

# Can Internet Surveys be Used for Social Surveys? : Results of an Experimental Study

## Summary

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\*The titles are those at the time of writing or research.

### Research Period

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## Objective and Method

With the purpose of improving the survey methods used in the field of labor, we generally examined and summarized the current state of and issues related to the survey methods. In addition, we conducted an experimental study to understand the characteristics of Internet monitor surveys that are increasing rapidly in recent years and analyzed the results.

In the experimental study, we used the same questionnaire as for a conventional survey method (in which visits are made to respondents who were selected by random sampling for an interview) in conducting five different types of surveys (three types of Internet surveys on publicly recruited monitors, an Internet survey on randomly selected monitors, and a mail survey on mixed monitors).

### Key points of the report

- ◆ A look at the current state of social survey methods shows that the environment for the conventional survey is deteriorating as a result of a decline in the rate of response and rising awareness about privacy. On the other hand, the newly emerged Internet surveys have the advantage of low cost and requiring less time, but there are questions about representativeness. Under these circumstances, appropriate survey methods need to be selected carefully.
  
- ◆ While there is a large variety of survey methods, one of the measures of the quality of surveys is the deviations contained in the surveys (the gap between the true state of the population and the survey results). The smaller the deviations, the higher the quality level of the survey. The required level of quality, however, depends on a particular survey's objectives. Therefore, it is important to select the optimal survey method by considering the required level of quality, costs, and time.
  
- ◆ The results of an experimental comparative study on Internet surveys and a conventional survey are as follows:
  - The majority of the results of the survey conducted by visiting respondents who were selected by random sampling for an interview (the conventional survey) differed significantly from the results of Internet surveys and a mail survey conducted on monitors.
  - The differences cannot be explained solely from such substantial attributes as gender, age, educational background, and occupation.

➤ In comparison with the conventional survey, there were commonalities among the results of various monitor surveys.

➤ The response structure (correlation between data) may differ by survey.

It cannot be denied that there may be elements of coincidence in the results of a single experimental study. But as questions were asked on people's values in general and views about their lives by using a number of typical survey methods, we recognize that the experimental study has a certain measure of universality. We believe that the results of the study will be useful for future discussions.

◆ The results of our study indicate that it is inappropriate, at present, to use Internet surveys, without any reservations, to replace conventional surveys.

◆ On the other hand, it was observed that the respondents of Internet and mail surveys on monitors (publicly recruited and randomly selected monitors) had more common traits (high educational attainment, short working hours, strong level of anxiety and dissatisfaction, etc.) than among respondents of conventional surveys. If such traits can be demonstrated in repeated studies, such information could be used to interpret the results of surveys on monitors, and the use of such surveys could be expanded.

**Supplement:** Publication of data obtained from questionnaires in our experimental study

The data obtained from questionnaires in our experimental study will be made public on the JILPT website after the publication of this report.

## 1. Current state of surveys (Chapters 2 to 4)

- The environment for conducting surveys is deteriorating.
  - The use of the Basic Resident Registers is restricted, which makes it more difficult to use the Registers for sampling.
  - The rate of response is declining.
  - The rise in the awareness of privacy.
- Emergence of new survey methods
  - The methods used in Internet surveys are diverse. The quality of such surveys is currently being examined.
- Efforts made by industry associations and other related entities
  - Japan Marketing Research Association prepared the Code of Conduct of Marketing Research and other detailed quality control standards and obligates its member firms to comply.
    - Dissemination to clients and compliance by member firms is apparently insufficient.

## 2. What kind of surveys are “good surveys”? <A framework for analyzing the quality of surveys> (Chapter 5)

- Standards of a “good survey”
  - ① The required level of quality at the minimum costs.
  - ② Presentation of information on the accuracy of the survey.
  - ③ Reasonable consideration for the subjects of the survey.
- Concepts of various errors and “total error”
 

There are various types of errors, such as coverage errors, sampling errors, non-response errors, measurement errors, and tabulation errors. Trying to reduce one type of errors may increase another type of errors. In conducting a survey, the various types of errors should be considered comprehensively so as to reduce “total errors,” inclusive of various types of errors.

## 3. Method of experimental study (Chapter 7)

- To compare “conventional surveys” and “new types of surveys,” five types of surveys were conducted simultaneously using the same questionnaire as that used in the conventional survey.

- For the “conventional survey,” the 3<sup>rd</sup> Survey on Working Life (2001) conducted by the Japan Institute of Labour (currently the Japan Institute for Labour Policy and Training) was used.
- For the “new types of surveys,” four types of Internet surveys and a mail survey were used. All of these surveys were conducted on registered monitors.

■ Survey method of each survey

	Conventional Survey X	Experimental Study				
		Survey A	Survey B	Survey C	Survey D	Survey E
<b>Respondents</b>	Non-monitors	Monitors				
<b>Person making entries in the questionnaire</b>	Inquirer	Respondents				
<b>Collection of data</b>	Visit for interview	On the Internet			Writing	
<b>Selection of respondents</b>	Random sampling	Publicly recruited		Random sampling	Publicly recruited and random sampling	
<b>Area</b>	Nationwide	Nationwide		Tokyo, Kyoto, Osaka, Kobe	Nationwide	
<b>Response rate</b>	68.8%	59.5%	86.2%	39.8%	70.9%	81.5%

■ Sample size

In each of the surveys of the experimental study, the questionnaire was distributed to 1,650 people, in principle (165 in each of the cells divided by gender and age in decades (20 to 69)). For Survey X, 4,000 people were subject of the survey, among which there were 2,751 effective responses.

