National Family Research of Japan Panel Study (NFRJ-08Panel) Report

**The National Family Research Committee
of the Japan Society of Family Sociology**

Introduction

This document serves as the completion report for the National Family Research of Japan Panel Study (NFRJ-08Panel).

The NFRJ-08Panel is an extension of the family research by the National Family Research of Japan Committee (NFRJ Committee) of the Japan Society of Family Sociology that has been carried out since the 1990s. The NFRJ was started from the volunteer activities of members of the Japan Society of Family Sociology. An organization was formed to receive funds, and the NFRJ collects and publishes nationwide data related to families. The plan to conduct a panel survey was brought to the table from the very outset, but there were high hurdles to be cleared before this could become a reality. Without any chance for it being taken up in a concrete manner, the first and second rounds of the study ended as crosscutting trend studies. But the plan for the third NFRJ-08 survey took shape in the final stages, making it possible for part of this to be initiated as a panel survey.

The hurdles standing in the way of implementing panel surveys have not necessarily all been cleared away. First of all, in modern-day Japanese society it is impossible to acquire funding over an extended period of time. The Grants-in-Aid for Scientific Research from the Japan Society for the Promotion of Science that served as the source of financing for this panel have a time limit of five years at the longest. From the point of view of the aims of this study, it goes without saying that it would be ideal to hold it over a longer period of time, but as it is the panel survey will be implemented within this time limit of five years. The second is that it takes time to collect data for panel surveys, and so it is much later on after they start before results are achieved. Effort must be expended over a certain long period of time without obtaining any results, but since the NFRJ is nothing more than a voluntary organization that relies on the voluntary efforts of its members, it does not exactly have any exclusive staff. This carries with it the contradiction that researchers who have to produce results must wait for those results.

The NFRJ-08Panel project was achieved through voluntary efforts that aimed to realize a panel survey related to families. An Executive Committee was formed with the eight Grants-in-Aid for Scientific Research members listed below undertaking the central core of its management. Voluntary efforts are solicited from the members of the society and the NFRJ-08 Panel Research Committee was launched, with its members carrying out Research Committee

activities, working together on tasks such as data cleaning, and also jointly using the data. The names of the members of the Research Committee are listed below.

The Research Committee members also took part in some of the visits for the final round of the study. The Research Committee members who acted as the researchers took part in fact-finding surveys that were limited to the cases in which the data that had previously been collected contained numerous sections that could not be figured out, thereby devoting themselves to collecting accurate data to the extent possible. This format is one that had been proposed at the outset of the launch of the NFRJ by the core members from back at the time of its launch. The ideal of having members of the society who live dispersed throughout the country work together to take part in the study could not be achieved from the perspective of maintaining confidentiality given the members' open approach. Yet conversely, nowadays there not any opportunities to go out into the field for actual fieldwork on account of the priority given to protecting confidentiality, and so this can be seen as having provided an excellent opportunity for the younger members in particular.

With the assistance of members of both the Executive Committee and the Research Committee the first round of the study was begun in FY2009, with panel data related to its families having been collected and organized over the five year period since then. The members of the Executive Committee have undertaken duties and responsibilities that cover a wide range, including managing the activities of the Research Committee. Chief among them has been Tokio Yasuda, a member who primarily oversaw the data cleaning, who offered exceptional assistance and to whom we would like to make special mention and offer our gratitude. In addition, Shigeki Matsuda has lent his cooperation as a member since the very outset of the project, for which we would like to take this opportunity to express our appreciation.

We have reached the point of having finally completed the time-consuming collection of panel data and the release of this paper. It is our hope that this paper will serve as the first step leading to the release of still further results in the future.

1. Aims and Design of the Survey

1.1. Aims of the NFRJ-08Panel

The National Family Research of Japan (hereafter referred to as the NFRJ), which was organized with the goal of contributing to family research, has carried out fieldwork in 1998, 2003, and 2008, and has achieved a certain degree of results through its time series studies. Conversely, over the past decade or more panel surveys came to be carried out through a diverse array of research sponsors. The majority of these were useful for research themes related to families, but this once again reaffirmed among family researchers the need for additional panel surveys that would be of assistance in family research.

Therefore, in October 2008 the first conference for planning the implementation of a panel survey for family research was held. At the conference comparative examinations were held with other panel surveys in Japan, particularly the Japanese Panel Survey of Consumers (JPSC) by the Institute for Research on Household Economics, the Keio Household Panel Survey (KHPS) by Keio University, the Japanese Life Course Panel Survey (JLPS) by the Center for Social Research and Data Archives that is affiliated with the Institute of Social Science, The University of Tokyo, the International Comparative Panel survey on Marriage and Families (JGSS) by the Generation and Gender Project (GGP) Japanese Committee and the Research Committee on International Comparisons on Marriage and Families. Discussions were also held over what had not been revealed through previous panel surveys.

The significance of conducting the survey on the premise that NFRJ08 would serve as Wave 1 for this was examined. Based on data from NFRJ03, the collection rate by sex and by age bracket as well as the number of panel survey respondents according to the estimated response rate for panel as being 40% or 30% were predicted for NJRJ08. As such, it was affirmed from the predicted number of respondents that a number worthy of analysis could be ensured, even when factoring in those who would drop out several years down the road. In addition, it was estimated that middle-aged and elderly people would constitute the majority of the respondents. Discussions were held over what sort of family research would be possible by calculating the rate at which household changes and individual life events would occur through the use of JPSC data. The conclusion was reached that the data would have significance for family research, and so preparations were begun for the fieldwork.

1.2. Design of the Survey

The NFRJ-08Panel survey was begun by focusing on those people who had continuously complied with surveys from among the NFRJ08 respondents. Therefore Wave 1, or in other words NFRJ08, was not a questionnaire that was intended to be a panel survey. The contents of the surveys from Wave 2 onwards inherited the features of NFRJ08 out of consideration for harnessing the data from NFRJ08, but took on the structure of questionnaires that capitalized on the advantages of a panel survey. NFRJ08 had three types of questionnaires by age bracket: one for young people, one for middle-aged adults, and one for the elderly. But Waves 2 through 4 had two types of questionnaires: one for people with spouses and one for people without spouses. Moreover, those subjects who were noted to have gotten married over the year during the survey were asked to answer a separate questionnaire for newly-weds. The questionnaires were unified for Wave 5.

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Since the greatest point to be kept in mind with panel surveys is preventing dropouts, the best course of action is to survey everyone door-to-door as long as your budget allows for this. But due to budgetary restrictions mail surveys were used for Waves 2 through 4, while the surveys were dropped off and picked up door-to-door for Wave 5 in the final fiscal year. But there was enormous significance in going with a door-to-door survey for the final fiscal year, as it allowed the researchers to directly confirm with the respondents concerning contradictory answers between the waves that were received over the course of this survey. There were two schemes for preventing dropouts. The first was sending out two newsletters a year, while the second was to include reminders every time the survey was carried out. The information concerning dropouts can be examined by comparing it with the full range of NFRJ08 data. This is also one of the advantages of this panel survey.

The features of the NFRJ-08Panel are explained in detail in Sections 2 and 3, as are the features of the questionnaire in Section 2, the structure and features of the questionnaire in Section 4, the collection status in Section 5, and attrition from the sample in Section 6. As such, the general survey design and history of the survey are listed below.

[Survey period]
　　　　January 2009 – March 2014
[Survey area]
　　　　All of Japan
[Sampling]
　　　　Those respondents to the NFRJ08 that complied with the ongoing surveys (1,879 people)
[Survey method]
　　　　For Waves 1 and 5 a method of going door-to-door to drop the surveys off and pick them up was used, while a method of mailing them was used for Waves 2 through 4
[Structure of the questionnaire]
　　　　Wave 1 (NFRJ-08): Questionnaires for young people, middle-aged adults, and the elderly
　　　　Waves 2 through 4: Questionnaires for people with spouses, those without spouses, and newly-weds
　　　　Wave 5: Unified questionnaire and questionnaire for newly-weds
[History of the survey]
　　　　Oct. 2008:　NFRJ-08Panel Executive Committee organized
　　　　Jan.-Feb. 2009:　NFRJ-08 (Wave 1) conducted
　　　　June 2009:　Thank you letters for the first survey sent out to panel survey respondents
　　　　Sept. 2009:　Newsletter Volume 1 sent out to panel survey respondents
　　　　Dec. 2009:　Details of the Wave 2 mail survey decided
　　　　Jan. 2010:　Wave 2 mail survey conducted
　　　　July 2010:　Newsletter Volume 2 sent out to panel survey respondents
　　　　July-Aug. 2010:　Data cleaning (Waves 1 and 2)*
　　　　Nov. 2010:　Newsletter Volume 3 sent out to panel survey respondents
　　　　Dec. 2010:　Details of the Wave 3 mail survey decided
　　　　Jan. 2011:　Wave 3 mail survey conducted
　　　　June 2011:　Newsletter Volume 4 sent out to panel survey respondents
　　　　July-Sept. 2011:　Data cleaning (Waves 1 through 3)*
　　　　Dec. 2011:　Newsletter Volume 5 sent out to panel survey respondents
　　　　Dec. 2011:　Details of the Wave 4 mail survey decided
　　　　Jan. 2012:　Wave 4 mail survey conducted

