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Earnings, Income, and Wealth Inequality in Japan: A Long-Term Perspective, 1984–2019

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Abstract

This study examines trends in earnings, income and wealth inequality among households in Japan from 1984 to 2019. Our findings reveal that inequality in all three domains has increased over the last decades, but due to different underlying factors. The rise in earnings and income inequality is primarily driven by demographic aging, with an increasing proportion of elderly households who typically exhibit higher inequality levels. The growth in wealth inequality is evident not only in the overall population but is particularly pronounced among the young. This trend is largely attributed to a significant rise in the number of households that possess extremely low wealth. Key factors contributing to inequality trends in Japan include aging demographics, shifts in household structure, and major macroeconomic developments such as the financial bubble period and the prolonged economic slow-down that followed.

Keywords: Income inequality, earnings inequality, distributions of wealth, demographic aging, Japanese economy.
JEL Classification: D31, D15, E21

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1 Introduction

The distribution of a nation's earnings, income and wealth across households is a crucial topic in analyzing the dynamics of the aggregate economy. Understanding the evolving heterogeneity among households at a micro level is essential for evaluating the impacts of various policies and changes in the economic environment. This paper uses data from the National Survey of Family Income and Expenditure (NSFIE) and National Survey of Family Income, Consumption and Wealth (NSFICW) to examine the dynamics of inequality across households in Japan over the past four decades, from 1984 to 2019.

Japan has been considered as one of the developed countries with relatively mild inequality across households and less extreme concentration of wealth in the top tail of the distribution compared to other countries such as the U.S.[1] Studies have, however, documented changes in the trend of inequality across various socioeconomic dimensions and explored potential explanations for the phenomena.[2] Moriguchi (2010) and Moriguchi and Saez (2008) study long-run trends of wage and income inequality using tax return statistics and provide detailed analysis on the dynamics of the concentration in the top tail of the distribution. Lise et al. (2014) survey inequality trends in wage, income and consumption since 1981, using multiple micro databases including the Basic Survey on Wage Structure (BSWS), the Family Income and Expenditure Survey (FIES), the NSFIE and the Japanese Panel Survey of Consumers (JPSC). Unayama and Ohno (2017) use micro data from the NSFIE to construct a household saving data series across different age groups that are consistent with the system of national accounts (SNA). This paper adds to the literature by carefully examining micro data of earnings, income and financial wealth, using a unified database to characterize trends of inequality over the last three decades and present facts that can be explored further with dynamic micro-founded macroeconomic models and be used in economic and policy analysis. Note that the unit of our analysis is household, but we also include analysis based on per-adult equivalent data using the OECD equivalence scale in Appendix B.

Our main findings regarding the trends of inequality across households in Japan can be summarized as follows. First, inequality in household earnings, income and financial wealth increased over the last four decades, from 1984 to 2019. The Gini index of earnings

[1] According to a cross-country analysis of inequality among OECD countries, Japan has the second lowest share of wealth (next to Slovak Republic) held by top 10% (and 5%) wealthiest households (Balestra and Tonkin 2018).

[2] See for example, Ohtake and Saito (1998), Ohtake (2005), Tachibanaki (2005), Oshio (2010) and Moriguchi (2017).

increased from 0.38 in 1984 to 0.56 in 2019. The index rose from 0.32 to 0.36 for income and from 0.58 to 0.67 for wealth over the same period. The ratio of mean to median rose from 1.07 to 1.29 for earnings, from 1.13 to 1.22 for income and from 1.73 to 2.42 for wealth.

Second, the rise in aggregate inequality of earnings and income during the last three decades is largely driven by demographic aging that occurred in the same period. Conditional inequality of earnings and income tends to rise sharply with age and a shift of age distribution toward the elderly increases inequality among the overall population. Ohtake (2005) emphasized the role of aging demographics to account for inequality dynamics between the 1970s and 1990s.[3] We confirm that the trend has continued thereafter. Conditional inequality of earnings and income also increased among working-age households but more mildly than in the aggregate. We also find that income inequality of households above age 65 has declined sharply since the 1980s. This is accounted for by a more comprehensive coverage of the public pension system.

Third, the wealth inequality shows a somewhat different trend from that of earnings and income. Age-conditioned Gini coefficients rose sharply among young and middle-aged (20s to 50s) since the 1980s, even more sharply than in the aggregate. This is mostly due to a rise in the fraction of households who own zero or very low wealth. There has also been an increase in the level of wealth held by households at the top of the distribution, with an increase by more than 100% above the 70th percentile of the distribution since the 1980s, while the level decreased among households below the 20th percentile. Very wealthy households who own, for example, more than 100 million yen are concentrated among the old. The fraction of such wealthy households is very small among the young and middle-aged.