4. Results of the experimental study (Chapter 8)

■ Attributes

- Compared with Survey X (Conventional Survey), among the respondents of the surveys of the experimental study, there were more people who were more educated and who had jobs that required technical expertise, less people who worked as skilled workers and in jobs related to manual labor, less regular employees and more non-regular employees, and more people with shorter working hours.

■ Awareness

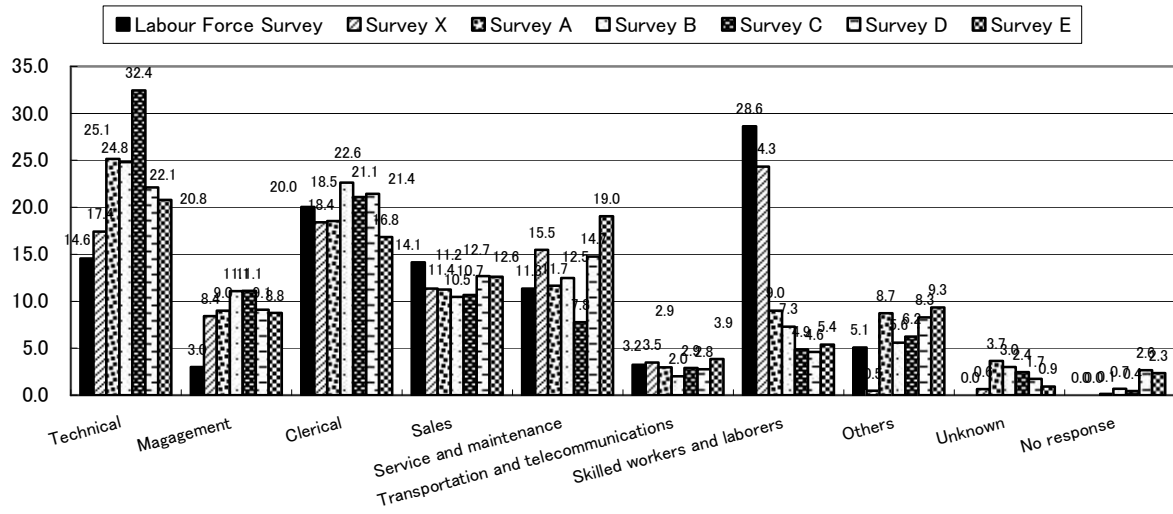
- For 70 to 80 percent of the questions, the results of Surveys A to E were significantly different from those of Survey X.
- The rate of divergence from Survey X (percentage of questions with significant difference) was about the same in all surveys from A to E.
- While many of the results of the surveys of the experimental study were notably different from those of Survey X, the differences among the surveys of the experimental study were generally smaller (although depending on the questions).
- As a common feature among the five types of monitor surveys, the respondents tended to have “strong anxiety or dissatisfaction” and to have “negative views about the Japanese employment practices.”
- There are differences among the five surveys of the experimental study, but commonalities among these surveys are more notable than those with Survey X.

■ Participation in Internet surveys

- Many respondents of the Internet surveys were registered as monitors for a number of research firms and were participating in surveys almost weekly (professional respondents).

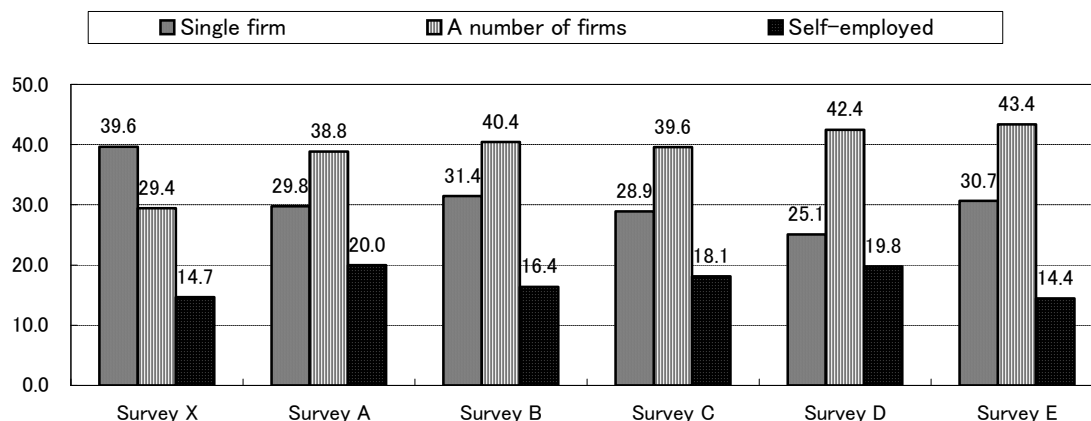
- In all surveys of the experimental study, there are a very few respondents who worked as skilled workers or in jobs related to manual labor.