June 2012:   Newsletter Volume 6 sent out to panel survey respondents
June-Sept. 2012:   Data cleaning (Waves 1 through 4)*
Jan. 2012:   Newsletter Volume 7 sent out to panel survey respondents
Dec. 2012:   Details of the Wave 5 mail survey decided
Jan. 2013:   Wave 5 door-to-door drop off/pick up survey conducted
July 2013:   Newsletter Volume 8 sent out to panel survey respondents
July-Dec. 2013:   Data cleaning (Waves 1 through 5)*
Jan. 2014:   Data from Waves 1 through 5 completed

*   The task of data cleaning was apportioned out to every member of the Research Committee through the use of the module created by Tokio Yasuda. After the cleaning had been carried out by the Research Committee the information was collected by the Executive Committee, which corrected the data to create usable data.

2.   Features of the NFRJ-08Panel and Its Potential

2.1.   Features of the NFRJ-08Panel

This section will arrange and illustrate what types of analyses are made possible by the survey data based on the features of the data from the NFRJ-08Panel.[1] This will primarily focus in on the meaning that can be read from cross tabulations of the data, which reaffirms the essential value of the information contained in the data itself. The general features of panel surveys and the specific features of the NFRJ-08Panel will be separated out in order to sort out the potential for data analysis here.

The aims and features of the NFRJ-08Panel will be described in other sections, but the following points in particular should be kept in mind when thinking about the potential for data analysis. The reader is encouraged to consult the sections describing the questionnaires and collection status when it comes to each specific point.

(1)   The essential design philosophy is to measure "statuses" for each of the Waves and determine the changes in them, and so an analytical technique that grasps changes in the measured values between time points serves as the underlying basis for this. They do not measure "events" between waves. However, for some important items events are measured directly in order to increase the accuracy of the data.
(2)   Since questionnaires that allow for comparisons between time points as well as comparisons between dyads were adopted (Waves 1 through 5 measured dyads of children, while Waves 1 and 5 measured dyads of parents, guardians, and siblings), in essence the axes for comparison have an abundant data structure.
(3)   Since the survey is based on the NFRJ, which is an all-purpose family survey, it allows for comparative analyses of the family experiences of a wide range of people, not only people with particular attributes who are at a particular life stage.
(4)   However, special attention must be paid to the fact that it had shortcomings in terms of its initial sample composition and size. It is characterized by the fact that it has few young subjects in the stage of forming families, and that it does not have a sufficient sample size to handle low-frequency events such as being widowed.
(5)   On the other hand, the impact from dropouts was minimal, and it was able to perceive changes over five time points relatively reliably for the collected samples.

2.2.   What Can Be Achieved with a Panel Survey

Since the NFRJ-08Panel is a panel survey it allows the researchers to understand things that they would not have learned from analyses of repeated cross-sectional surveys (with the NFRJ the time point comparisons would be in 1998, 2003, and 2008). Simply stated, the claim could be made that the features of panel survey data allow for direct observations of the changes with individual families.

For example, consider the following problem. When it comes to conversations between parents and children the presumption is that these gradually diminish when the child enters adulthood, but it is uncertain if parent-child conversations would tend to decrease more with fathers than with mothers. Unless panel data is used this issue can only be considered indirectly. In other words, as shown in Table 1 and Figure 1 the frequency of conversations with children were compared for parents (respondents) by sex via a cross tabulation. This

tabulation compared the frequency of conversations with first children aged 18 or older using only Wave 1 of the NFRJ-08Panel (namely, data from one point in time that does not use panel data). There are some overlaps in the information from the table and the figure, but both are indicated anyway in order to clearly demonstrate the tabulation and comparison processes. The diagrams reveal that fathers have fewer conversations with their adult children, but this does not constitute direct proof that conversations with fathers decrease compared to with mothers.

Table 1. Do children have fewer conversations with their fathers? (When not using panel data)

	Converse frequently	Converse rarely	Total
Father	241	190	431
Mother	314	186	500

Note: Only the conversational frequency with first children from Wave 1, wherein a conversational frequency of once or more per week was regarded as "Converse frequently" (the same hereafter), was used.
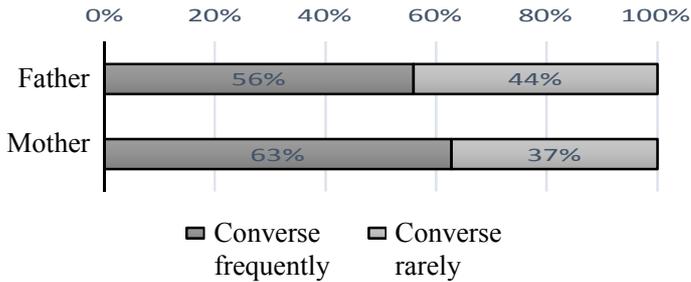

Figure 1. Do children have fewer conversations with their fathers? (When not using panel data)

When the data from a panel survey is used, researchers can directly observe whether changes in the form of an actual decrease in conversations have occurred, as shown in Table 2 and Figure 2. This tabulation shows the changes in conversations between Waves 1 and 2 of the NFRJ-08Panel (limited to first children aged 18 or older). Cases where the respondents answered "Converse frequently" in Wave 1 but "Converse rarely" in Wave 2 correspond to cases where there has been a "Decrease in conversations," and so when the data is regrouped as it is in Figure 2 it reveals that in most cases parent-child conversations decreased more with fathers (statistically significant examinations will be treated as a separate problem; in the following analyses statistically significant examinations will not be performed). Being able to directly perceive changes in family phenomena through such simple cross tabulations is a basic feature of the NFRJ-08Panel in its capacity as a panel survey.

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Table 2.   Do conversations decrease more with fathers? (When using panel data)

	Wave 1 \ Wave 2	Converse frequently	Converse rarely	Total
Father	Converse frequently	133	62	195
	Converse rarely	19	145	164
	Total	152	207	359
Mother	Converse frequently	215	56	271
	Converse rarely	22	145	167
	Total	237	201	438

Note: Only the conversational frequency with first children from Waves 1 and 2 were used.
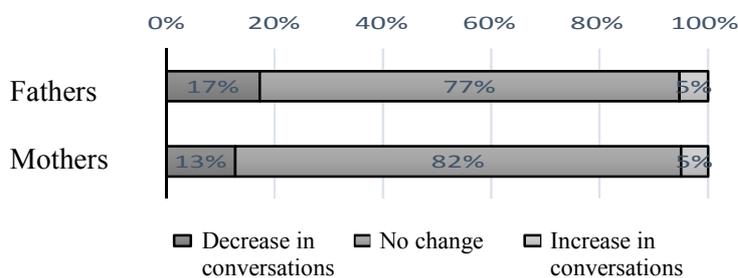

Figure 2.   Do conversations decrease more with fathers? (When using panel data)

Going even farther, changes can be read in almost the exact same way even just by simply tabulating the answers from each wave without a cross tabulation. Figure 3 simply compares tabulations for Waves 1 and 2 concerning the same question as before. The reading that can be taken from this tabulation is that the proportion responding "Converse frequently" suffered a larger decline with fathers than with mothers. One distinction between the cross table from before is that it is impossible to simply distinguish between whether the reason that responses for "Converse frequently" declined was because cases where frequent conversations were maintained (top left cell of the cross table) were rare, or because cases where parents and children started conversing frequently were rare (bottom left cell of the cross table). Even without any interest in questions of this sort, it is possible to adequately perceive changes through a simple comparison of the tabulations in this manner. Of course, when there are numerous cases of people dropping out between waves then it is necessary to perform the tabulation by restricting it to those cases where people responded to both waves.
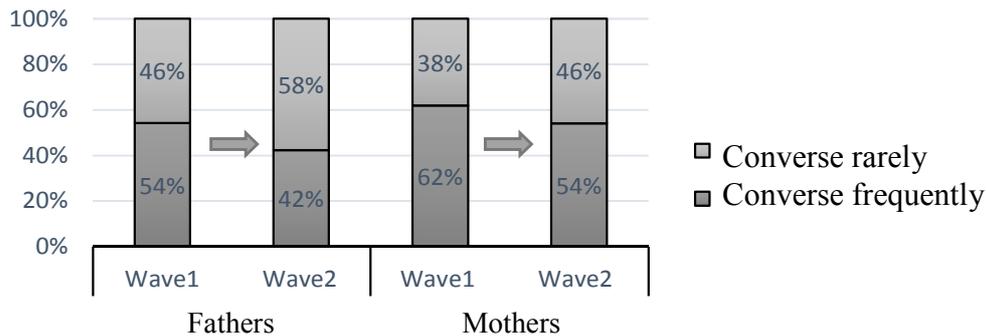
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Figure 3.   Do conversations decrease more with fathers? (Simple comparison between waves)

Data from panel surveys has received attention for the advantage it has in making it easy to make assumptions about causal relationships, and it has received a great deal of attention as a sophisticated analytical technique in a statistical sense. However, such merits are grounded in the essential feature of panel survey data in that they make it possible to directly observe changes in the same subjects, as has been shown here. In particular, it should be reaffirmed that panel surveys, which have a relatively small number of observation time points like with the NFRJ-08Panel, have value when it comes to such simple tabulations. They allow researchers to directly understand patterns in the micro-changes that individuals and families actually experience (their life course) through simple tabulations for each time point and cross tabulations between time points alone.