Fourth and lastly, the average levels of earnings and income increased from 1984 until the bubble period of the late 1980s and early 1990s but they have declined since the late 1990s due to an economic slow-down and a shift of the age-distribution to the elderly and retirees. Lifecycle profiles of household earnings and income also shifted downward among people at their prime ages of their 20s to 50s. Average wealth increased from 7.1 million yen in 1984 to 14.1 million yen 2004 and stayed in the range of 12.5-14.4 million yen since then; it does not show a major decline unlike the paths of earnings and income do. This is partly because older people hold a larger amount of wealth and a rise in the population share of the elderly raised the average wealth as demographic aging continued during the

[3] Ohtake and Saito (1998) and Oshio (2006) also study the long-term trend of inequality and effects of population aging and declining household size.

past three decades. At the same time, the lifecycle profile of wealth has not declined as much as those of earnings and income since the end of the bubble period, which appears to be explained partly by cohort effects.[4]

Critical factors that need to be taken into account in evaluating inequality trends in Japan in particular are three-fold. First, ongoing rapid and massive demographic aging is the driving force of the aggregate trend of inequality. Distributional characteristics strikingly differ strikingly across age groups and a shift of weights on different generations gives a rise to dynamic changes in aggregate statistics.

Second, there has been a major change in household structures and characteristics of household members within age groups. The average size of a household monotonically declined from 3.4 members in 1984 to 2.3 in 2019. It not only reflects the demographic aging and a rise in the fraction of elderly households with fewer members, but also a trend of falling marriage rates and fertility rates. At the same time, there has been a major increase in the fraction of households in which a head's spouse works, driven by a rise in female labor force participation across all age groups observed in the last three decades.[5]

Lastly, macroeconomic trends of the last three decades and business cycles that the Japanese economy experienced explain changes in the overall level of earnings, income and wealth observed during the sample period. A rapid and massive increase in the prices of real estate and financial assets contributed to a rise in household earnings, income and wealth in the late 1980s and early 1990s (during the bubble period), but the trend reversed thereafter followed by a decades-long economic slow-down. They affect disposable income of households and form a pattern of inequality not only across time periods but also across cohorts of households who spend their career and a stage of lifecycle to build a stock of wealth under different macroeconomic environments.

Regarding the literature that analyzes the trend of inequality in earnings, income and wealth, similar studies have been conducted in the U.S., including the work of Díaz-Giménez et al. (1997) and series of updates by Budría Rodríguez et al. (2002), Díaz-Giménez et al. (2011) and Kuhn and Ríos-Rull (2016). These studies use the Survey of Consumer Finance (SCF), which is comparable with the NSFIE/NSFICW, and summarize

[4]The rise may well be associated with changes in the level of income not explicitly captured in the survey, such as intergenerational bequests and inter vivos transfers, or possibly an increase in the demand for precautionary savings. A rise in saving rates (and a decline in consumption) could increase wealth despite a fall in the level of earnings as well.

[5]Although there is some limitation in evaluating individual data given that the NSFIE/NSFICW survey is based on household samples, we make an attempt to analyze changes in inequality in individuals' dimensions as well.

facts on the U.S. distributions of earnings, income and wealth of households.[6] Heathcote et al. (2010) study trends in inequality at individual and household levels, combining data from the SCF, the Current Population Survey (CPS), the Panel Study of Income Dynamics (PSID) and the Consumer Expenditure Survey (CEX). More recently, Guvenen et al. (2021) use administrative data of the Social Security Administration (SSA) and investigate the nature of idiosyncratic shocks to labor income of individuals in the U.S.[7]

Detailed analyses of micro data describe facts that call for economic models to explain. Increased availability of micro data helped expand empirical and theoretical analysis of forces behind evolving heterogeneity across individuals and households, which are critical in explaining various trends observed in the aggregate economy.[8] For surveys of macroeconomic models of inequality and distributions, see, for example, Cagetti and De Nardi (2008), Heathcote et al. (2009), Quadrini and Ríos-Rull (2014), De Nardi and Fella (2017), Ahn et al. (2018) and De Nardi et al. (2017).

The structure of the paper is as follows. Section 2 provides a brief overview of the Japanese economy over the past four decades, which corresponds to the data period, with reference to the economic inequalities relevant to this paper. Section 3 presents the details of the micro data used in the analysis and the definitions of the various variables. Section 4 analyses economic inequality in Japan from a time-series dimension and a lifecycle perspectives. Section 5 concludes.

