire and a questionnaire sent in a followup mailing. These were identified and removed from the 1989 sample.

Because there appeared to be a problem with the use of a separate postcard to track anonymous questionnaire returns, a respondent identification number was proposed for the 1989 questionnaires. This permitted improved sample tracking and allowed identification of duplicate returns. Due to concerns about the anonymity of the questionnaires, a compromise solution was to affix the identification number to the 1989 questionnaires on a peel-off label that could be removed by respondents who wished to remain anonymous. Respondents were encouraged to leave the peel-off label on the survey, which explained it would be removed after receipt. After SRBI received the questionnaires, the peel-off labels were removed, making the data both anonymous and confidential.

Nine out of ten survey participants left the peel-off label on the questionnaire. The peel-off labels were removed from 11 percent of the health officer questionnaires, and 10 percent of the personnel officer questionnaires returned to SRBI. Only 5 of 59 health officers reporting any type of genetic monitoring and screening removed the label before returning it.

**Table B-2—Sample Disposition for 1989 Survey:
Fortune 500 and 50 largest utilities**

Sample mailing and eligibility	Number
Drawn sample	550
Companies ineligible before mailing: merged/out of business/bought by other company in sample.	3
Companies mailed questionnaires	547
Companies ineligible to complete survey	18
Merged/out of business/bought by other company in sample.	15
Noncontactable by mail and telephone, no forwarding address and nonlocatable	3
Companies eligible to complete survey.	529
<i>Participation in survey</i>	
Total questionnaires received during field period. .	453
Health questionnaires received.	250
Personnel questionnaires received	203
Companies returning at least one questionnaire during field period	325
Companies returning both questionnaires	128
Companies returning only health questionnaire .	122
Companies returning only personnel questionnaire	75
Companies returning questionnaires after close of field period	5
Total companies returning questionnaires	330
<i>Nonparticipation in survey</i>	
Companies refusing to participate	150
Too busy to complete survey	41
Participation against company policy	51
Company too decentralized for someone to do survey	5
Other refusals.	53
Companies in callback status: had been remailed questionnaires	45
Other companies not returning questionnaires. . . .	4
Completion rate (Total companies returning questionnaires/ eligible companies).	62.4%

SOURCE: Office of Technology Assessment, 1990.

Field Procedures

The field procedures used in this study included:

- an advance letter, produced on OTA stationery and signed by OTA Director John H. Gibbons, sent to the Chief Executive Officer (CEO) of each sampled company and union Presidents prior to mailing the questionnaire;

- a first mailing of the questionnaire with a cover letter to the CEO, asking that one questionnaire be directed to the firm's chief executive for health affairs and a second one to the chief personnel officer;
- a followup letter to individuals whose replies were not received within 2 weeks of the first mailing;
- a second questionnaire mailing approximately 3 weeks after the followup letter;
- a telephone followup of all Fortune 500 companies and the 50 largest 'utility companies that did not return both questionnaires; and
- telephone interviews after repeated telephone followup and remails.

Sample Disposition

A total of 330 organizations in the Fortune 500 and 50 largest utilities categories completed and returned at least one questionnaire for the 1989 survey (see table B-2). An additional 21 organizations in these groups were classified as ineligible for the survey because they had merged, were no longer in business, or had been bought by another Fortune 500 company or by one of the 50 largest utilities. The overall response rate among the 529 eligible organizations was 62.4 percent.

By comparison, the 1982 survey on genetic monitoring and screening reported a 65.2 percent response rate among the Fortune 500 companies, 50 largest utilities and 11 unions, based on 366 organizations returning questionnaires. One four-page questionnaire was mailed to CEO's and directed to chief health officers in 1982. In 1989, two questionnaires totaling 20 pages were mailed to CEO's, including a 12-page instrument for chief health officers and an 8-page questionnaire for chief personnel officers.

The 62.4 percent response rate was achieved after repeated followup telephone calls and remails of the questionnaires. A total of 150 companies refused to participate in the 1989 survey, or 28 percent of the Fortune 500 companies and 50 largest utilities. These telephone followup efforts were not conducted among the additional sample of companies with 1,000 or more employees because response rate comparability was not sought. A somewhat lower response rate was obtained from this group as a result (see table B-3).

**Table B-3-Sample Disposition for Survey:
Non-Fortune 500 Companies**

Sample mailing and eligibility	Number
Drawn sample	1,039
Companies ineligible before mailing: merged/out of business/bought by other company in sample. .	0
Companies mailed questionnaires.	1,039
Companies ineligible to complete survey: merged/ out of business/bought by other company in sample.	40
Companies eligible to complete survey.	999
<i>Participation in survey</i>	
Total questionnaires received during field period. .	667
Health questionnaires received.	301
Personnel questionnaires received.	366
Companies returning at least one questionnaire during field period.	460
Companies returning both questionnaires.	207
Companies returning only health questionnaire.	94
Companies returning only personnel questionnaire.	159
Companies returning questionnaires after close of field period.	10
Total companies returning questionnaires.	470
<i>Nonparticipation in survey</i>	
Companies refusing to participate	22
Companies requesting mail to different address. .	19
No response after two mailings.	488
Completion rate (Total companies returning questionnaires/ eligible companies)	47.0%

SOURCE: Office of Technology Assessment, 1990.