Outline of the Family Income and Expenditure Survey

Ⅰ Outline

The Family Income and Expenditure Survey (FIES) aims at providing comprehensive data on income and expenditure of households in Japan. The data are used in various fields, such as policy planning, econometric analysis, market research, etc. It also supplies basic data to the calculation of such macroeconomic figures as the Gross Domestic Product (Expenditure approach) and the Consumer Price Index.

The FIES is a fundamental statistical survey conducted by the government for the purpose of producing the fundamental statistics provided by the Statistics Act (Act No.53 of May 23, 2007). It is carried out in accordance with the Family Income and Expenditure Survey Ordinance (Prime Minister's Office Ordinance No.71 of November 12, 1975) issued on the basis of the Statistics Act.

1. Coverage of the survey

The survey unit is the household in the entire area of Japan. The following households are, however, excluded as inappropriate households.
(1) One-person student households
(2) Inpatients in hospitals, inmates of reformatory institutions, etc.
(3) Households which manage restaurants, hotels, boarding houses or dormitories, sharing their dwellings
(4) Households which serve meals to the boarders even though not managing boarding houses as an occupation
(5) Households with 4 or more living-in employees
(6) Households whose heads are absent for a long time (three months or more)
(7) Foreigner households

2. Design of the Survey
(1) Sampling Unit

About 9,000 households are randomly selected from appropriate households for the survey. The sample households are selected based on a three-stage stratified sampling method. The sampling units at three stages are firstly the municipality (i.e. city, town and village), secondly the survey unit area and thirdly the household.

(2) The First Stage of Sampling

The entire land of Japan is stratified into 168 strata according to the following criteria.
(i) Each of the capital cities of prefectures is made to be a stratum.
(ii) Each of Kawasaki-shi (city), Sagamihara-shi, Hamamatsu-shi, Sakai-shi and Kitakyushu-shi is made to be a stratum.
(iii) The remaining areas in Japan (cities with population of 50,000 or more) are divided according to the following criteria to form 74 strata.
  a. Districts - 10 districts:
    Hokkaido: Hokkaido
    Tohoku: Aomori-ken, Iwate-ken, Miyagi-ken, Akita-ken, Yamagata-ken, Fukushima-ken
    Kanto: Ibaraki-ken, Tochigi-ken, Gumma-ken, Saitama-ken, Chiba-ken, Tokyo-to, Kanagawa-ken, Yamanashi-ken, Nagano-ken
    Hokuriku: Niigata-ken, Toyama-ken, Ishikawa-ken, Fukui-ken
    Tokai: Gifu-ken, Shizuoka-ken, Aichi-ken, Mie-ken
    Kinki: Shiga-ken, Kyoto-fu, Osaka-fu, Hyogo-ken, Nara-ken, Wakayama-ken
    Chugoku: Tottori-ken, Shimane-ken, Okayama-ken, Hiroshima-ken, Yamaguchi-ken
    Shikoku: Tokushima-ken, Kagawa-ken, Ehime-ken, Kochi-ken
    Kyushu: Fukuoka-ken, Saga-ken, Nagasaki-ken, Kumamoto-ken, Oita-ken, Miyazaki-ken, Kagoshima-ken
    Okinawa: Okinawa-ken

  b. City groups – 2 groups:
    Cities with population of 150,000 or more and population of 50,000 or more, but less than 150,000 (Small cities A)
  c. City pattern by major industry

d. Ratios of households in which the age of household head is 65 years old and over
e. Ratios of densely inhabited district population
f. Population change rates from 2015 to 2020

Cities with population of less than 50,000, towns and villages are divided into 10 districts. They are subdivided in 42 strata according to the geographical characteristics and the ratios of households in which the age of household head is 65 years old and over.

One municipality is selected from each stratum with a probability proportional to the number of the appropriate households for this survey. The sample municipalities were first selected nationally at the time of the enlargement of the survey in 1962. Some of the cities were replaced only in the minor revisions in 1968, 1972, 1978, 1983, 1988, 1993, 1998, 2003, 2008, 2013, 2018 and 2023. The sample towns and villages began to be regularly replaced from 1966, and the sample cities also began to be regularly replaced from 2009.

(3) Allocation of Sample Households to Municipalities

<Survey for two-or-more-person households>

The allocation of sample households to municipalities is determined by considering the following factors.