2 Japanese Economy Between 1980 and 2020

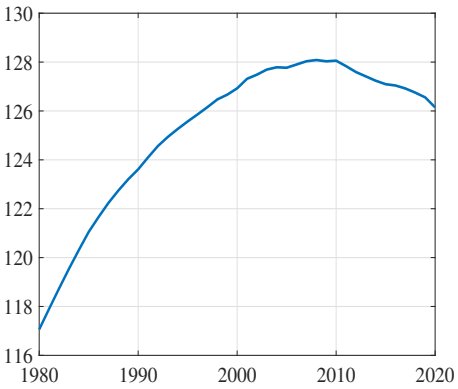
Before we present our data and analysis of household inequality, in this section we describe changes in the economic environment faced by households over the four decades since 1980. We focus on changes in demographics, labor market conditions and macroeconomic indicators.

[6] Kuhn and Ríos-Rull (2016) compare the National Income and Product Accounts (NIPA) and the SCF data to check the representativeness of the SCF. For the comparison between the NSFIE and the System of National Accounts (SNA) in Japan, see Sudo et al. (2012), for example.

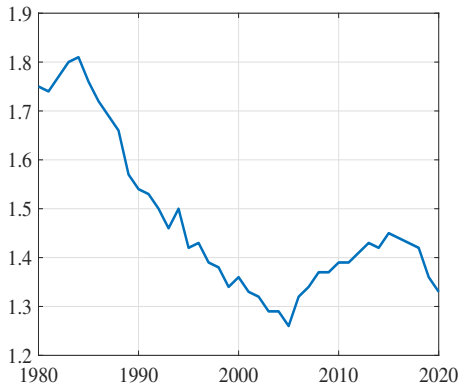
[7] The special issue of the Quantitative Economics in 2022 is a collection of papers on inequality using administrative data across 13 countries, which do not include Japan. See, for example, Guvenen et al. (2022).

[8] The special issue of the Review of Economic Dynamics in 2010, "Cross-Sectional Facts for Macroeconomists" is a collection of empirical papers that investigate distributional facts in different countries. Japan is not included in the issue, but Lise et al. (2014) in a separate issue of the journal analyze inequality trends in Japan.

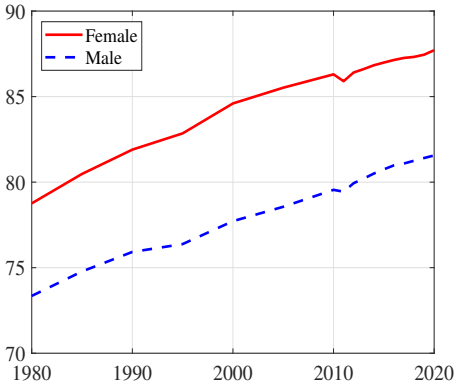
Demographics: One of the major changes that Japan has undergone over the last few decades is a shift in its demographic structure. The increase in population, which began at the start of the Meiji Era in the 1860s, continued until after 2000. The population started to fall in 2008, for the first time since 19th century, as shown in Figure 1a, which is based on the Census data.



(a) Total Population (in mm)