Figure. Occupation (actual figures are used for Labour Force Survey(Statistics Bureau, Ministry of Internal Affairs and Communications), and figures corrected by gender and age for all other surveys)



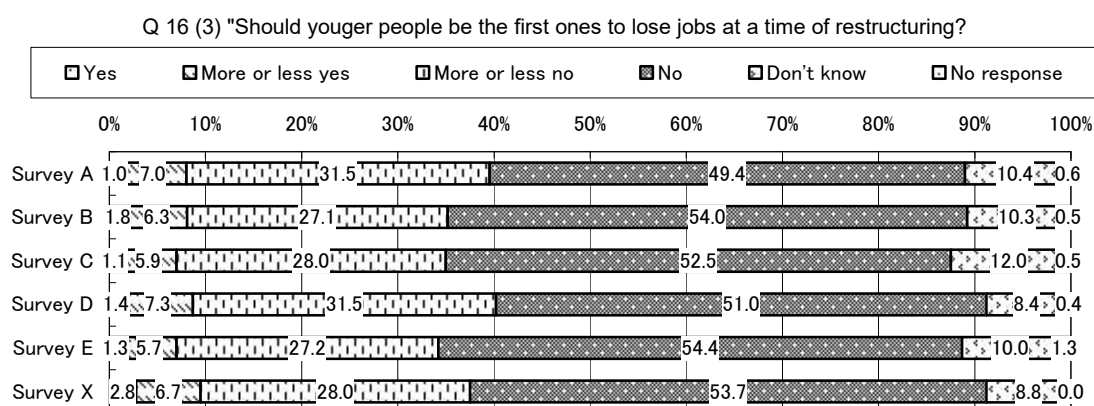
■ Example of a question with significant differences

Figure. Desirable professional career (figures corrected by gender and age)



■ Example of a question without significant differences

Figure. Rules regarding restructuring (youth) (actual figures of total of both genders and all age groups)



■ Participation in Internet surveys

Figure. Frequency of responding to Internet surveys (actual figures)

(%)

	Total	Once/ twice a year	Once/ twice in three months	Once/ twice a month	Once/ twice a week	Three/ four times a week	Five/ six time a week	Seven/ more times a week	Others	Never before	No response
Survey A	100	0.2	0.7	7.7	<b>28.5</b>	28.0	17.5	16.9	0.4	-	0.2
Survey B	100	0.9	4.4	22.1	<b>32.6</b>	18.4	8.4	12.7	0.4	-	0.1
Survey C	100	0.2	2.1	19.5	<b>37.8</b>	19.4	8.1	12.7	0.3	-	0.0
Survey D	100	1.3	12.5	<b>62.7</b>	13.5	3.1	1.9	3.3	1.7	-	0.1
Survey E	100	14.6	11.1	14.4	9.5	3.8	1.6	4.2	0.9	<b>39.3</b>	0.6



■ Characteristics of the results of the experimental study (comparison with Survey X)

① Attributes

- More educated, unmarried, small households
- Many in technical occupations and “others” and a few in skilled or manual labor
- Many in homework and self-employment. A few are regular employees, and many are non-regular workers.
- For many, the length of service is short and working hours are less than 40 hours a week.
- Many “work on the side in addition to doing housework.”
- Many work for large firms.

② Awareness

- Low sense of fulfillment in life, including work and family.
- Low sense of satisfaction and a strong sense of inequality in many respects
- Lack of confidence about the ability to perform jobs
- Prefer to increase their expertise at a number of firms rather than become a part of the management at a single firm
- Less inclined to be interested in enriching one’s mind
- Prefer competitive society than equal society
- Negative views about the Japanese employment practices as they do not approve highly of the lifelong employment system or the sense of unity with the organization and support the idea of receiving higher salaries at the expense of reduction in welfare and service.

③ Tabulation of results

(Note that this does not show the characteristics of the five monitor surveys themselves but the differences in comparison with Survey X and the “Labour Force Survey.”

\*Characteristics only of those employed. \*\*Shows only the results of the surveys as comparison is not possible.)

Question	Survey A	Survey B	Survey C	Survey D	Survey E
Employment	Many “working on the side in addition to housework.” Not many are unemployed.				
	A smaller number answered, “Mainly work.”			A smaller number full-time housewives. Many “working on the side in addition to housework.”	The number of those who answered, “Mainly work” is substantially lower. Low labor force participation rate.
Working style*	A smaller number of full-time regular employees or directors. Many homeworkers.				
	Many self-employed people (with/without employees) Many dispatched employees			Many temporary employees. Many self-employed. The number of regular employees is substantially small. Many dispatched workers and part-time workers.	Many temporary employees. The number of regular employees is substantially small. Many part-time workers.
Size of company*	Many work for large firms employing 1,000 or more employees. A relatively large number of people work in government ministries and public offices.				
Occupation, post, years of service*	The number of those in technical jobs is substantially large and those in management jobs relatively large. The number of those in skilled labor and manual labor is substantially small. Many are in “other” jobs. A relatively large number of section heads and division managers. A smaller number without executive posts. Many answered “others” or “unknown” about their posts. Years of service are substantially short.				
		A relatively large number of those in clerical jobs	A particularly large number of those in technical jobs. A smaller number in service and maintenance jobs.		
Working hours*	Working hours are substantially short.				
Education	A substantially large number have graduated from junior college or more , particularly universities. A substantially small number have only finished primary or high school.				