2.3.　What Can Be Achieved with the NFRJ Panel Survey

NFRJ-08Panel is an extension of the NFRJ panel survey, and as such it has inherited the features of the NFRJ. This section will focus in on the fact that the NFRJ was an all-purpose family survey and that it was a family survey that accumulates dyads in order to ascertain the manner in which such features have expanded the analytical potential of the NFRJ-08Panel.

Since the NFRJ was an all-purpose family survey it did not focus in on people (or families) with particular attributes who were at a particular life stage, instead it dealt with the family experiences and sense of family of a wide range of people. For this reason, it simultaneously investigated phenomena that are rarely investigated simultaneously with ordinary family surveys, and as such it offered the potential to expand family studies that surpass particular areas.

Moreover, since the NFRJ-08Panel consists of panel data it makes it possible to consider issues of changes that surpass particular areas. For example, Figure 4 investigates whether the birth of grandchildren is beneficial for improving relationships between elderly married couples (based on a cross tabulation similar to the one in Table 2). For cases where respondents who were 50 years old or older had grandchildren between Waves 1 and 2, it tabulates whether or not this has improved their relationships as a couple (if there was greater satisfaction with their relationship as a couple in Wave 2 than in Wave 1). This reveals that there were slightly more cases in which relationships had improved with couples that had had grandchildren.
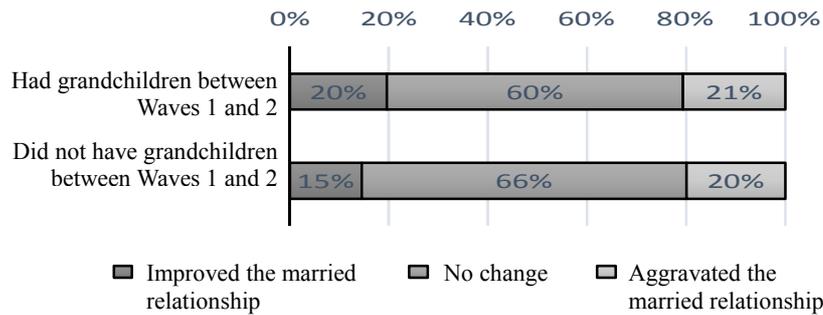
Figure 4.   Does having grandchildren improve relationships between couples?

The NFRJ-08Panel investigated respondents' spouses, as well as their parents, children, and even their siblings. Consequently, it makes it possible to analyze various different factors in addition to this, such as the impact that a parent's retirement has on the employment and childrearing of their children, or the impact that the birth and development of a child has on the parents' relations with their own siblings, for example. This allows researchers to get a grasp of circumstances in which multiple life courses are intertwined within families in their capacity as small groups. There is no denying the fact that it makes it difficult to perform in-depth analyses on a single topic given that it is an all-purpose family survey, but such features of the NFRJ-08Panel should be duly recognized.

One other major feature of the NFRJ is the fact that it was a family survey that accumulated dyads (Yasuda 2011). In other words, by paratactically surveying the multiple dyad relations formed by individual respondents and accumulating information on them, it allowed researchers to perceive the family phenomena surrounding these people. More specifically, it places relations with children up through the third child side by side and allows the researchers to view them in an ongoing manner over five time points. What is more, they can get a grasp of the changes at the two time points of Waves 1 and 5 with regard to parents, spouses' parents, and siblings up to the third sibling. In other words, what this means is that within identical cases in addition to "time points" as axes for comparison there are also simultaneously axes for comparison along "dyads," such as between the same respondent and another child, their other parent, or with another sibling. These axes for comparison are similar to time points in that they are extremely powerful.

As an example, on just the single variable of "conversational frequency with children" this would produce up to as many as 15 rounds of responses from a single respondent since there are three children over five time points. Respondents with children eligible for inclusion (restricted to children aged 18 years or older from Wave 2 onwards) were limited to about 900 cases in each wave, meaning that the number of actual observations up through Wave 5 came to more than 9,000. Even just comparing the average values from these simple tabulations as shown in Table 3 reveals that there was a sharp decline in conversational frequency between Waves 1 and 2, that this trend is common for all children up through the third one, and that among the children the conversational frequency is greater the younger the child is.

Table 3. Comparison of average values for the conversational frequency with children (birth order × wave)

		Wave 1	Wave 2	Wave 3	Wave 4
First child	No. of observations	892	903	891	
	Average value	3.02	2.74	2.66	
Second child	No. of observations	785	731	723	
	Average value	3.18	2.83	2.79	
Third child	No. of observations	281	238	242	
	Average value	3.51	2.97	2.96	
Total	No. of observations	1958	1872	1856	
	Average value	3.15	2.80	2.75	

Notes: Tabulated by restricting the data to that from children who were aged 18 years or older at the time of Wave 1.

For convenience's sake the six stages from "Almost daily" to "Not at all" were converted into an interval scale from 0 – 5 points.

Since the data was tabulated as of 2012 (see Note 1 at the end of the document), there are no tabulations for Wave 4 onwards.

Table 3 tabulates data of a similar format from that in Figure 5 by child order and by wave. In other words, it is an analysis of data with three levels of diversity: "respondent," "dyad (child order)," and "wave" concerning conversational frequency with children. Multilevel analyses serve as the standard analytical technique for this type of data (Yasuda 2011), and so a three-level multilevel analysis on the conversational frequency with children was applied to confirm the results of the null model. The results of this were disaggregated down into a distribution of 2.4 for the data on conversational frequency as a whole, a distribution of 0.63 (26%) from the differences between respondents, a distribution of 1.23 (51%) from the differences between child dyads, and a distribution of 0.53 (22%) from the differences between time points. Put another way, measuring conversational frequency by multiple child dyads reveals that the volume of information that the NFRJ-08Panel possesses is being enlarged remarkably. It is unknown whether other variables or other dyad relations (parents, siblings) would produce similar results, but having variation in dyads in addition to that from time points is a major feature that expands the analytical potential of the NFRJ-08Panel.

	Respondent's ID	Child order	Wave survey No.	Conversational frequency	
1408	169	1	1	4	
1409	169	1	2	4	
1410	169	1	3	4	
1411	169	2	1	5	
1412	169	2	2	5	
1413	169	2	3	5	
1414	169	3	1	3	
1415	169	3	2	3	
1416	169	3	3	5	
1417	170	1	1	2	
1418	170	1	2	2	
1419	170	1	3	2	
1420	170	2	1	4	
1421	170	2	2	5	
1422	170	2	3	3	
1423	170	3	1	8888	
1424	170	3	2	8888	
1425	170	3	3	8888	
1426	171	1	1	2	
1427	171	1	2	2	
1428	171	1	3	2	
1429	171	2	1	2	

Figure 5.   Data from a panel survey that accumulates dyads

The specific sorts of information contained within such data will be illustrated through the standards for cross tabulations in comparison with ordinary panel surveys. In the prior illustration in this chapter it was observed that conversations between fathers and their children tend to decrease, but as an example, a question arises if there was a difference in the extent to which father-child conversations tended to decrease if the child was a son or a daughter.

As has already been seen, using the unique characteristics of the NFRJ-08Panel as panel survey data allows researchers to directly observe changes between waves via cross tables like with Table 4. Comparing cases where the child is a son with those where the child is a daughter reveals that there is a slightly greater tendency for conversations to decrease more with sons as shown in Figure 6 (although the statistical significance of this cannot be proven).