(b) Total Fertility Rate



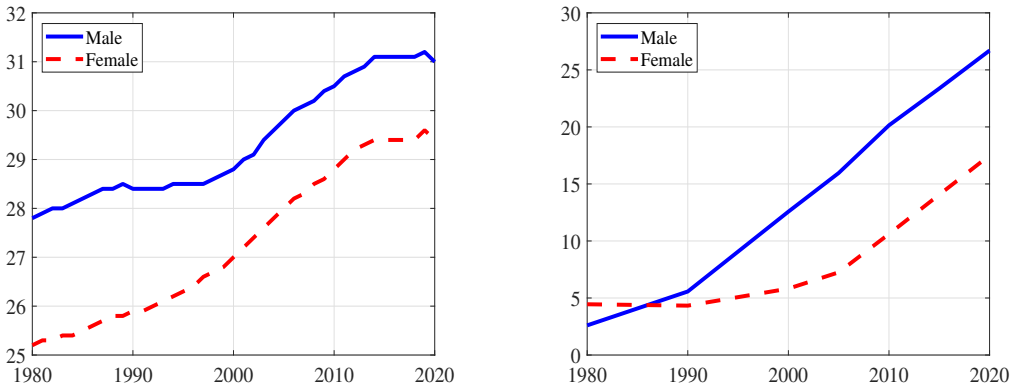
(c) Life Expectancy at Birth

Figure 1: Demographic Transition in Japan

Life-expectancy continued to rise during recent decades as shown in Figure 1c. The longevity trend alone would increase the population. However, fertility rates in Japan have declined sharply since the 1970s, offsetting the positive effects of lower mortality rates. After the first baby boomers born soon after World War II gave birth, which led to the second baby boom, there has not been a major rise in fertility rates that would imply an arrival of a third baby boom. Total fertility rate, which is the total number of children born to a woman in her life time if she were subject to the prevailing rates of age-specific fertility in the population, is shown in Figure 1b. It monotonically declined from the mid

1980s to 2005, when it hit the record low of 1.26 at that time.[9] It recovered slightly after 2005, but started to decline after the mid-2010s. A total fertility rate of about 2.1 children per woman is the replacement-level fertility rate, which according to the United Nations Population Division is necessary to keep the population from decreasing. The Japanese total fertility rate has been well below the replacement rate and has stayed below 1.5 since the early 1990s.

At the same time as fertility rates declined, marriage rates also declined. Based on the Vital Statistics of the Ministry of Health, Labour and Welfare (MHLW), Figure 2a shows the average age of the first marriage for men and women, which rose by about 3 and 4.5 years, respectively. Another major trend in marriage in Japan is a rise in the share of people who have never married. Figure 2b shows that more than a quarter (25%) of men have never married by age 50. The share also rose for women, from less than 5% in the 1980s to about 18% in 2020. The trends of rising share of the elderly population, coupled with declining fertility and marriage rates affect the size of households, the household structure, and households' sources of income, which we will discuss in section 4.

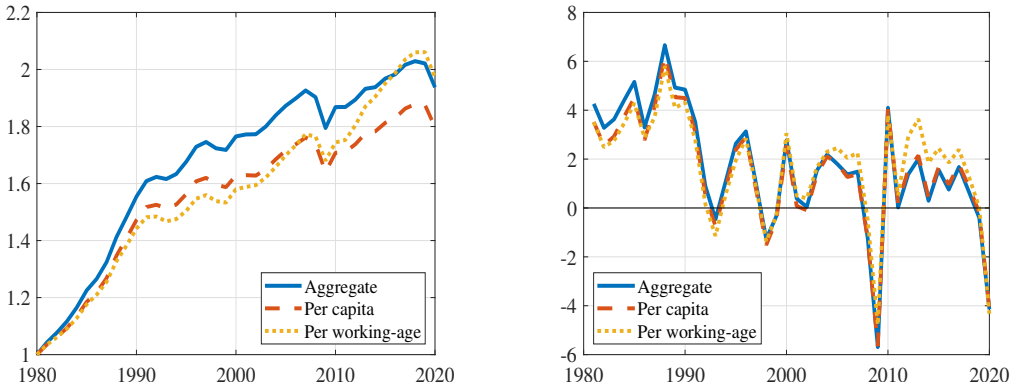


(a) Average Age of First Marriage (b) Never-Married Rate at Age 50 (%)

Figure 2: Trend in Marriage

Macroeconomy: Next, we briefly describe trends of the macroeconomy and labor market in Japan during the past four decades. Figure 3 shows the level of GDP, in aggregate, per capita and per working age (age 20-64), where levels are normalized to those in 1980.

[9]The total fertility rate fell to 1.26 in 2022 and 1.20 in 2023, the lowest on record.



(a) Level (1980=1.0) (b) Growth Rate (%)

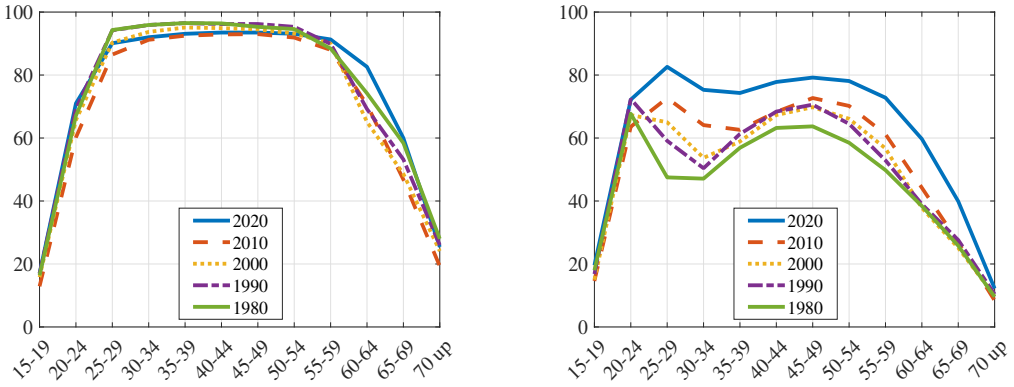
Figure 3: GDP (Aggregate, Per Capita and Per Working-age Population)