Question	Survey A	Survey B	Survey C	Survey D	Survey E
Family	A relatively small number have spouse. Many are in a household of two people. A relatively large number are unmarried. Many are in single-person households and married-couple-only households. A smaller number are in three-generation households. A smaller number are in households of four or more people.			A substantially small number have spouse. Many are in households of only married couples. A smaller number are in households in which there are unmarried children or in three-generation households.	A smaller number are unmarried. Many are in households of three to four people. A substantially large number are in households where married couples and their unmarried children live. A smaller number are in three-generation households.
Income	With respect to the income of the entire household, a relatively large number had “none,” but generally there were no substantial difference with Survey X.				
	The income of the respondent is relatively high.			Household and respondent's income is relatively high.	Many respondents' income is less than ¥700,000.
Use of the Internet**	The frequency of Internet use is high. The top three reasons for cooperating in Internet surveys are: “reward or gifts,” “have time to cooperate,” and “interested in the topic of the survey.”				
	80% or more use the Internet daily. 70% or more participate in an Internet survey weekly. A relatively large number participate because it is fun or it gives them the opportunity to express their views.			80% or more use the Internet daily. About 60% participate in an Internet survey “once/twice a month.”	20% have never used the Internet. About 60% are registered as Internet survey monitors.
Views on Japanese employment practices	Japanese employment practices are not considered highly. However, a relatively small number consider “self-help skills development” as a good thing.				
Desirable distribution principle	The order of priority ( performance> efforts> necessity> equality) is the same as Survey X. However, a relatively large number support the principle of performance, and a slightly smaller number support the principles of efforts, necessity, and equality. While support for performance and effort was more or less the same in Survey X, the support for performance was much higher than that for efforts in Surveys A to E.				
Rules on restructuring	The order of precedence ( lack of ability to perform> unnecessary jobs> older workers> shorter length of service> younger workers) is the same as Survey X. A large percentage supports the rule of dismissing those who lack the ability to perform.				
Views on life	A substantially small number are oriented towards “maintaining the status quo.” A smaller number are oriented towards “de-emphasis on status” and “post-materialism.” A slightly larger number have “anxiety about losing their status.”				
Job satisfaction	Job satisfaction is substantially low.				
Desirable professional	A smaller number selected “single firm.” Many chose “a number of firms.”				

Question	Survey A	Survey B	Survey C	Survey D	Survey E
career	A slightly larger number selected “self-employed.”				
Safety net	The emphasis on “reemployment assistance” and “life security during unemployment” is the same as Survey X. A substantially large number supported “assistance in job creation.”				
	A slightly smaller number supported “reemployment assistance” and “life security during unemployment.”				A large support for the two answers on the left.
Social class that respondents believed they belonged to	A smaller number consider themselves as belonging “dead in the middle of the middle class,” as they tend to be dispersed above or below the middle. Many consider themselves to be “upper middle,” “lower middle,” or “lower” class.	(No significant difference with Survey X)			A smaller number consider them as belonging “dead in the middle of the middle class,” as they tend to be dispersed above or below the middle. Many consider themselves to be “upper middle” class.
Sense of inequality	Many feel a “sense of inequality.”				
Future direction of Japanese society	Many support “society in which individuals can compete freely.” A smaller number support “society of equality,” and a few answered, “not possible to choose one over the other.”				
Priority in life	A significant large number gave importance to income and wealth. A slightly larger number gave priority on occupation. A smaller number attached importance of social activities. A slightly smaller number gave priority to hobbies and leisure.				
	A smaller number gave importance to family. A particularly large number attached importance on income and wealth.				A slightly larger number gave priority on education.
Sense of fulfillment in life	A smaller number had a sense of fulfillment except as regards free time.				
	A substantially smaller number derived a sense of fulfillment from family life or work compared with Survey X.		A sense of fulfillment from work is relatively high.		A sense of fulfillment from social activities is not much different from Survey X.
Concerns about life	The respondents had strong concerns in almost all aspects of their lives. In particular, many were concerned about their health, income, assets, and life after retirement. There was not much difference regarding personal relation in the workplace and in the regional community.				
	A particularly large number were concerned about income and assets and life after retirement.				
Satisfaction in life	The level of satisfaction in life is low.				
	The level of satisfaction in life is substantially low.				

- Examples of cases where “the difference between Survey X and the experimental study’s surveys” was greater than “the difference among the individual surveys of the experimental study”

A look at the attitude toward “lifetime employment” shows that the results of all the five experimental surveys (A to E) are plotted beneath the forty-five degree line, which explains that the percentage of those who approved of “lifetime employment” in Surveys A to E (at 65.1% to 69.3%) is less than that in Survey X (at 73.4%).

The results of the five types of surveys of the experimental study are encircled by a solid line; and the results of the Internet surveys on publicly recruited monitors are encircled by a dotted line.

Figure. Views on Japanese employment practices (figures corrected by gender and age)  
(Total of “It is a good thing” and “It is more or less a good thing”)

Axis of abscissa: response rate of Survey X (%)      Axis of ordinate: response rate of the experimental study (%)

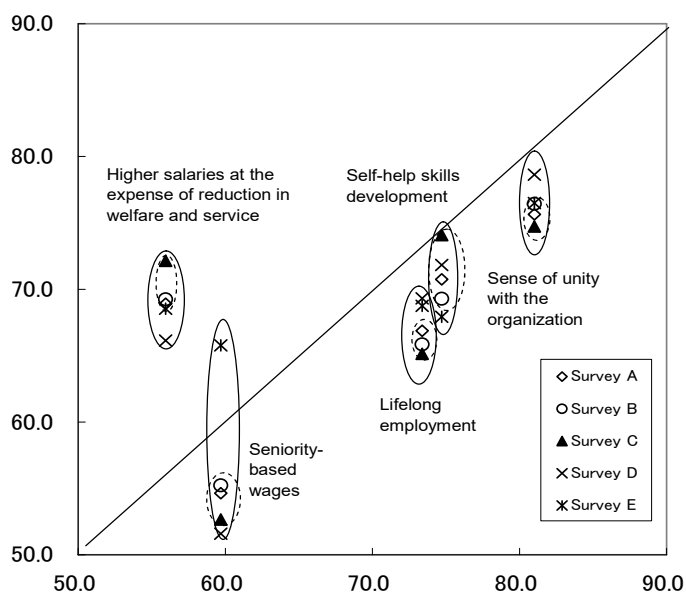
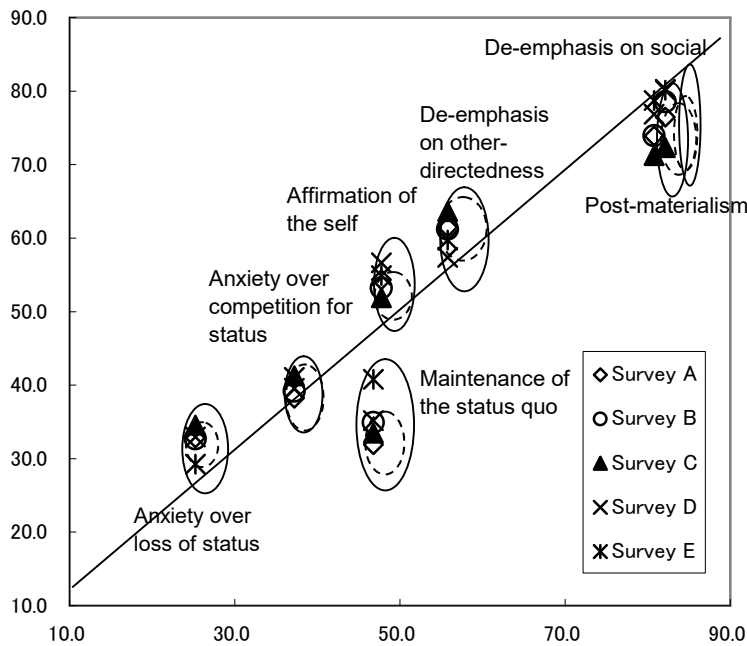