Table 4.   How conversations have decreased for fathers with sons and fathers with daughters

	Wave 2 / Wave 1	Converse frequently	Converse rarely	Total
Fathers and sons	Converse frequently	61	35	96
	Converse rarely	7	84	91
	Total	68	119	187
Fathers and daughters	Converse frequently	72	27	99
	Converse rarely	12	61	73
	Total	84	88	172

Note: For men (fathers), only the conversational frequency with first children from Waves 1 and 2 were used.
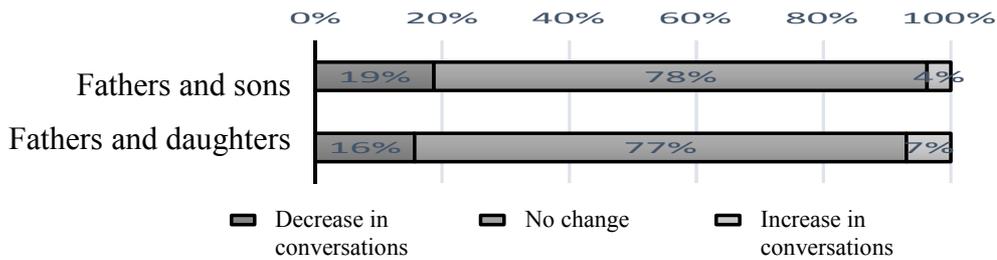
Figure 6.   How conversations have decreased for fathers with sons and fathers with daughters

But more in-depth analyses can be performed by harnessing the special characteristics of the NFRJ-08Panel as a family survey that accumulates dyads. Table 4 and Figure 6 affirmed a comparison of the conversations between different fathers with their children, some of whom had sons and some of whom had daughters. When the same fathers had sons and daughters, observing things like whether conversations decreased similarly with both or whether there were differences in this is a direct way of considering discrepancies in father-child relations depending on the child's sex. This is possible with the NFRJ-08Panel.

Since the changes in conversational frequency between Waves 1 and 2 are being investigated for both the sons and daughters of the same fathers, a four-way cross table like that in Table 5 expresses the information contained in the NFRJ-08Panel. When this is arranged along a graph like Figure 6, with fathers who have both sons and daughters it can be seen that decreases tend to occur only with conversations with their sons. Since there is only a small number of cases at 104 the results are not clear, but this only uses data on the changes between Waves 1 and 2. Moreover, it does not use data on third children. If all of the data up through third children and through Wave 5 were to be used an analysis could be performed on roughly five to six times the volume of data, which would be sufficiently valid.

Table 5.   How conversations have decreased for fathers with both sons and daughters

Conversations with sons Wave 1	Conversations with sons Wave 2	Conversations with daughers Wave 1	Conversations with daughers Wave 2		Total
			Converse frequently	Converse rarely	
Converse frequently	Converse frequently	Converse frequently	24	4	28
		Converse rarely	1	13	14
		Total	25	17	42
	Converse rarely	Converse frequently	15	5	20
		Converse rarely	1	8	9
		Total	16	13	29
Converse rarely	Converse frequently	Converse frequently	2	0	2
		Converse rarely	0	0	0
		Total	2	0	2
	Converse rarely	Converse frequently	29	10	39
		Converse rarely	1	35	36
		Total	30	45	75

Note: Changes in conversational frequency for Waves 1 and 2 were tabulated for fathers with a combination of sons and daughters as their first and second children.
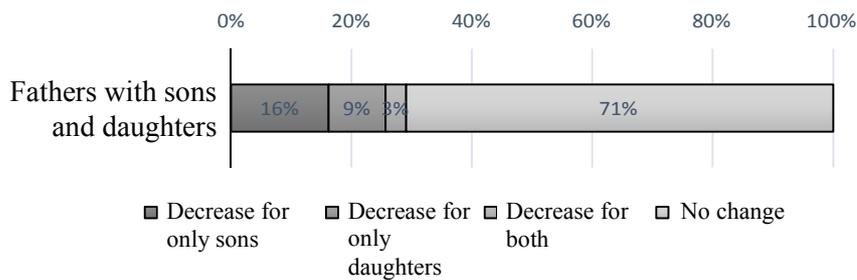
Figure 7.　How conversations have decreased for fathers with both sons and daughters
Note:　From Table 5, the number of cases with a "Decrease for only sons" was 15+1+8=24, while for "Decrease for only daughters" it was 4+0+10=14 and for "Decrease for both" it was 5.

When moving forward with analyses on all of the data, this entails making observations on multiple changes with a single dyad. As a result, in order to properly assess statistical significance, multilevel analyses, structural equation models (SEM), transition models, and other such analytical techniques are necessary. But what makes these types of analyses possible is the essential features of the NFRJ-08Panel, which combines the special characteristics of panel surveys—which allow for comparisons between time points—together with the special characteristics of the NFRJ wherein comparisons between dyads are possible. It should be reaffirmed that sufficiently significant analyses are possible through cross tables alone as long as these are used simply.

[Note]
1)　This manuscript was based on an oral report at the 22nd General Assembly of the Japan Society of Family Sociology (Theme session entitled The Dynamism of Contemporary Families: Panel Analyses via the NFRJ-08Panel, "Features and Potential of the NFRJ-08Panel," September 2012). The data used for the illustrations was from that point in time, and so some discrepancies may have appeared in the tabulations as a result of subsequent data cleaning.

[Reference literature]
Tokio Yasuda, 2011, "Methods to Apply Multilevel Modeling to NFRJ Survey Data," Akihide Inaba and Tokio Yasuda (eds.), Second Report of the National Family Research of Japan, 2008 (NFRJ08) Volume 4: Social Stratification / Social Networks, 1-20.

3.   Features of the NFRJ-08Panel in Comparison with Other Panel Surveys

3.1.   Introduction

This section will affirm the merits of the NFRJ-08Panel by comparing it with other panel surveys being implemented within Japan. When a bird's-eye view is taken of panel surveys that are currently being implemented within Japan, these can largely be categorized into the following five types: (1) Panel surveys focusing on the development of children from infancy and the circumstances of those rearing them (for example, the Longitudinal Survey of Newborns in the 21st Century by the Ministry of Health, Labour and Welfare, etc.), (2) Panel surveys focusing on the transition to adulthood targeting people in their 20s and 30s, including graduation, finding employment, marriage, and becoming a parent, as well as the work-life balance at that period (Japanese Panel Survey of Consumers by the Institute for Research on Household Economics, the Japanese Life Course Panel Survey by the Institute of Social Science at the University of Tokyo, etc.), (3) Panel surveys focusing on changes in the health and employment of middle-aged to elderly people in their 50s onwards and their changes upon reaching the mandatory retirement age (Longitudinal Survey of Middle-aged and Elderly Persons by the Ministry of Health, Labour and Welfare, etc.), (4) Panel surveys that take the health of elderly persons as their subject (Survey on the Lifestyles of Middle-aged and Elderly Persons in Long-lived Societies, Tokyo Metropolitan Institute of Gerontology and others, etc.), and (5) Comprehensive panel surveys focusing on specialized academic disciplines targeting a broad range of age groups (Keio Household Panel Survey and Japan Household Panel Survey by the Keio University Joint Research Center for Panel Studies, etc.). Readers are encouraged to consult with the Office of Statistics Commission, Minister's Secretariat, Cabinet Office (2012) and refer to another paper (Tanaka 2013) regarding the details of each survey. Surveys that are beneficial for family studies are being carried out while large-scale panel surveys continue to be set in place by government agencies and universities.

The first round of the NFRJ-08Panel focused on people ages 28 – 72, and while it only has a few items from the themes in (1) – (4) it covers a broad range. For (5) as well, while it could certainly not be said to be large in scale in terms of its number of targets, the survey is specialized to family sociology. The NFRJ-08Panel features a lot of unique approaches, which include its sampling method that obtains compliance from respondents to surveys at one point in time, as well as its survey content that will be described later and survey methods that employ mail distribution and collection midway through. As such, the data from this has its own unique value. The merits of the NFRJ-08Panel have been organized into the following four points, the contents of which we will now take a look at.

2.2.   Merits of the NFRJ-08Panel – (1) Panel Data that Grasps Family Relations in a Multifaceted Manner

The NFRJ-08Panel, which is a survey that takes the NFRJ08 as its starting point, is a panel survey that is specialized to families. Its greatest merit is the fact that it allows factors like the residences and interactions for each of the family relations (dyads) of individuals to be determined in an exhaustive and multifaceted manner (even though it is limited to the scope of ideals aimed for by the NFRJ). Relations between children and parents are frequently dealt with in other surveys as well, but being able to grasp the details in relations between siblings

and variations over time is an original feature of the NFRJ-08Panel.