Output grew rapidly during the economic boom of the so-called "bubble period" from the late 1980s to early 1990s, driven by a rapid and sharp rise in the price of financial assets and real estate. As shown in the right panel of Figure 3, the GDP growth rate was around 4% and even above 6% in some years during the period. Growth, however, plummets into a negative zone by the early 1990s. The economy had not fully recovered to its pre-bubble level when the financial crisis hit the U.S. economy and spread around the world in 2007. The GDP growth rate has mostly remained below 2% since then. Part of the recent decline in aggregate GDP is associated with the change in the demographic structure and a decline in the size of the working population. Growth rates of GDP per working-age population has typically stood above that of aggregate GDP and GDP per capita.

Labor market: In this section we describe some of the key trends in the labor market in Japan over the last four decades. Figure 4 shows the employment rate, defined as the number of employed individuals divided by population, for men and women across age groups since 1980. The data is based on the Labour Force Survey (LFS) available from the website of the Statistics Bureau. The profiles are inverse U-shaped, rising in the 20s and falling gradually after age 50s. The profile has not changed much for men, though employment rates declined slightly since 1980 among young and middle-aged individuals and employment rates for older men increased since 2000.[10] For women, there has been a significant increase in employment rates across all age groups. They increased most significantly in the group aged 25-29, rising from about 45% in 1980 to above 80% in

[10]See Kitao and Takeda (2024) for a study about the recent trend of older individuals in Japan.

2020. There has also been a large increase in middle and old age groups.



(a) Men (b) Women

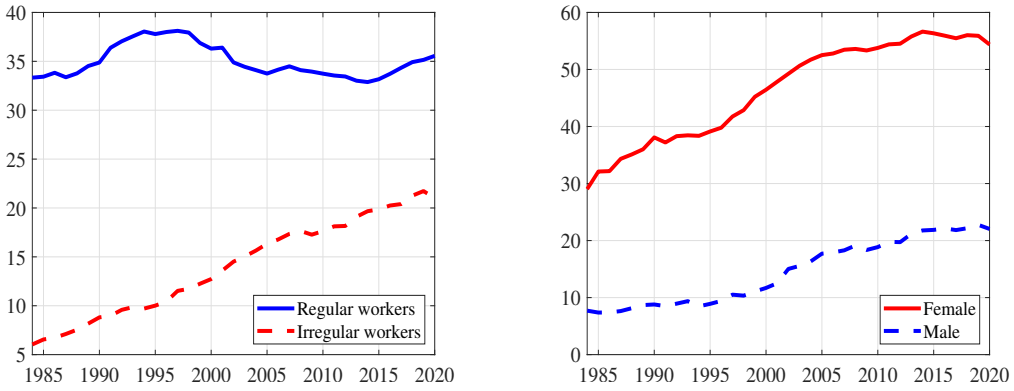
Figure 4: Employment Rate by Age

Over the last four decades, the fraction of workers working as irregular (*hiseiki*) employment rather than as regular (*seiki*) employment has increased. The former consists of contingent workers and part-time workers, who typically receive lower salaries and face less job security than regular workers. They also tend to have a limited coverage under social security programs provided through and subsidized by employers including the public pension as well as health and long-term care insurances.

As shown in Figure 5a, the number of irregular workers increased rapidly after 1985, based on the data of the LFS.[11] The share of irregular workers has been always much higher among women than men as shown in Figure 5b, but the share for men also increased and has, in fact, more than doubled since the late 1990s.[12]

[11] In the LFS, employed workers are asked how they are referred to at the workplace. We define those who report *seiki shokuin* as regular workers and the rest as irregular workers.

[12] The figure shows the fraction of irregular workers among all employed workers.



(a) Number in Millions (b) Share of Irregular Workers (%)

Figure 5: Regular and Irregular Workers

Another trend of the labor market in Japan is a steady decline in the self-employment rate, which fell from about 17% of all workers in 1980 to less than 8% in 2020, as shown in Figure 6, based on the LFS data. The average age of self-employed workers has been rising, and the demographic trend implies a further decrease in the number and fraction of self-employed individuals during coming decades.