(i) The accuracy of survey results
The number of households has to be sufficient to maintain the accuracy of the following data:
a. Changes over the year of the monthly average for all Japan, for classes of households (income classes, occupations of the household head, etc.)
b. Changes over the year of the yearly average for each city group, district, and the cities with prefectural governments

(ii) Restriction on the field work
a. An enumerator is in charge of two survey unit areas, containing 12 sample households.
b. Each household is surveyed for six months, and alternated with another household in the seventh month. The alternation of the households is done by a survey unit area, containing 6 sample households. Every month, one sixth of all sample households are switched.

[Reference: The allocation procedure of sample households (Two-or-more-person households)]

The allocation of sample households to municipalities is based on the procedures of the following steps from (1) to (3).
(1) The sample size (approximately 5,000 households), which is required to ensure

Table (i) Allocation of the Number of Households to be Surveyed

City groups	Num. of Surveyed municipalities	Two-or-more-person households		One-person households
		Num. of Surveyed households	Sampling ratios	Num. of Surveyed Households
All Japan	168	8,076	-	745
Cities with population of 50,000 or more	-	-	-	-
Ku-areas (ward) of Tokyo	1	408	1 / 5936	34
20 major cities	20	2,016	1 / 2007 - 1 / 7257	168
Cities with prefectural governments (excluding major cities)	31	3,048	1 / 486 - 1 / 1678	254
Other cities	74	2,100	1 / 1192 - 1 / 13120	175
Cities with population of less than 50,000, towns and villages	42	504	1 / 1492 - 1 / 16976	42
Dormitories (One-person households)※	(11)	-	-	72

※ Surveyed municipalities of Dormitories (One-person households) are included in Ku-areas (ward) of Tokyo and 20 major cities.

statistical accuracy of the national survey results, is allocated to municipalities based on the number of households of strata including each surveyed municipality.

(2) Additional allocation is made to the districts (except Hokkaido and Okinawa) whose sample size is less than 400 households by allocation in (1). The number of added sample size is based on the number of households of strata including surveyed municipality in the district.

(3) Additional allocation up to 96 households is made to the cities with prefectural governments and designated cities under article 252-19 of the Local Autonomy Act whose sample size is less than 96 households by allocation in (1) and (2).

Consequently, the number of households to be surveyed is 8,076 households.

The number of households allocated to each of city groups or the cities with prefectural governments is shown in Table (i) or "Appendix 1: Number of Surveyed Households, Adjustment Coefficient by Cities, Towns and Villages (Two-or-more-person Households)".

[Survey for one-person households]
a. One household selected from two survey unit areas is surveyed.
b. Each household is surveyed for three months, and alternated with another household in the fourth month. Every month, one third of all sample households are alternated.
c. In addition, to assess the young one-person households more properly, the number of survey unit areas for dormitory is set to 12. 6 households are selected randomly from each survey unit area. 6 households are surveyed for three months in a dormitory, and alternated with another household in the fourth month.

The number of surveyed households in general survey unit areas is set to 673, and that in the survey unit areas for dormitory is set to 72. In total, 745 households are surveyed (Refer to "Appendix 3" in detail).

(4) The Second Stage of Sampling

The second sampling unit is the survey unit area, a pair of the Enumeration Districts of the Population Census. Instead of selecting the survey unit areas directly from the municipality, survey blocks are first selected, and then the survey unit areas are selected from them. In the beginning of the Survey, the sample was randomly selected. After that, sample selection is done according to the rule of sample rotation (cf. (6) below).

Explained below is the sample selection in the beginning of a new sampling scheme. Each municipality is divided into the same number of partitions as enumerators so that each partition contains nearly equal number of appropriate households. Each enumerator is assigned to one of these partitions, which limits the area that he or she has to cover. From each of the partitions one survey block is selected for an enumerator. The blocks, each containing 1500 or more and less than 3000 appropriate households in principle, are made by subdividing the partitions. Each block is divided into some areas and two of them are selected randomly as survey unit areas, which is the sampling unit at the second stage. Each survey unit area is composed of two Enumeration Districts of the Population Census.

(5) The Third Stage of Sampling

From the list of all households in the survey unit area, which is made by the enumerator, six sample households are selected by random numbers from each survey unit area for two-or-more-person households, and one sample household is selected from two survey unit areas for one-person households. Inappropriate households are excluded from the selection beforehand.