Another merit of the NFRJ-08Panel is the fact that it has not only objective items, but also a relatively large number of subjective items, such as people's awareness, among the questions that are asked each time. For example, it has orthodox themes for family research such as the question, "Does the trend in satisfaction with married relationships depict a U-shaped curve?" Viewpoints on this trend have not been consistent even among recent studies that employ data from around Japan. The data used in previous studies only targeted women, and lacked other information linking satisfaction in married relationships, such as dialogue between couples, and so panel analyses that included information on the interactions in actual married relationships were needed. Other surveys feature samples that include men and have data from a full line-up of questions on the interactions between couples. However, they only offered data that was somewhat insufficient for reasons such as the fact that there were few samples that reached the "recovery phase" in this U-shaped curve because they started by targeting people aged 40 or younger, for example. The NFRJ-08Panel measures satisfaction over four stages when it comes to four subjects related to married relationships (see the questionnaire for details). With regards to not only basic information like socioeconomic attributes and changes in employment, but also interactions between couples, the NFRJ-08Panel offers both questions that inquire after hard facts (conversational frequency with one's spouse, etc.) as well as subjective assessments (emotional support, etc.) across all five time points. It also determines satisfaction with married relationships in a multifaceted manner, with the expectation being that new knowledge can be gained from analyses of the NFRJ-08Panel with its full line-up of data on men and women.

3.3. Merits of the NFRJ-08Panel – (2) Comparability with Other Surveys

Incidentally, employment, household economics, and health are major themes with the panel surveys of other institutions. While it cannot be denied that the NFRJ-08Panel has deficiencies in terms of its content, since it nails down basic information on all three of these topics it can be compared against other panel surveys. For example, when researchers consider themes such as to what extent does taking childbirth and childcare leave lower a household's annual income, and about how many years it takes this to recover, owing to the recent interest in work-life balance, they can analyze this via several other surveys aside from the NFRJ-08Panel. Of course, changes in employment before and after the birth of a child can be obtained via reviews with cross-sectional surveys as well, but information on things like annual income tends to be vague. With a panel survey the information from fixed points can be supplemented accurately and in detail, which makes it possible to adequately perceive changes. Analyzing similar models via multiple sets of data is conducive to obtaining robust knowledge that factors in the impact of age and time points.

What is more, from the standpoint of survey theory factors like the impact from the measurement methods can be compared and verified against other surveys. For example, when inquiring after annual income and using either a method whereby respondents fill in actual numbers or a multiple choice format (the NFRJ-08Panel is a multiple choice format) this can clearly reveal which method tends to produce non-responses from respondents who had initially provided answers, thereby leading to improvements in the methodology.

3.4. Merits of the NFRJ-08Panel – (3) Time Point Comparisons for Multiple Patterns

Several time points can be set over the course of all five of the surveys from the NFRJ-08Panel. First off, questions on matters like relations with one's spouse and the respondent's own employment were asked every time over the five rounds. By looking at the ages of the individuals, five-year trends with the people of the youngest age who went from 28 to 32 years old, as well as trends with people of the oldest age who went from 72 to 76 years old, can be observed from the dimension of their family stages as well. Conversely, detailed relationships such as interactions with siblings or parents and guardians were only inquired after at the two time points of Waves 1 and 5. While taking into consideration information on what sorts of family experiences the respondents had in that interval, this allows the researchers to observe changes from the first round of the survey and four years later at these two time points. What is more, since there are questions asked twice to five times, or spaced one year apart, this makes it possible to devise ways to set time points according to the research themes.

Furthermore, it also makes it possible to observe changes from before and after life events occur, such as a child starting living independently or the birth of a grandchild. The NFRJ-08Panel reveals the life events of the respondents themselves as well as the events of their family members in a secondary sense. The Great East Japan Earthquake occurred unexpectedly during the course of the survey, which made it possible to observe changes from before and after the earthquake. The theme of disasters and families is an area that is expected to be built up hereafter, and so after the earthquake questions on family ties and regional connections were asked by the NFRJ-08Panel.

3.5. Merits of the NFRJ-08Panel – (4) Data Quality

Incidentally, generally speaking it requires enormous costs before panel surveys can be implemented and begin producing results, and so they are oftentimes carried out by alliances of numerous researchers working in multiple fields and with different research themes. As a result, each of them are asking about the information they need in as much detail as possible, which tends to increase the number of survey items. There are some surveys with question forms in progress that are over 50 pages long, and in the case of computer-assisted personal interviewing (CAPI) the number of responses can grow to be enormous depending on the conditions. This makes it possible to perform detailed analyses on a wide variety of themes, but conversely it also makes it troublesome for the respondents to answer all the questions. This tends to lead to a deterioration in the quality of the survey data, such as from people refusing to take the survey (attrition) from the second round onwards, or by increasing the non-responses among the answers.

While the NFRJ-08Panel is biased in that it targeted those people who complied with answering the panel survey from among the people who completely responded to the NFRJ08, compared to other panel surveys within Japan its collection rate (continuation rate) remained at high levels. It can be appraised for having data with a low attrition rate out of consideration for the fact that in the middle rounds it collected surveys via mail instead of by having researchers go door-to-door to drop them off and pick them up, and for its incentives of offering rewards for responding compared with the surveys of other institutions. With the NFRJ-08Panel data can also be organized on the door-to-door visitation status of the surveyors at the start of the NFRJ08, and on the reply behavior such as the day answers were

filled in on the mail surveys from Wave 2 onwards. Moreover, it also captured events that would make it difficult to respond (childbirth or rising burden of care), and makes it possible to make comparisons at each of several stages and analyze methodologies for preventing attrition. Having experts in family research undertake data cleaning work from multiple perspectives makes it possible to not only detect contradictions and fluctuations in the responses but also convert the response patterns of the respondents into data such as non-responses and the presence of unexpected answers from this cleaning work. The expectation is that this will reveal the tendencies of respondents to make mistaken entries and problems with the design of the questionnaires in a more empirical manner.

[Reference Literature]

Office of Statistics Commission, Minister's Secretariat, Cabinet Office, 2012, Report on the Survey Related to Organizing Panel Data in Japan (obtained on July 15, 2013).
    http://www5.cao.go.jp/statistics/nenpou/chousa/chousa_1203/chousa_1203-1.pdf
Keiko Tanaka, 2013, "Japanese Panel Surveys—The Advent of the Panel Survey Era and Its Future," Japanese Journal of Research on Household Economics, 100, 79-89.

4. Features of the Questionnaires

4.1. History of the NFRJ-08Panel Questionnaires and Their Basic Policy

The National Family Research of Japan Panel Study (hereafter referred to as the NFRJ-08Panel) is a panel survey project that originated from the Third National Family Research of Japan (hereafter referred to as the NFRJ08) survey that was implemented from January to February 2009.

This section will start by focusing on the assortment of the questionnaires used in the NFRJ-08Panel to provide a detailed explanation of the course of its changes in chronological order. The survey items of the NFRJ whose goal was to accommodate a broad range of research themes by family researchers, covers a lot of ground relative to other family surveys. The survey items of the NFRJ can be broadly classified and organized into two areas: through-stage items and special life stage items. With the NFRJ08 (Wave 1), which formed the base for the NFRJ-08Panel, three types of questionnaires were used that were subdivided out by age, with questionnaires for young people (28 – 47 years old), middle-aged adults (48 – 62 years old), and elderly people (63 – 72 years old). This was devised as a scheme to efficiently allocate out the special life stage items.

Waves 2 through 4 differed from Wave 1 for the reason that multiple questionnaires were introduced for them. In preparing the Wave 2 questionnaires, the Executive Committee narrowed down the research themes by factoring in attribute information on the people targeted for the panel and the draft research themes of members of the Research Committee. As a result, the decision was made that it would be best to select survey items on basic assumption that the respondents had spouses. Moreover, for the surveys from Waves 2 through 4 it was necessary to cut down on branching questions to the extent possible for convenience's sake since these were carried out via mail. For this reason, for Waves 2 through 4 two types of questionnaires came to be used that were sorted depending on the marital status of the respondents (one for people with spouses and one for people without).

Conversely, from the very outset the plan has been to conduct the Wave 5 survey in the final fiscal year in the same way as the NFRJ08 (Wave 1), which was the main survey, by going door-to-door to drop them off and pick them up. Therefore, the Executive Committee reexamined the pros and cons of adopting this method given the possibility that multiple questionnaires would have to be used for Wave 5. As a result of this it was decided that for Wave 5 the questionnaires would be unified into one out of consideration for the advantages this would have in terms of simplifying the data construction process.[1]

Next, an introduction to the basic policy for preparing the questionnaires will be provided. To start with, for Waves 2 through 4, which were severely limited in terms of their quantities as a result of being carried out through mail surveys, the questionnaires were designed mainly around items for child dyads. On the other hand, for Wave 5 the questionnaires were prepared around the basic policy of reiterating (remeasuring) the same survey items from the NFRJ08. However, the various types of know-how that were accumulated over the course of preparing the questionnaires for Waves 2 through 4, such as layout improvements and innovations with listed content, were reflected in the Wave 5 questionnaire. What is more, even though the basic policy was to reiterate the items from the NFRJ08, as will be described later some of the survey items were deleted and new items were established.