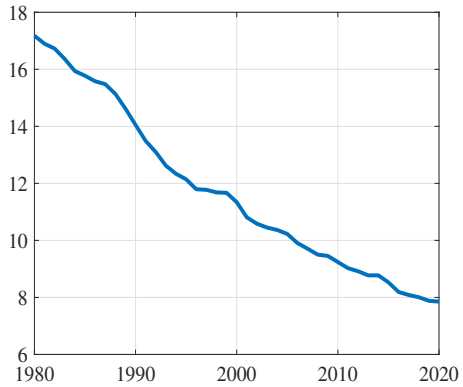


Figure 6: Self-Employment: Share of All Workers (%)

3 Data Source and Definition of Variables

In this section we will first describe in detail our data source, the NSFIE and NSFICW, and their characteristics. We will then present definitions of the key variables of earnings, income and wealth that we compute from the NSFIE/NSFICW survey responses.

All variables are deflated by the consumer price index (all items except fresh food)

using 2020 as the base year. The sample unit of our analysis is households.[13] The household head is identified in the survey as the self-reported "main earner" (*setainushi*) of each household in the database.

3.1 NSFIE/NSFICW Data

The NSFIE/NSFICW is conducted by the Japanese Statistics Bureau of the Ministry of Internal Affairs and Communication (MIC). The survey started in 1959 and has collected data every five years. The survey was significantly revised in 2019 as explained below and was renamed from NSFIE to NSFICW. In this article, we use data from eight survey years which are available upon request from the MIC: 1984, 1989, 1994, 1999, 2004, 2009, 2014 and 2019. We do not top-code or trim the data in any particular dimension and we use all the samples in the analysis with the sample weights, except for a small number of samples with inconsistent and missing data.[14]

The NSFIE/NSFICW collects yearly data on household income and earnings as well as financial and real assets and liabilities. Consumption data are also available, but respondents report expenditures of consecutive three months from September (October in NSFICW) to November only. Therefore they do not represent annual consumption of households and are not directly comparable with annual data of earnings and income that we use in our analysis.[15] The NSFIE/NSFICW is not a panel data of households and cannot be used to analyze households' economic mobility.

The NSFIE/NSFICW has a large sample size, compared to other household surveys, with 55,000 to 60,000 households in each survey year until 2014. In 2014, for example, samples were taken from all 791 cities in Japan as well as 212 out of 929 towns and villages. 4,696 sample districts within cities, towns and villages are chosen and 12 households (11 multiple-member households and 1 single-member household) are surveyed in each district. The NSFIE/NSFICW collects data on one-person households and multiple-person households separately. In 2014, for example, the survey sampled 58,300 households including 4,800 one-person households.

[13]The analysis based on per-adult equivalent data is in Appendix B. We focus on gross financial assets and do not include debt. Therefore, household wealth is bounded below by zero.

[14]The data files contain multiple versions of sample weights for the surveys in 1999-2014. In computing statistics, we use the following weights: "current weight" (*genzai-no-joritsu*) for 1999 and "adjustment coefficients (*chosei-keisu*) for annual earnings" for 2004-2014.

[15]The NSFIE/NSFICW includes both monthly earnings (income) and annual earnings (income). However, since the periods of the monthly earnings (income) are also restricted similarly to consumption expenditures, we focus on annual earnings and income.

In October 2018, the Ministry of Internal Affairs and Communications (MIC) announced that they would increase the number of single-member households three-fold in future surveys starting in 2019, which reflected a recent rise in the number of single-member households in the population. The survey was renamed NSFICW, and in addition to the traditional survey called as "Basic Survey," it now includes "Simplified Survey," which does not include the family account book in the questionnaire. The Simplified Survey was introduced to reduce the burden on sample households.[16]

The sample size of the traditional survey was reduced from 50,000-60,000 households to 40,000 and additional samples of about 44,000 households were added to the Simplified Survey to increase the total number of households. We use the traditional Basic Survey in our analysis so that the survey items in the NSFICW are consistent with those in previous NSFIE surveys.