(6) The Rotation of Sample

In order to avoid bias in the obtained figures, and to save sample households from the burden of bookkeeping over a long period, the sample has to be renewed regularly. However, discontinuity in the time series due to the change in sample has to be also avoided. In the survey, in the case of two-or-more-person households, one sample household is surveyed for six months and is replaced by a new one. The ratio of replacement is kept constant every

month, and thus one-sixth of the sample is monthly renewed.

Replacements take place not only household by household, but also by survey unit area as a whole. Each survey unit area is surveyed for a year, and after that the survey unit area is replaced by another within the same block. During the year six sample households have to be randomly selected twice, once in the beginning and once in the seventh month. Each survey unit area is replaced in a certain month. The months of replacement are scattered equally from January to December.

In the case of one-person households, one sample household is surveyed for three months and then replaced by a new one.

3. Execution of the Survey
(1) Organization

The Survey is conducted through the following channel: Minister for Internal Affairs and Communications→Prefectural Governors →Supervisors→Enumerators→Households

(2) Questionnaires

The sample households are requested to keep daily accounts of all the transactions in money in the household economy. The account books are collected every half month, and are summarized into the form of tables for publication. Also, the online response system has been introduced from January 2018.

Data are obtained in four kinds of questionnaires, namely, Household Schedule, Family Account Book, Yearly Income Schedule and Savings Schedule. Enumerators fill in or enter the Household Schedule with the number of household members, occupation and industry of earners, type of the dwelling, etc. Households are requested to fill in or enter the Family Account Books with daily income and expenditures. Also, two-or-more-person households fill in or enter quantities for each item, but the quantities of foods are filled in only at the first month. For workers' households and no-occupation households, both incomes and expenditures are recorded, while for other households, only expenditures are recorded. In addition, households are requested to fill in or enter the Yearly Income Schedule with income over the past year, and two-or-more-person households are also requested to fill in or enter

the Savings Schedule with amounts of savings and liabilities held and their plans to purchase houses or land.

Family Account Book, Yearly Income Schedule and Savings Schedule are filled in by households themselves, and Household Schedule is completed by enumerators through interviews.

In case unavoidable reasons prevent households from making entries, enumerators fill in the Non-responding Household Schedule with the total of usual monthly expenditures as well as some of the survey items in the Household Schedule are obtained.

4. Aggregation method
(1) Process for aggregation

The data thus obtained in the forms are checked by the supervisors. And the collected questionnaires are sent to the Statistics Bureau, Ministry of Internal Affairs and Communications. After sending, we conduct classification and inputting to the computer as well as reviewing the content of the questionnaires at the National Statistics Center. Throughout the whole aggregation procedure, computers are fully utilized.

(2) Estimation
(i) Two-or-more-person households

First, the adjustment coefficients by municipality are calculated in order to compensate the difference in sampling ratios for strata. They are proportional to the inverses of sampling ratios so that the adjusted number of households in Japan will be equal to the number of the households in the universe multiplied by 1/486, the maximum of the sampling ratios for the strata.

Second, these adjustment coefficients by municipality are corrected by the distribution of two-or-more-person households by 10 districts and 4 groups by number of household members which are given by the results of Labour Force Survey.

Third, the average figures of All Japan and districts are estimated by these corrected coefficients.

The monthly average figures are estimated in the Formula 1. The yearly average values are calculated by the simple arithmetic means of monthly figures.

List of Estimation Formulas

【Formula 1】 Two-or-more-person households

$$\overline{X} = \frac{\displaystyle\sum_i \sum_j \sum_k \sum_l X_{ijkl} \cdot \alpha_{ij} \left(\frac{N_{ij}}{P_{ij}}\right)^* \cdot C_{ik}}{\displaystyle\sum_i \sum_k W_{ik}} \quad , \quad C_{ik} = \frac{W_{ik}}{\displaystyle\sum_j \alpha_{ij} \left(\frac{N_{ij}}{P_{ij}}\right)^* \cdot P_{ijk}}$$

$\overline{X}$: Average expenditure (Two-or-more-person households)