4.2. Structure of the Questionnaires: Differences with the NFRJ08 Survey Items

The details of the survey items from the NFRJ-08Panel have been summarized in Table 1. This section will provide a general overview of the changes in the survey items from Waves 1 through 5.

NFRJ08 Items That Were Not Measured Again

First off, in designing the Wave 2 questionnaires, in order to reduce the burden on the respondents and to simplify the data cleaning procedures, the decision was made to not make repeat inquiries regarding events from prior to the survey period or certain items with a low probability of having changed during the survey period. These are items such as final academic background and residency status (which had been allocated to the dyads). But the respondent's sex and age were asked every time for purposes of confirming their identity (Yasuda 2011: 92). With regard to the parent dyads, only questions on health status, including death, were asked in Waves 2 through 4.

What is more, while the basic policy that was adopted was to reiterate NFRJ08 items in the Wave 5 survey, the following items were excluded from being measured again. To begin with, items that up to that point had gone largely unanalyzed were omitted, such as the head of the household. Questions on the favorability of relationships, which had been an original feature of the NFRJ, were also cut because they were used infrequently in the past. With regard to the family perceptions that were reinstated by the NFRJ08 for the first time in ten years, owing to the judgment that it would be difficult to infer causal relationships with a panel survey over the short time period of five years, these were excluded from being measured again. In addition, questions on childrearing attitudes and the desire to have (additional) children that had been set up on the questionnaire for young people were also excluded from being measured again.

NFRJ08 Items That Were Simplified

The NFRJ08 (Wave 1) inquired after the number of children, with this including children who had died. But from Wave 2 onwards the measurement target was restricted to the number of children that were alive. In addition, in Wave 1 there were eight options regarding the distance at which children lived apart from parents, but for Wave 2 and beyond this was condensed down to three options. Similarly, with regard to the familial relations of cohabitants, options chosen in exceedingly small numbers by respondents were either cut or consolidated from Wave 2 onwards.

In addition, for the number of siblings, Wave 1 inquired after the number alive and the number that had died for each type of familial relation, but when this was measured once again in Wave 5 it only inquired after the number of siblings that were alive.[2]

Newly Established Items

When the Wave 2 questionnaire was prepared the decision was made to directly inquire after whether or not 12 "events," such as changing residence or the birth of a grandchild, had occurred in order to grasp changes over a one-year period from dimensions other than peoples'

"status." In addition, Waves 2 through 4 inquired after people's awareness of topical subjects as a newly introduced item asked every time. Questions were asked about searching for a marriage partner and married couples with separate surnames in Wave 2, child rearing in Wave 3, and the impact from the Great East Japan Earthquake in Wave 4.

On the Wave 5 questionnaire, questions on information concerning one's family of orientation (five questions on parents' employment status, occupations, and assessments of family finances at age 15, as well as parents' employment status and time spent living together with grandparents from birth until graduation from middle school), which had been lacking from prior NFRJ data, were newly established. In addition, a question on information related to diverse family configurations and backgrounds (one question) was established in order to get a grasp on recent changes in family configurations. A free response column was also set up at the very end of the questionnaire for Wave 5, which was the first time that this had been attempted on the NFRJ.

[Notes]

[1] However, for Waves 2 through 5 when it became clear through the surveys from each fiscal year that someone without a spouse had gotten married, the new questionnaire for married people would be sent out to them after they had completed the survey and information related to marriage and their spouse would be collected separately.

[2] Items on siblings were not set up on Waves 2 through 4 owing to the judgment that there was a low possibility that changes in these would occur over a short time period (Yasuda 2011: 90).

[Reference Literature]

Tokio Yasuda, 2011, "Questionnaire Design for the NFRJ-08Panel: Elaboration of Research Topics and Data Cleaning Methods," Japanese Journal of Family Sociology, 23(1): 89-95.

5.   Collection Status

Of the respondents to the Third National Family Research of Japan (NFRJ08) that was carried out in 2009, the 1,879 people who offered their compliance in cooperating with continuation surveys served as the subjects for the NFRJ-08Panel. The responses from these subjects to the NFRJ08 survey were used for the Wave 1 data as is. The distribution method for the NFRJ08 (=Wave 1) questionnaires involved a drop off and pick up method whereby the researchers visited the subjects' homes and asked them to fill in the questionnaires. But there were cases wherein the subjects handed these over to the researchers in sealed envelopes, or they were collected via mail, according to the subjects' wishes. The percentages for such instances were rare at no more than 10% of the total, with cases where the researchers received (unsealed) questionnaires accounting for more than 90% (Table 5-A).

Table 5-A. Collection methods for Wave 1

		Incidence	Percent	Percent of valid responses	Cumulative percent
Valid responses	1. Completion (direct collection)	1710	91.0	91.0	91.0
	2. Completion (sealed collection)	147	7.8	7.8	98.8
	3. Sent by mail	22	1.2	1.2	100.0
	Total	1879	100.0	100.0	

The collection statuses for Waves 2 through 5 are shown in Tables 5-B, 5-C, 5-D, 5-E and 5-F. The full number of Wave 1 subjects of 1,879 people was counted as the shared distribution number. The percentage of valid responses collected came to 86.3% for Wave 2 (2010), 82.8% for Wave 3 (2011), 80.6% for Wave 4 (2012), and 84.8% for Wave 5 (2013). The responses collected for Waves 3 and 4 were somewhat on the low side, but even in Wave 4 where this was the lowest the valid response collection rate was over 80%.

Whereas for Waves 2 through 4, the questionnaires were distributed and collected solely by mail, Wave 5, which was the final survey, was administered by being dropped off and picked up in the same way as Wave 1 was. But there were a few cases where the questionnaires were distributed by mail because it was difficult to visit the subjects since they had changed residences. There were also a few cases where questionnaires were left in the mail box or the like since the researchers were unable to encounter the subjects when they visited them. Two types of collection methods were used whereby these were either collected by having the researchers visit once more to collect them (either in unsealed or sealed envelopes) or via mail. A breakdown of these is shown in Table 5-F. Of the 1,597 collected questionnaires from Wave 5, cases in which the questionnaires were distributed and collected by the ordinary drop off and pick-up method accounted for more than 80% of the cases.

Table 5-F. Collection methods for Wave 5

		Incidence	Percent	Percent of valid responses	Cumulative percent
Valid responses	1. Completion (questionnaires were handed over as is or by being placed in an unsealed envelope)	1,327	70.6	83.1	83.1
	2. Completion (questionnaires were handed over by being placed in a sealed envelope)	146	7.8	9.1	92.2
	3. Completion (self-addressed sealed envelopes were handed out and subjects were requested to send the surveys by mail)	79	4.2	4.9	97.2
	4. Completion (questionnaire were left in the mail box, etc., and subjects were requested to send the surveys by mail)	31	1.6	1.9	99.1
	5. Completion (mail distribution, mail collection)	14	.7	.9	100.0
	Total	1,597	85.0	100.0	
Missing value	Uncollected	282	15.0		
Total		1,879	100.0		

6. Attrition with the NFRJ08-Panel

6.1. Objective

The objective of this report is to provide an overview of the state of attrition and biases caused by this attrition with regard to the NFRJ-08Panel survey that was carried out by targeting those people who complied with the continuation surveys from among the respondents to the Third National Family Research of Japan (NFRJ08). Readers are encouraged to consult the other papers contained within this report regarding information like the details of the survey design, the survey's features, its collection status, and so on.[1]

The following section will consider the ongoing collection status of the NFRJ-08Panel survey, trends in attrition at the compliance stages for the panel survey, and then trends in attrition as the panel survey has been carried out in turn.

6.2. Ongoing Responses to the NFRJ-08Panel through Wave 5

To start with, the number of questionnaires collected at each survey time point and the number of cases of compliance, as well as their respective response rates, have been arranged in Table 1. In addition, the frequency distribution for the number of times valid responses were received is also shown.