Figure. Views on life (figures corrected by gender and age)  
(Total of “Apply” and “More or less apply”)

Axis of abscissa: response rate of Survey X (%)      Axis of ordinate: response rate of the experimental study (%)

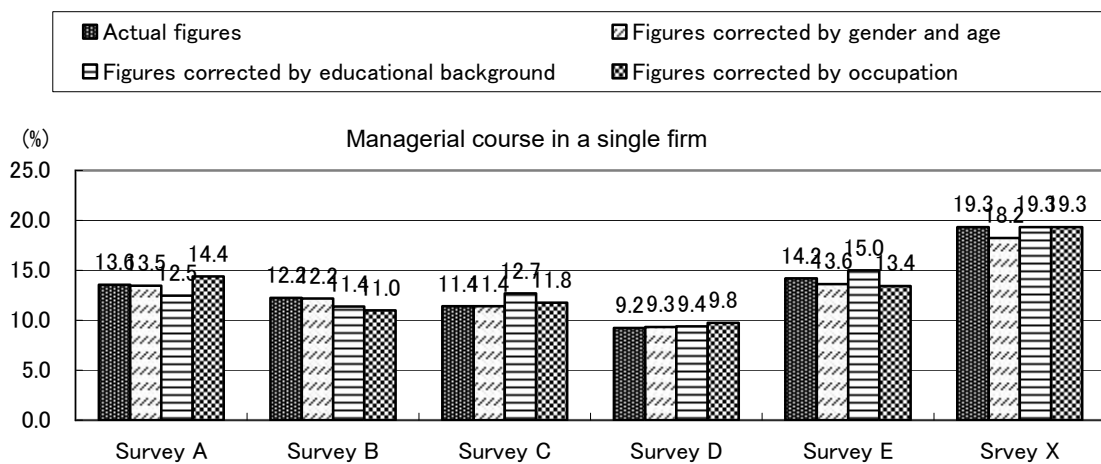


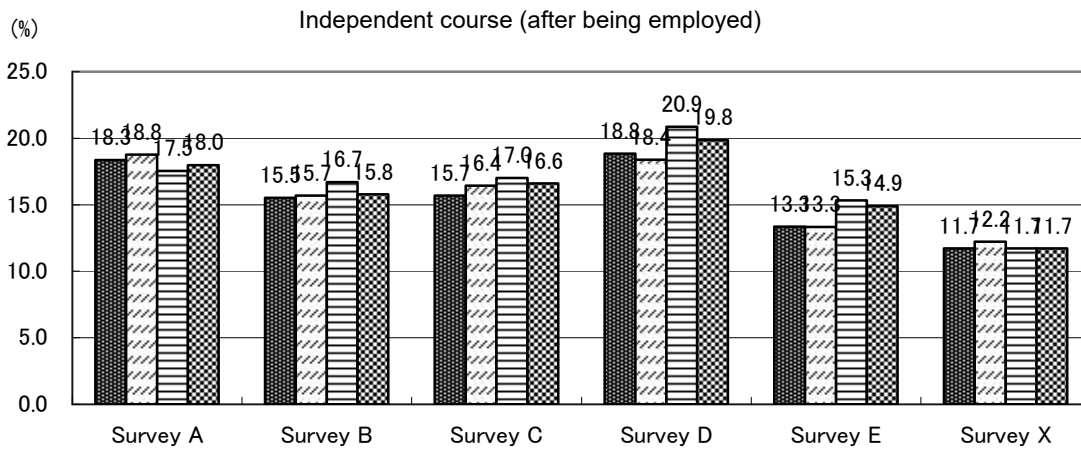
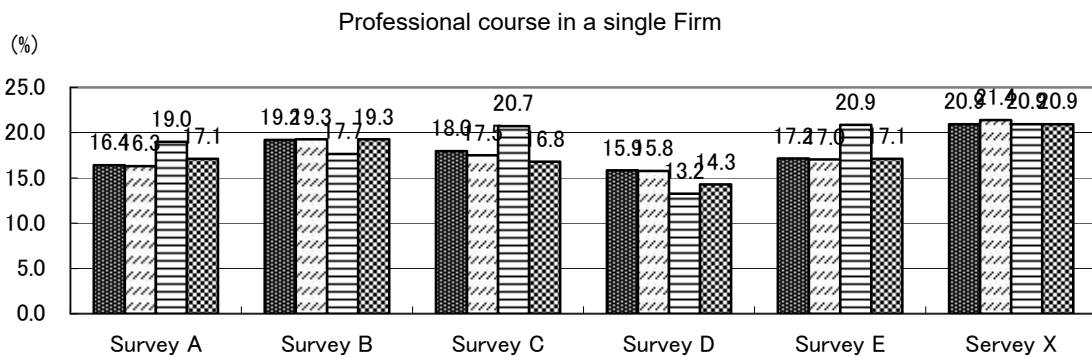
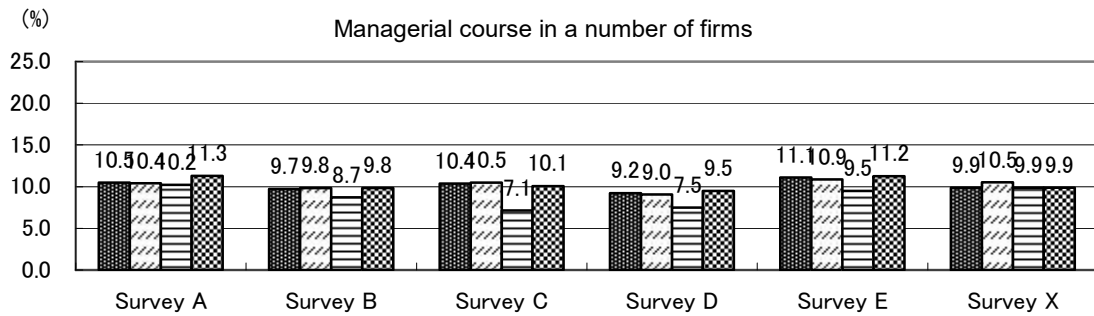
5. Analysis of the results of the experimental study (Chapters 8 to 10)