X : Expenditure of each household

α : Adjustment coefficient by municipality

N : Number of surveyed households

P : Number of tabulated households

$* \quad 1 \leq \left(\dfrac{N_{ij}}{P_{ij}}\right) \leq 2$

C : Correction coefficient

W : Number of population households (Distribution of households in Labour Force Survey)

i : 10 districts by region

j : Municipality

k : 4 groups by number of household members

l : Household (Two-or-more-person households)

【Formula 2】 One-person households monthly average (for Yearly average)

$$\overline{X}' = \frac{\displaystyle\sum_{i'} \sum_h \sum_g \sum_{m_1} \left(X'_{i'hgm_1} \cdot \beta_{i'h} \left(\frac{Q_{i'h}}{R_{i'h}}\right) \cdot D_{i''g} \right) + \sum_{i''} \sum_g \sum_{m_2} \left(X'_{i''gm_2} \cdot \beta'_{i''} \left(\frac{S_{i''}}{T_{i''}}\right) \cdot D_{i''g} \right)}{\displaystyle\sum_{i''} \sum_g W'_{i''g}}$$

$$D_{i''g} = \frac{W'_{i''g}}{\displaystyle\sum_h \left(\beta_{i'h} \left(\frac{Q_{i'h}}{R_{i'h}}\right) \cdot R_{i'hg} \right) + \beta'_{i''} \left(\frac{S_{i''}}{T_{i''}}\right) \cdot T_{i''g}}$$

【Formula 3】 One-person households monthly average (for Quarterly average)

$$\overline{X}' = \frac{\displaystyle\sum_g \sum_{m_1} X'_{gm_1} \cdot D_g + \sum_g \sum_{m_2} X'_{gm_2} \cdot D_g}{\displaystyle\sum_g W'_g} \quad , \quad D_g = \frac{W'_g}{R_g + T_g}$$

$\overline{X}'$: Average expenditure (One-person households)

X' : Expenditure of each household

β : Adjustment coefficient (except dormitories) by 7 districts and city group

β' : Adjustment coefficient (dormitories) by 6 districts

Q : Number of surveyed households (except dormitories)

R : Number of tabulated households (except dormitories)

S : Number of surveyed households (dormitories)

T : Number of tabulated households (dormitories)

D : Correction coefficient

W' : Number of population households (Distribution of households in Labour Force Survey)

i' : 7 districts by region

i'' : 6 districts by region

h : city group

g : 6 groups by sex and age group

m_1 : Households(except dormitories)

m_2 : Households(dormitories)

【Formula 4】 Total households monthly average (for Yearly average)

$$\overline{X}'' = \frac{\displaystyle\sum_i \sum_j \sum_k \sum_l X_{ijkl} \cdot \alpha_{ij} \left(\frac{N_{ij}}{P_{ij}}\right)^* \cdot C_{ik} + \sum_{i'} \sum_h \sum_g \sum_{m_1} \left(X'_{i'hgm_1} \cdot \beta_{i'h} \left(\frac{Q_{i'h}}{R_{i'h}}\right) \cdot D_{i''g} \right) + \sum_{i''} \sum_g \sum_{m_2} \left(X'_{i''gm_2} \cdot \beta'_{i''} \left(\frac{S_{i''}}{T_{i''}}\right) \cdot D_{i''g} \right)}{\displaystyle\sum_i \sum_k W_{ik} + \sum_{i''} \sum_g W'_{i''g}}$$

【Formula 5】 Total households monthly average (for Quarterly average)

$$\overline{X''} = \frac{\displaystyle\sum_i \sum_j \sum_k \sum_l X_{ijkl} \cdot \alpha_{ij} \left(\frac{N_{ij}}{P_{ij}}\right)^{*} \cdot C_{ik} + \sum_g \sum_{m_1} X'_{gm_1} \cdot D_g + \sum_g \sum_{m_2} X'_{gm_2} \cdot D_g}{\displaystyle\sum_i \sum_k W_{ik} + \sum_g W'_g}$$

$\overline{X''}$: Average expenditure (Total households)   ※Other signs are shown in Formula 1, 2 and 3.

(ii) One-person households

a. Estimation of the yearly average figures

First, the adjustment coefficients of 32 strata are calculated to be equal to the number of the households in the universe multiplied by 1/486.

Second, these adjustment coefficients are corrected by the distribution of one-person population by 6 districts, sex and 3 age-groups (under 35 years, 35-59 years, 60 years and over) which are given by the results of Labour Force Survey.