Table 1. Ongoing response status to the NFRJ-08Panel

[A] No. of valid responses to questionnaires	No. sent out	No. of valid responses to questionnaires[a]	Of which, No. of valid responses to the previous questionnaires[b]
Panel compliance	5203	1881 (36.2)	
Wave 2	1879	1622 (86.3)	
Wave 3	1852	1555 (84.0)	1487 (91.7)
Wave 4	1824	1515 (83.1)	1445 (92.9)
Wave 5	1778	1594 (89.7)	1419 (93.7)

[B] No. of times valid responses were received to the NFRJ-08Panel study

	One time	Two times	Three times	Four times	Five times
Incidence	101	121	123	217	1317
Relative frequency	(5.4)	(6.4)	(6.5)	(11.5)	(70.1)

(Notes) a) The figures in parenthesis indicate the response rate obtained by dividing the number of valid responses to questionnaires by the number sent out.
  b) The figures in parenthesis indicate the response rate obtained by dividing the number of questionnaires for which valid responses continued to be received from the previous time of those questionnaires with valid responses from said time by the number of valid responses to the previous questionnaires.

About 36% of the respondents to the NFRJ08 complied with the request to take the continuation surveys. For Wave 2 (continuation survey conducted in January 2010) valid responses were received from 86% of the survey subjects that could be tried at that point in time. In Wave 3 (conducted in January 2011) the percentage of valid responses was about 84%, while the percentage of valid responses for Wave 4 (conducted in January 2012) was about 83%. The percentage of valid responses for Wave 5 (conducted in January 2013) reached nearly 90%, which was most likely influenced by the fact that a method of going door-to-door to drop off and pick up the surveys was adopted for the survey method.

The value for the valid response rate for subsequent rounds from those people who provided valid responses in Wave 2 was over 90%.

When the number of times valid responses were received for all five of the NFRJ-08Panel surveys was looked at, 70% of the people had provided responses to all of them. Only a mere 5% of people responded to just one round of the survey.[2] This indicates that the survey served the purpose of collecting panel data in that observation values for the same individual were received over multiple time points.

Table 2. Causes for attrition at the stage where respondents were asked to comply
with the ongoing surveys

		All samples		Male samples		Female samples	
Constant terms		0.609	**	0.541	*	0.786	**
By sex [Standard: female]	Male	0.134	**				
Age [Standard: 65 or older]	Younger than 35	-0.073		-0.036		-0.118	
	35 or older – Younger than 50	-0.055		0.014		-0.131	
	50 or older – Younger than 65	0.011		0.027		-0.005	
City size [Standard: Town/village]	Major city (18 major cities)	-0.046		0.035		-0.120	†
	Other urban area	0.028		0.081		-0.023	
Region [Standard: Kyushu/Okinawa]	Hokkaido/Tohoku	-0.179	*	-0.200	†	-0.153	
	Kanto	0.005		-0.007		0.018	
	Chubu	-0.127	†	-0.069		-0.161	†
	Kansai	-0.063		-0.047		-0.078	
	Chugoku/Shikoku	-0.127		-0.130		-0.120	
Marital status [Standard: Unmarried]	Married	-0.084		-0.148		-0.072	
Cohabitation with parents [Standard: Not cohabiting]	Cohabiting	0.055		0.102		0.020	
Has children [Standard: No children]	Has children	-0.066		0.021		-0.162	†
Has preschool children [Standard: No preschool children]	Has preschool children	-0.050		0.095		-0.195	*
Respondent's academic background [Standard: University or higher]	Middle school	0.201	**	0.175	†	0.189	
	High school	0.104	*	0.133	*	0.044	
	Technical school	0.089		0.206	†	-0.012	
	Junior college/college of technology	0.085		0.066		0.064	
Respondent's employment [Standard: Unemployed]	Full-time employment (including self-employed and family employee)	0.108	†	0.125		0.062	
	Non-full-time employment (including side job employment)	0.092		0.023		0.104	
Respondent's income [Standard: 3 million yen or more Less than 5 million yen]	Less than 1 million yen	0.091		-0.097		0.251	*
	1 million yen or more – Less than 3 million yen	0.086		0.045		0.233	*
	5 million yen or more – Less than 8 million yen	-0.009		-0.071		0.092	
	8 million yen or more	0.067		0.045		0.391	
Household income [Standard: 4 million yen or more Less than 7 million yen]	Less than 4 million yen	-0.043		-0.033		-0.043	
	7 million yen or more – Less than 10 million yen	-0.069		-0.078		-0.061	
	10 million yen or more	-0.017		-0.115		0.089	
	Non-response on household income	0.235	**	0.128		0.331	**
Anxiety with family finances	Min. of 1 – Max. of 4	-0.017		-0.021		-0.009	
Satisfaction with daily life in general	Min. of 1 – Max. of 4	-0.036		-0.037		-0.050	
Subjective health	Min. of 1 – Max. of 5	-0.054	*	-0.020		-0.077	*
N		4932		2328		2604	
Psuedo coefficient of determination (Nagelkerke)		0.024		0.021		0.046	
Model x^2		88.1	**	34.9		89.6	**

(Notes)   The figures are the coefficients of regression from a probit analysis.
　　　† $p < .1$ * $p < .05$ ** $p < .01$ (two-sided test)

6.3. Compliance with the Panel Survey for the NFRJ-08Panel

Now then, what sorts of people complied with the panel survey? Or to put that another way, here we will consider what sorts of people dropped out at the stage where they were requested to cooperate with the ongoing survey.

As shown in Table 2, at 2.4% the pseudo coefficient of determination is not necessarily large. But when you look at individual coefficients, out of these covariates statistically significant results were shown by sex, regional blocks, academic background, employment status, household income, and subjective health. Men had a greater tendency to drop out than women did at the stage where they were asked to cooperate with the ongoing surveys. Compared to Kyushu and Okinawa, which served as standards for the comparison, residents of Hokkaido / Tohoku and the Chubu regions were less prone to attrition. Moreover, when viewed in a relative sense, those with a lower level of academic achievement had a greater tendency to drop out. People with regular employment had a greater tendency to drop out compared with the unemployed. As for subjective health, the better someone's health was the less prone they were to attrition.

The results from household income that were seen here can be focused on for the fact that they were not due to the monetary value of the income. Just like with lots of other social surveys, the NFRJ08 also had a lot of non-responses to questions on household income. For this reason, the non-responses regarding household income were used for analysis here as a single category. From this it was learned that differences did not appear in the attrition rate due to the monetary value of the respondents' household income, but instead there were noticeable differences in the attrition rate between those people who did not provide a response and other people who did.

Moreover, when a similar analysis was performed by dividing up men and women the following points were indicated. First of all, women had a better model relevance than men did. When this is limited to men, then the coefficients decline significantly for a number of the covariates found among the causes previously mentioned, such as people not responding regarding household income and subjective health, rendering them statistically insignificant. Second, when just women were focused on family-related factors had an impact. This revealed that those with children tended to not drop out, with this tendency growing even stronger for women with preschool children. Third is the fact that a correlation was seen between women's economic status and attrition. Those people with low income had a greater propensity to drop out than did those whose individual income was roughly mid-ranged. Yet even so, while the sample is small and not statistically significant, in terms of the coefficient orientation and size it is possible that attrition was on the high side among people with high incomes as well. In addition, among women who resided in major cities a tendency to not comparatively drop out was seen.

6.4. Ongoing Responses to the Panel Survey for the NFRJ-08Panel

Next, we will consider what sorts of people responded to the panel surveys that were implemented afterwards from among those who initially complied. Here we will start by searching for the primary factors separating out those people who responded to every survey consecutively from Waves 2 through 5 from those who did not. Next, this section will perform a comparative examination of the attrition factors for Wave 4, where a follow-up survey was conducted by mail, and Wave 5, where a follow-up survey was conducted by going

door-to-door to drop off and pick up the questionnaires.[3]

Table 3 shows the results of this, with the pseudo coefficient of determination higher than before at about 8%. Factors for attrition at the implementation stage for the ongoing surveys that could be cited include sex, marital status, age, academic background, and employment status. Interpretations that can be taken away from this include the fact that men were more prone to attrition than women were, those with low academic achievement were more prone to attrition, and that people with regular employment had a tendency to drop out. This is largely held in common with the analytical results on attrition at the compliance stage that was seen before.

Aside from this, it also revealed that younger people were more prone to attrition, while those people with spouses were less prone to doing so. This is inconsistent with the results from the attrition analysis at the stage where respondents were asked to take ongoing surveys.