Other sources of micro household data in Japan include the Family Income and Expenditure Survey (FIES), the Japan Household Panel Survey Data (JHPS, formerly Keio Household Panel Survey; KHPS), the Comprehensive Survey of Living Conditions (CSLC), the Survey on the Redistribution of Income (SRI) and the Japanese Study of Aging and Retirement (JSTAR). The FIES is similar in name to the NSFIE/NSFICW, but the objective of the former is to track a monthly movement of earnings, income and consumption expenditures of households nationwide. The FIES also has information on household wealth, but questions about household wealth were added only after 2002. The sample size of the FIES is about 9,000, significantly smaller than that of the NSFIE/NSFICW, and the small sample size makes the survey less ideal for cross sectional analysis. The KHPS is a panel survey that started in 2004 with 4,000 households and 7,000 individuals and poses a similar issue as the FIES in that the sample size is not large enough for comprehensive cross sectional analysis. The CSLC is a household survey and covers items similar to the NSFIE/NSFICW. About 40,000 households are surveyed with questions about income and saving. Unlike the NSFIE/NSFICW, it does not ask questions about expenditure items. The SRI is focused on household gross income and net income after payment of taxes and receipt of transfers. The JSTAR is a panel data set focused on the elderly population in Japan. The biennial survey started in 2007 and aims to be comparable to the Health and Retirement Survey (HRS) in the U.S. and the Survey of Health, Ageing and Retirement in Europe (SHARE) in Europe.

There are also comprehensive surveys conducted on earnings and employment in

[16]See this document for more details about the NSFICW: https://www.stat.go.jp/english/data/zenkokukakei/pdf/gaiyou_tyousa.pdf.

Japan. The Basic Survey of Wage Structure (BSWS) is an establishment-based survey of earnings of employed workers, which surveys about 78,000 establishments that hire at least five individuals and provides detailed information about employees and their wages. The BSWS does not cover individuals working at small firms or self-employed individuals. The Employment Status Survey (ESS) is a survey of households focused on employment status. Unlike the NSFIE/NSFICW, these surveys do not have information about non-wage income or wealth and do not allow researchers to compute joint distributions of earnings, income and wealth.

There are several issues about the NSFIE/NSFICW that should be kept in mind. First, unlike the PSID in the U.S. or JHPS/KHPS in Japan, the survey is not a panel and does not follow the same households over time. Therefore it is not designed to study mobility of households across earnings, income and wealth groups over time. Second, there is no survey question about educational background or skills of household members. For employed household heads or spouses, there is no information about the type of employers or occupations. Therefore distributional analysis based on such dimensions is not possible.

Third, the unit of the survey is a household. Sample households provide detailed information about household earnings, income and wealth, as well as information about earnings and income of household heads and their spouses, respectively. Earnings and incomes, however, earned by the rest of the household members are lumped together. Therefore the survey is not an ideal data source for an analysis of earnings and income of individuals.

Fourth, as mentioned above, although the NSFIE/NSFICW collects information on household consumption, the survey is conducted in three autumn months of the year, September, October and November (only October and November for one-person households and NSFICW) and focuses on expenditures in these months. Consumption typically has strong seasonal fluctuations with much spending occurring at the end and beginning of the year as well as around the beginning of a Japanese fiscal year in April. Missing expenditures in these important months, the survey is not suitable for analysis of annual consumption. Therefore we do not study the consumption data in this paper.[17]

Fifth, the survey excludes some samples with particular characteristics. For example, it does not include households operating restaurants and inns on the same premise as

[17]See Unayama and Ohno (2017) for more on the consumption data of the NSFIE. They make attempts to impute annual consumption of households based on the NSFIE expenditure data and characteristics of each household, also using the Household Consumption Survey (HCS). See also Kitao and Yamada (2024b) for a study of consumption trends in Japan using the FIES data.

their residence or households of foreigners. Also excluded are various types of one-person households: persons under 15 years of age, students and institutionalized individuals in prisons, reform institutions and hospitals, etc.[18]

3.2 Definition of Earnings, Income and Wealth

In this section we present the definition of the three variables analyzed in the paper; earnings, income and wealth, which are each computed for households based on the NSFIE/NSFICW data.

The survey collects information on earnings and income, respectively, in three categories: (i) household head, (ii) head's spouse and (iii) the rest of household members summed together. After 1994, the sum of other household members' data is divided into total earnings (and income) of household members below and at-and-above age 65. In computing household statistics, we sum up the numbers of all household members in these three categories. We also compute per adult equivalized values using the OECD scale and the results are provided in Appendix B.

Total income of a household consists of five sources of income: pre-tax labor income, capital income, business income, transfers and other income. Labor income includes annual earnings from a main job and other jobs that each household member holds. Capital income is a sum of annual interest and dividend income earned on assets including deposits, stocks, bonds and insurance, and income from renting real estate and land.[19] Business income includes income earned from agriculture, forestry and fisheries and other businesses. Transfer income is the sum of public pension and survivors' benefits, corporate pension and individual pension payments and remittances from family members. Other income includes annual income from other sources such as child-care benefits from the government, in-kind consumption and in-kind benefits provided by employers.