Third, the average figures are estimated by these corrected coefficients. The monthly average figures (for yearly average) are estimated in the Formula 2. The yearly average values are calculated by the simple arithmetic means of monthly figures.

b. Estimation of the quarterly average figures

The quarterly average figures, which were published from the first quarter of 2000, are estimated by the distribution of one-person population by sex and 3 age-groups without using adjustment coefficient of each district in order to increase the stability of time series.

The quarterly average values are calculated by the simple arithmetic means of monthly figures. The monthly average figures (for quarterly average) are estimated in the Formula 3.

(iii) Total households

The figures of total households are estimated by figures of two-or-more-person households and one-person households. The yearly and quarterly average values are calculated by the simple arithmetic means of monthly figures.

The monthly average figures (for yearly average) are estimated in the Formula 4. The monthly average figures (for quarterly average) are estimated in the Formula 5.

(3) Standard Error

The rates of standard errors for 2023 are shown in the following tables.

Table (ii) The Rates of Standard Errors (%) by expenditure category (2023)

Item	(a)	One-person households		
		Average	Male	Female
Consumption expenditures	0.4	1.4	2.2	1.6
Food	0.2	1.2	2.0	1.3
Housing	2.8	3.3	5.1	4.2
Fuel, light & water charges	0.3	1.3	2.2	1.4
Furniture & household utensils	1.4	5.7	10.9	4.9
Clothing & footwear	0.9	4.8	9.6	5.1
Medical care	1.0	5.9	5.7	9.1
Transportation & communication	1.6	3.4	4.7	4.9
Education	3.0	–	–	–
Culture & recreation	0.7	3.0	4.9	3.1
Other consumption expenditures	0.8	2.5	4.8	2.6

(a) Two-or-more-person households

Table (iii) The Rates of Standard Errors (%) by month (Two-or-more-person Households)

Year and month	Consumption expenditures	Num. of tabulated households
2023 Jan.	1.6	7,207
Feb.	1.3	7,185
Mar.	1.3	7,240
Apr.	1.4	7,228
May	1.1	7,284
June	1.4	7,256
July	1.3	7,231
Aug.	1.4	7,254
Sep.	1.5	7,267
Oct.	1.5	7,309
Nov.	1.3	7,300
Dec.	1.2	7,348

Table (iv) The Rates of Standard Errors (%) by district
(Two-or-more-person Households) (2023)

District	Consumption expenditures	Num. of tabulated households
All Japan	0.4	7,259
Hokkaido	2.2	260
Tohoku	1.3	753
Kanto	0.7	1,838
Hokuriku	1.6	504
Tokai	1.2	693
Kinki	1.0	962
Chugoku	1.6	628
Shikoku	1.9	449
Kyushu	1.3	966
Okinawa	2.1	206

Table (v) The Rates of Standard Errors (%) by age group
(One-person Households) (2023)

One-person households Average	Average	Under 35years	35 ~ 59 years	60years and over
Consumption expenditures	1.4	3.8	2.7	1.2
Num. of tabulated households	650	68	114	469

One-person households Male	Average	Under 35years	35 ~ 59 years	60years and over
Consumption expenditures	2.2	4.6	3.9	2.4
Num. of tabulated households	223	45	55	123

One-person households Female	Average	Under 35years	35 ~ 59 years	60years and over
Consumption expenditures	1.6	6.2	3.2	1.4
Num. of tabulated households	427	23	59	345

5. Statistical Tables
(1) Main Feature
The income and expenditure data are tabulated into averages of monthly receipts and disbursements per households by district, yearly income group, etc., and published (cf. 6 below).

(2) City Groups and Districts
The classification of city groups in this survey is as follows:
(i) Major cities
··· Designated cities under article 252-19 of the Local Autonomy Act and Ku-areas (ward) of Tokyo as follows:
Sapporo-shi, Sendai-shi, Saitama-shi, Chiba-shi, Ku-areas of Tokyo, Yokohama-shi, Kawasaki-shi, Sagamihara-shi, Niigata-shi, Shizuoka-shi, Hamamatsu-shi, Nagoya-shi, Kyoto-shi, Osaka-shi, Sakai-shi, Kobe-shi, Okayama-shi, Hiroshima-shi, Kitakyushu-shi, Fukuoka-shi, Kumamoto-shi
(ii) Middle cities
··· Population of 150,000 or more (excluding major cities)
(iii) Small cities A
··· Population of 50,000 or more, but less than 150,000
(iv) Small cities B, towns and villages
··· Cities with population of less than 50,000, towns and villages
The classification of districts used in this report is shown in Appendix 1.