Table 3. Causes for attrition at the implementation stage of the ongoing surveys (probit analysis)

		All samples		Male samples		Female samples		Attrition at Wave 4		Attrition at Wave 5	
Constant terms		-0.965	**	-0.764	†	-0.823	†	-1.496	**	-1.619	**
By sex [Standard: female]	Male	0.290	**					0.377	**	0.022	
Age [Standard: 65 or older]	Younger than 35	0.369	*	0.324		0.386	†	0.226		0.287	
	35 or older – Younger than 50	0.181		0.057		0.274		0.183		-0.337	†
	50 or older – Younger than 65	-0.022		-0.112		0.035		-0.115		-0.167	
City size [Standard: Town/village]	Major city (20 major cities)[a]	0.004		0.075		-0.074		-0.055		0.354	*
	Other urban areas	0.000		-0.031		0.022		0.058		0.067	
Region [Standard: Kyushu/Okinawa]	Hokkaido/Tohoku	-0.035		-0.112		-0.010		-0.615	*	0.060	
	Kanto	-0.111		-0.196		-0.081		0.036		-0.046	
	Chubu	-0.087		-0.159		-0.072		-0.039		-0.085	
	Kansai	-0.010		-0.040		0.003		-0.019		-0.121	
	Chugoku/Shikoku	0.008		-0.085		0.080		0.022		0.098	
Marital status [Standard: Unmarried]	Married	-0.240	*	-0.385	*	-0.139		0.091		0.034	
Cohabitation with parents [Standard: Not cohabiting]	Cohabiting	-0.104		-0.072		-0.133		-0.168		0.058	
Has children [Standard: No children]	Has children	0.012		0.072		-0.003		-0.044		0.019	
Has preschool children [Standard: No preschool children]	Has preschool children	-0.034		-0.156		0.026		0.015		-0.038	
Respondent's academic background [Standard: University or higher]	Middle school	0.501	**	0.473	**	0.439	*	0.543	*	-0.029	
	High school	0.229	*	0.401	**	-0.025		0.417	**	0.078	
	Technical school	0.362	**	0.293		0.267		0.486	*	0.098	
	Junior college/college of technology	0.023		0.396		-0.229		0.024		0.096	

		All samples	Male samples	Female samples	Attrition at Wave 4	Attrition at Wave 5
Respondent's employment [Standard: Unemployed]	Full-time employment (including self-employed and family employee)	0.319 **	0.386 *	0.322 *	0.257	0.437 *
	Non-full-time employment (including side job employment)	0.155	0.238	0.136	-0.075	0.275
Respondent's income [Standard: 3 million yen or more	Less than 1 million yen	0.055	0.079	0.011	-0.081	0.191
Less than 5 million yen]	1 million yen or more – Less than 3 million yen	-0.144	-0.201	-0.132	-0.068	-0.120
	5 million yen or more – Less than 8 million yen	-0.066	-0.018	-0.168	0.062	0.138
	8 million yen or more	-0.157	-0.036	-0.559	-0.262	0.454
Household income [Standard: 4 million yen or more	Less than 4 million yen	0.055	0.079	0.011	-0.081	0.191
Less than 7 million yen]	7 million yen or more – Less than 10 million yen	-0.144	-0.201	-0.132	-0.068	-0.120
	10 million yen or more	-0.066	-0.018	-0.168	0.062	0.138
	Non-response on household income	-0.157	-0.036	-0.559	-0.262	0.454
Anxiety with family finances	Min. of 1 – Max. of 4	0.044	0.097 †	0.001	-0.025	0.004
Satisfaction with daily life in general	Min. of 1 – Max. of 4	-0.011	0.081	-0.087	-0.148	-0.080
Subjective health	Min. of 1 – Max. of 5	-0.017	-0.071	0.042	-0.061	-0.067
N		1814	806	1008	1456	1414
Psuedo coefficient of determination (Nagelkerke)		0.076	0.083	0.076	0.126	0.078
Model x^2		99.8 **	50.2 *	53.1 **	74.3	40.0

(Notes) The figures are the coefficients of regression from a probit analysis.
　　　　† $p < .1$　　* $p < .05$ ** $p < .01$ (two-sided test)
　　　　a) The number of major cities grew to 20 beginning in 2011 (Wave 3), in 2010 there were 19 major cities and in 2009 there were 18 major cities.

Furthermore, when men and women were examined separately, a number of differences in trends were observed. Factors that prompted attrition among women included age, academic background, and employment. Being young, having low academic achievement, and having regular employment all contributed to attrition at the survey implementation stage, with such tendencies being pronounced among women.

With men the results were similar to those from women with regard to academic background and employment, but on the other hand marital status and anxiety with family finances could be listed as attrition factors that were not observed with women. The absence of a spouse and strong anxiety over family finances seemed to prompt men to drop out.

Finally, we will consider the differences in the attrition factors for Waves 4 and 5. As it is a panel survey, the subjects for these two rounds of surveys were the same in principal.[4] But because there was a difference in the collection methods in that the former was collected by mail while the latter was done by going door-to-door to be dropped off and picked up, there is

the possibility that the attrition factors for the surveys will be different.

Taking a look at Table 3 affirms that there were no attrition factors that were common to the two rounds. Effects from sex, regional blocks, and academic background were seen with Wave 4, while conversely with Wave 5 effects were seen from city size, employment status, and age. Of these, with regard to the effects from regional blocks, displays of the results were omitted as these were not seen with Waves 2 and 3, so it is hard to claim that this was caused by their being collected by mail. With the results from employment status as well, roughly identical coefficients were observed with Waves 3 and 5, so the claim could not be made that this was a factor unique to the survey method of dropping off and picking up the questionnaires. What is more, the effects from age in Wave 5 were no more than a level of 10%, so the decision was made to not provide a proactive interpretation for this.

The effects from sex and academic background seen in Wave 4, namely, the tendency of men to be more prone to attrition along with those with lower academic achievements, was observed consistently from Waves 2 through 4, but was not seen only with Wave 5. Perhaps the reason that the men and people with low academic achievement who complied were prone to attrition over the course of the ongoing survey was because they could not be troubled or forgot to perform the work involved in sending the questionnaires back, and that once the researchers went to visit them they were unexpectedly able to collect these from them.

Conversely, results were not seen from city size up through Wave 4, but were seen only with Wave 5. With Wave 5, which was carried out by dropping off and picking up the questionnaires, results were obtained wherein the residents of 20 major cities were more prone to attrition. This possibly hints at the fact that there were greater difficulties with the act of visiting people door-to-door itself in large cities for reasons such as subjects who live in self-locking apartment buildings. Such points are not problematic with surveys collected by mail like with Waves 2 through 4.

6.5. Summary

This report organized the number of questionnaire responses and response rate, as well as factors behind attrition, regarding the NFRJ-08Panel data.

At the time that respondents were requested to cooperate with the ongoing survey less than 40% complied and about 60% dropped out. The attrition rate from thereafter was at a level of under about 20% for each round. The ongoing response status in which 70% of people responded to all of the questionnaires could be said to be excellent.

As for whether or not people complied at the stage where they were asked to comply with the ongoing surveys, much of the attrition occurred. But even though there were attribute-based biases in the attrition rate, when seen on the whole the impact from this was negligible.

During the course of implementing the ongoing surveys the attrition rate was not all that large, but it became clear that attribute-based biases in the attrition were somewhat on the large side. What is more, the possibility was suggested that there were different attrition factors between ongoing surveys performed by mail and those performed by going door-to-door to drop them off and pick them up.

The information presented in this paper is important, at least in relation to attrition in the

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NFRJ-08Panel. In order to obtain high quality data with panel surveys, it is crucial to get people to respond continuously without dropping out. Even if there is a great deal of attrition, so long as the mechanisms for this attrition can be explained according to the observed variables then corrections can be made by using this information.[5] When performing research based on panel surveys, it is preferable to nail down information pertaining to attrition ahead of time. The reason for this is because unless you determine the "tendencies" observed in the panel data that serves as the research data, it is difficult to become self-aware of the danger of the "biases" in some form or another that could potentially be lying dormant in your analytical results that will come about. Owing to such aims, the analytical results were organized in order to lessen the burden as much as possible on the researchers who use the NFRJ-08Panel for their verifications and analyses.

[Notes]

(1) For other information on the collection status of NFRJ08 itself, refer to Inaba (2010).

(2) With the NFRJ-08Panel, since requests to comply with the ongoing surveys were made targeting the valid responders to the NFRJ08, there were no people who had a number of valid responses of zero.

(3) Refer to Miwa (2012) on attrition up through Wave 3. As for the reason that only Waves 4 and 5 were taken up, this was done out of a desire to see the differences in the attrition factors due to the collection methods under conditions wherein a panel survey was repeated to a certain extent, given that the analytical results up through Wave 3 were already known.

(4) While the claim could be made that the rates at which the samples decreased due to attrition differed, the attrition rate was not all that high. So long as they did not strongly refuse to take the survey or move to an unknown address, the next survey would be sent out to them, so the samples targeted by the survey did not change all that drastically.

(5) Refer to Sakamoto (2006) as a case example where the data on attrition in a panel survey was organized.

[Reference Literature]

Akihide Inaba, 2010, "Data Characteristics of the NFRJ08 (National Family Research of Japan 2008) Data Set: The Effects of Spare Samples, Response Rate, and Proportion of Those Currently Married," Japanese Journal of Family Sociology, 22(2): 226-231.

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