① Effect of correction by gender, age, education, and occupation

When the data are corrected (weighted) so that the composition of gender and age, educational background, and occupation is the same for all surveys, some change was observed as a result of correction based on educational background. However, generally speaking, it cannot be said that the differences between Survey X and the experimental study are reduced as a result.

Figure. The most desirable professional career (actual figures and corrected figures)





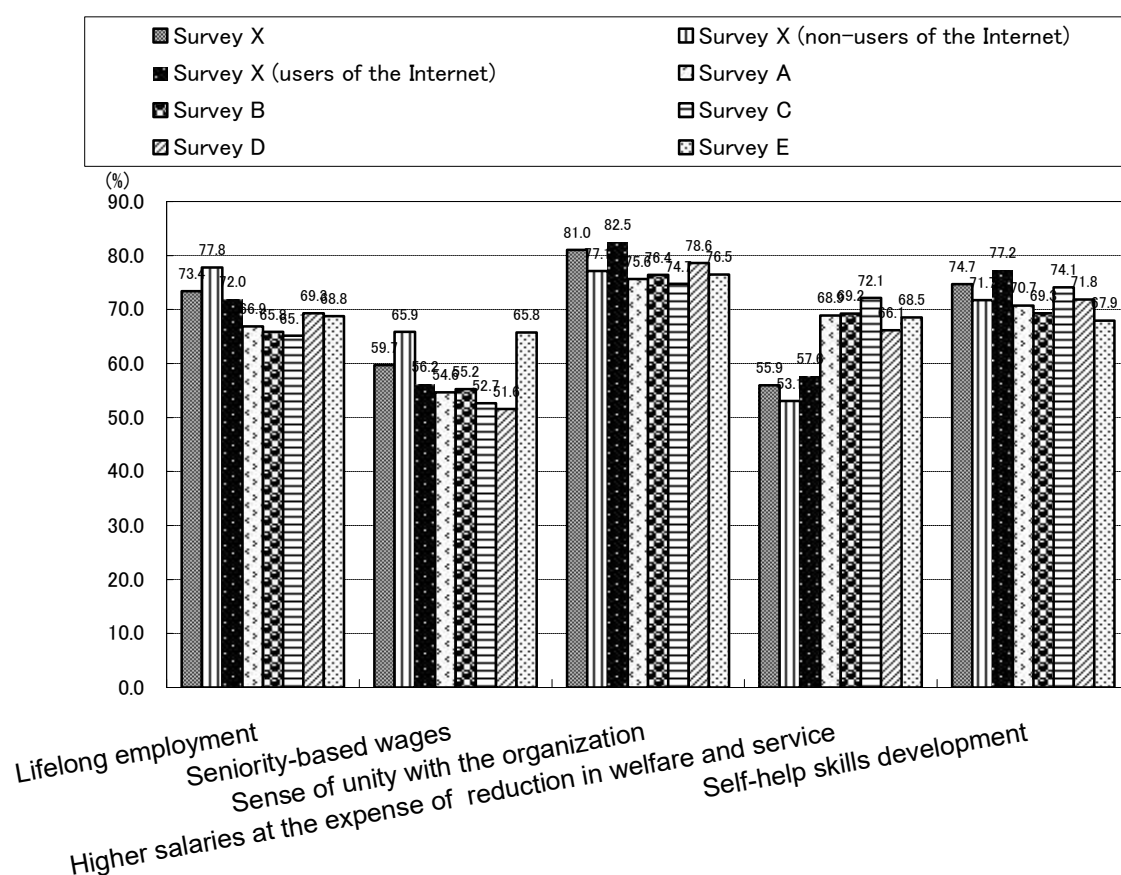
② Difference between Internet users and non-users of the Internet

Internet users were selected from among the respondents of Survey X. By examining the Internet users' response, it was found that for some questions (lifelong employment, seniority-based wages, distribution principles, rules on restructuring, and professional career), the answers moved closer to those of the experimental study than to the average figures in Survey X, but for other questions (higher salaries at the expense of reduction in welfare and service, sense of fulfillment in life, and concerns



about life), no such relation was observed. There were, nevertheless, gaps between the response of the Internet users in Survey X and the respondents of the surveys of the experimental study (even though the gaps were narrowed). And, in general, the response of the Internet users in Survey X was closer to the response of non-users of the Internet in Survey X than to the respondents of the experimental study.