6. Release Schedules and Publications
(1) Release Schedules
Usually, the results of the survey concerning family income and expenditure are released on the following schedule:
(i) Two-or-more-person households
··· The beginning of the second month after the survey
(ii) Total households and one-person households
··· The beginning of the second month after the survey (Quarterly results)
(iii) Results on savings and liabilities
··· The end of January, the middle of May, the end of July, the end of October (Quarterly results)

(2) Publications
(i) Annual report on the Family Income and Expenditure Survey < I Income and Expenditure >
(ii) Annual report on the Family Income and Expenditure Survey < II Savings and Liabilities >

7. History
(1) Consumer Price Survey and Family Income Survey
After World War II, the Consumer Price Survey (CPS) was initiated in July 1946, with monthly collection of the expenditures and amounts of purchases item by item, as well as the purchase prices. Since this survey only provided the outflow of money in the

household economy and lacked the data on income, the Family Income Survey (FIS) was introduced in 1948, in which only income data were surveyed independently of the CPS.

(2) Beginning of the Family Income and Expenditure Survey

In September 1950, the CPS and the FIS were combined into one survey under the name of Family Income and Expenditure Survey, which is the origin of the present survey, with two main differences: the classification of expenditures, and the extent of coverage.

In 1953 the use classification took the place of the commodity classification formerly used. And tabulation in the latter was continued in a smaller scale for reference.

(3) Enlargement of Coverage and Change in Sampling Design

In July 1962 the coverage of the Survey, which formerly covered all the urban areas, was extended to include the entire area of Japan. The sampling design was totally changed at the same time with a transitional period until the end of 1962. The size of sample increased from about 4,200 households out of 28 cities to about 8,000 out of 170 municipalities.

In July 1972, Okinawa-ken (prefecture) was included in the Survey, and the results of Okinawa-ken have been integrated into the results of all Japan since January 1973.

In July 1999, the households engaged in agriculture, forestry and fisheries were included in the coverage of the Survey, and the results of the households engaged in agriculture, forestry and fisheries have been available since January 2000.

In January 2002, one-person households were incorporated into the coverage of the FIES, which had been independently surveyed by the Income and Expenditure Survey for one-person households from 1995 until 2001, and the Survey of Savings and Liabilities was introduced (covering two-or-more-person households only). The sample of the FIES has been enlarged to about 9,000 households as a consequence.

(4) Revision of Survey Methods and Schedules and Launch of CTI

In January 2018, the forms of household schedule and account books were updated, the classification of sampling division type were revised, and an online response system was introduced with a phased approach.

Regarding the revision account books, sample households were divided into two groups during 2018, so that the influence of the changes could be estimated: half of the sample households used old account books, the other half used the new one. Together with these several changes, tabulations of households excluding agriculture, forestry and fisheries households and those of any households in kind were terminated.

The online response system has been introduced together with a change in survey unit areas, and it had been adopted in each survey unit areas by December 2019.

In addition, the Consumption Trend Index (CTI), composed of two series, was newly developed. Household Consumption Trend Index (CTI micro) is calculated not only by Family Income and Expenditure Survey and Survey of Household Economy, but also by the Expenditure Monitor Survey for One-person Households, which has been newly started since 2017. The purpose of the index is to provide figures which enable users to analyze the monthly trend of individual consumption, including One-person Households. Accordingly, the Composite Index of Consumption Expenditures, which complements the result of Family Income and Expenditure Survey with the result of Survey of Household Economy, was integrated into CTI. Also, the Total Consumption Trend Index (CTI macro) has been released to estimate time series of amount of consumption expenditures of whole households in Japan, which is equivalent to Final consumption expenditure of households in GDP statistics.

Also, it is expected that it will be necessary to distribute and collect survey forms by a method that does not face the survey household due to the occurrence of a disaster, etc., so it is possible to carry out a survey by mail as a special case since April 2020.