Figure. Views on Japanese employment practices (figures corrected by gender and age; actual figures for Internet users and non-users of the Internet)  
(Total of “It is a good thing” and “It is more or less a good thing”)

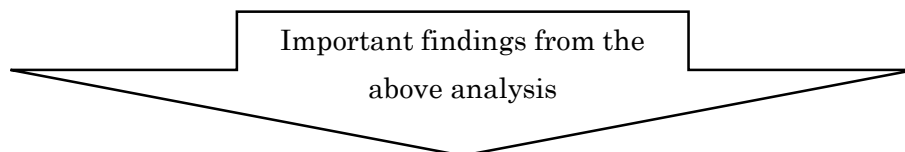


③ Comparison of the response structure (correlation between data in each survey)  
To examine whether the correlation between data (response structure) differed among the surveys, a regression analysis was carried out on a number of questions related to respondents’ awareness in each survey. Their answers were used as dependent variables, and main attributes (gender, age, education, and respondent’s income) as explanatory variables. The results of the regression analysis were compared.

As a result, it was found that in many cases, the correlation between data differed depending on survey methods. The only item among the analyzed questions that correlation was common among Survey X and all surveys of the experimental study was the question on “satisfaction in life.” In all other questions, correlation differed one way or another.

④ Similarities/differences in responses and respondents’ attitude depending on the timing of answering questionnaires

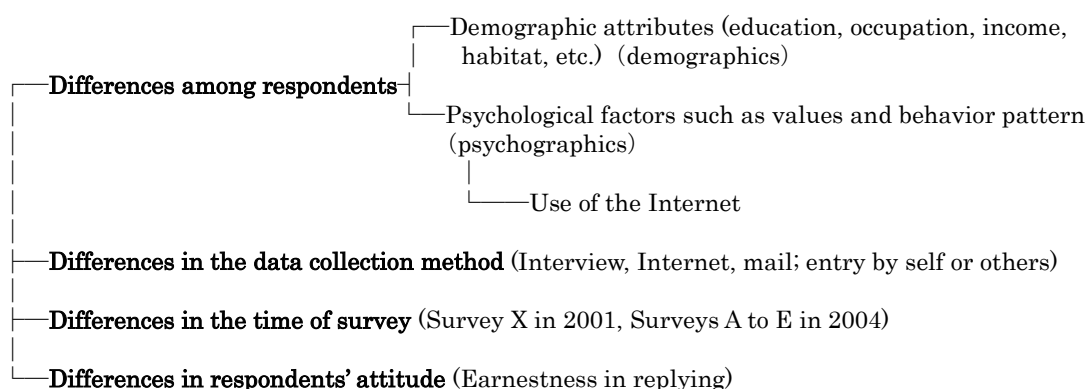
Respondents were categorized into a group of early respondents (those who answered on the first day of the Internet surveys (Surveys A to D) and those who answered in the first six days of the mail survey (Survey E)) and a group of late respondents (all other respondents). A comparison was made on the two groups regarding employment and their awareness. The results showed there were no significant differences between the two. There was also no difference in the frequency at which respondents gave no answers to particular questions.



- ★ There were common features among the “monitor surveys,” transcending data collection methods (Internet and mail surveys) and monitor selection methods (public recruitment and random sampling).
- ★ Among the monitor surveys, there were common features particularly among the Internet surveys on publicly recruited monitors.

**6. Why do the results of the experimental study and the conventional survey on respondents' awareness differ?** (Chapters 11 and 13)

■ The differences in the results of the surveys of the experimental study and the conventional survey on respondents' awareness may be attributed to the factors shown below. In particular, **“differences in the psychological factors of the respondents”** are considered to have had the biggest effect.



■ The difference in the respondents' psychological factors in the experimental study and conventional study probably arose because the respondents in the experimental study had gone through the process of “registering as a monitor.”

■ The conventional survey, which was used for comparison, has a clear advantage over other survey methods in terms of quality of investigation. As concern over privacy and security rise in the future and the response rate declines, the difference between those who agree to the interview and those who decline to be interviewed (non-response errors) may increase. There is a need to maintain a scrutiny of the quality of conventional surveys.

■ With regard to the theories of survey methods, there is a paradigm shift from the statistical model to the cognitive science model. It is hoped that by using the cognitive science model, it would be possible to elucidate non-sampling errors (measurement errors and non-response errors), which could not be done using the statistical model.

## 7. Methods for complementing the imperfection of surveys (Chapter 12)

### ■ Correction

There are many ways to correct survey results. An often used method is “weighting” (a way of weighting data, at the time of tabulation, for each type of respondent based on a certain standard). Weights may include (1) sampling ratio of the planned sample in the population, (2) ratio of the population to the collected sample, and (3) ratio of the universe to the collected sample. The desired method is to “use the sampling ratio for weighting in the case of stratified sampling.” On the other hand, when the response rate is weighted for the purpose of offsetting low response rates, the weight of a stratum with a particularly low response rate will become excessively large. This should be avoided because it will significantly increase the risk of error.

### ■ Mixed mode (the use of a number of survey methods)

The mixed mode is to combine a number of survey methods. For instance, a mail survey may be conducted on those who cannot accept a visit for an interview. When a number of survey methods (data collection methods) are used, the effect that the survey methods will have on the measurement error becomes an issue. In cases where the non-response error is expected to be considerably large, for instance, because of low response rates, the use of the mixed mode, after considering the expected measurement error and non-response error, may be an effective way to reduce the overall error.

### ■ Careful interpretation of survey results

There can never be an infallible survey that is devoid of error, and there are limits to correction. Therefore, consideration of errors is always needed for the interpretation of survey results.

When using survey results, there is a need to check the sampling method, data collection method, status of data collection, and weighting method, and based on the information obtained, to examine the occurrence of errors (coverage errors, sampling errors, measurement errors, non-response errors, and tabulation errors).

In particular, the status of data collection obviously needs to be checked when the overall response rate is low. When analyzing the survey results by attribute, the response rate for each attribute should also be checked.

If existing data are available, it would be effective to compare or complement the survey results with the existing data.

## 8. Proposal on the method of social survey (Chapter 14)

### 1. Principle

As the environment for conducting surveys is deteriorating in recent years, survey results do not necessarily accurately reflect the conditions of the subject. In conducting surveys, therefore, utmost attention should be given to obtain the most accurate results possible. When using survey results, they should be interpreted based on the understanding of the limitations of surveys.

### 2. Selection of an appropriate survey method

When different methods are used for data collection (interview survey, mail survey, Internet survey, etc.) and for selection of respondents (random sampling, registered monitors, etc.), survey results to the same questions may vary.

The results of the experimental study showed that there were significant differences between the results of a survey using a statistically established conventional method and monitor surveys. Although further study is necessary, we believed it is inappropriate, at this stage, to use, without reservation, a monitor survey as a replacement for the conventional survey.

On the other hand, the purposes for which a survey is used are widely variegated. Survey results can be used as outputs or as materials for research or decision-making. In examining the possibility of using various types of surveys, including Internet surveys, there is a need to fully consider the purpose for which the survey is used and the unique characteristics of each type of survey.

In the experimental study, certain common characteristics (strong sense of anxiety and low level of satisfaction, etc.) were observed among the respondents of the Internet and mail surveys on monitors (publicly recruited monitors, randomly selected monitors, and mixed monitors), when compared with the results of the conventional survey. If these and other characteristics of various types of surveys can be stably observed in future research, the information could be used for interpretation of the results of monitor surveys. This should also increase the usability of monitor surveys.

### 3. Casual use of correction should be avoided

There is still room for research regarding the method of correcting survey results. When the purpose of a survey is to present the results to the public, the use of a complex correction method is considered inappropriate at least at this stage when a consensus on the method of correction has not been formed.

There is also a risk that weighting might increase the total error. Therefore, it is essential to ensure appropriate stratification and to secure sufficient amount of response in each stratum.

#### **4. Potential of the mixed mode**

As things stand, the question on how to deal with non-response errors that arise from low response rate and bias in the group of respondents is an important issue. With the mixed mode, which uses a number of survey methods, there are concerns about the effect that different data collection methods might have on the survey results. However, by offering a number of ways to respond to the survey to suit respondents' convenience, it can be expected to have the effect of obtaining data from respondents who might otherwise had difficulty responding to the survey. It is worth considering the mixed mode in social surveys.

#### **5. Promotion of the secondary use of survey data**

To avoid the deterioration in the environment for conducting surveys, it is important to consider the possibility of reusing data from existing surveys before conducting a new survey. For example, the Information Center for Social Science Research on Japan, which is affiliated with the University of Tokyo's Institute of Social Science, is accumulating, in the SSJ Data Archive, data from prior surveys conducted by various organizations. The data are available to researchers.

When a new survey is carried out, it is desirable that the data are, if possible, deposited with the above data archive or published at one's own expense. Even if the data cannot be deposited or published in the immediate future, the data and related information should be stored in such a condition that they are reusable. (See "8. Preparation of code book" below.)

#### **6. Disclosure of survey-related information to the users of the survey**

When publishing survey results, the information as shown below should be indicated in a survey report.

- (1) Period of the survey
- (2) Population
- (3) Method for selecting planned samples
- (4) Number of planned samples and collected samples (figures for each stratum in the case of stratified sampling)
- (5) Survey sheets

- (6) Survey method
- (7) If calculation, other than calculations for obtaining simple average or total, is done (ex. weighting, ratio estimate, etc.), the calculation method

#### **7. Disclosure of information by the research firm to the organizer of the survey**

The survey organizer should give the research firm clear instructions, particularly in the case of Internet surveys, on the matters shown below. The research firm should disclose information that can be used to demonstrate that the survey was carried out according to the instructions.

- (1) Method of setting and managing the population and attributes of the population (particularly important in the case of monitor surveys)
- (2) Method of selecting planned samples
- (3) Timing of cutting off collection
- (4) Method of checking data input (double input, etc.)
- (5) Method of data cleaning and number of automatic corrections

#### **8. Preparation of code book**

The survey organizer should prepare a code book on the survey conducted. The primary objective of preparing a code book is to show how the response codes for the questions correspond with the data input into computers. In addition, it is desirable that a series of information on the survey, such as sampling, questions, survey sheets, category codes, and records on the progress of physical inspections, is indicated in the code book.

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