Our definition of income is the sum of all the five items. Earnings are defined as the sum of labor income and business income. Although presumably small, it is possible that some part of business income is earned not by the means of labor but in other ways such as investment, which by definition should be included in capital income. Kuhn and Ríos-Rull (2016), for example, impute a fraction of business income included in earnings as 86 to 93 percent, using the SCF data. We include all business income in the definition

[18]For more details about excluded households, see http://www.stat.go.jp/english/data/zensho/2009/cgaiyo.html.

[19]Capital gains from sales of financial assets such as stocks are not included in capital income. Income from capital gains is not explicitly included in the survey questionnaire.

of earnings, but assigning some fraction to other sources of income such as capital income would not affect the analysis in a significant way because business income is relatively small in Japan and much less than in the U.S., for example, as reported by Kuhn and Ríos-Rull (2016).

Household wealth is computed as the sum of financial assets. Our definition of wealth does not include real assets such as housing and land.[20] Financial assets consist of bank deposits, corporate and government bonds, stocks, trusted assets (in loans, stocks, bonds and cash), cumulated payments for life insurance and casualty insurance and other types of deposits.

3.3 Summary Statistics

Table 1 reports summary statistics for our NSFIE/NSFICW data. Our analysis is based on eight surveys, every five years from 1984 to 2019. The sample size in each year ranges from 55,000 to 60,000 households between 1984 and 2014 and 42,000 in 2019. The weighted share of one-person households increased from 17.9% in 1984 to 35.3% in 2019. The average size of households monotonically declined over the three decades, falling from 3.35 members in 1984 to 2.28 in 2019, reflecting the decline in marriage and fertility rates during the past four decades since the 1970s and an increase in the number of retirees, who are more likely to live in a household with fewer members.

[20]The information on real assets is available only after 1994.

Table 1: Summary Statistics

Year	1984	1989	1994	1999	2004	2009	2014	2019
Sample size								
Total	55,026	60,187	60,791	60,738	60,059	57,059	56,422	41,807
$\geq$ 2 HH members	50,967	56,075	56,069	55,723	55,056	52,716	51,768	33,021
One-person HH	4,059	4,112	4,722	5,015	5,003	4,343	4,654	8,786
% of one-person HH (weighted)	17.9%	19.1%	20.4%	26.8%	25.8%	28.2%	30.1%	35.3%
Demography								
Average HH size	3.350	3.242	3.060	2.759	2.675	2.534	2.414	2.282
Age of HH head	45.5	47.8	49.7	50.9	54.7	56.8	59.8	56.6
% of HH head aged $\geq$ 65	9.9%	13.5%	18.0%	21.9%	30.5%	35.6%	44.8%	37.9%
Marital status of HH head								
Married	77.5%	76.5%	74.3%	67.5%	67.6%	64.4%	61.6%	55.9%
Single	22.5%	23.5%	25.7%	32.5%	32.4%	35.6%	38.4%	44.1%
Female HH head								
% of female HH head	12.7%	16.1%	18.3%	18.5%	23.2%	26.1%	27.9%	24.4%
aged $\leq$ 64	9.8%	11.3%	11.7%	11.8%	12.2%	12.6%	10.6%	13.6%
aged $\geq$ 65	2.9%	4.8%	6.5%	6.7%	11.0%	13.5%	17.3%	10.8%
Workers in HH								
Average # of workers	1.545	1.486	1.452	1.313	1.231	1.169	1.102	1.196
Whether spouse works	45.6%	44.4%	46.0%	43.9%	43.5%	45.1%	46.0%	52.5%
# of workers $\geq$ 3	12.9%	12.7%	12.8%	10.1%	9.4%	8.3%	7.5%	7.3%
Employment status of HH head								
Employee	63.8%	63.6%	64.0%	61.8%	54.0%	51.5%	47.7%	54.7%
Self-employed	27.5%	23.4%	19.2%	16.4%	16.4%	15.4%	13.8%	11.8%
Not working	8.7%	12.9%	16.8%	21.8%	29.5%	33.1%	38.4%	33.4%
Not working (aged $\leq$ 64)	3.9%	5.2%	5.0%	6.5%	6.6%	6.8%	5.0%	6.1%

The fraction of married household heads has declined from 77.5% in 1984 to 55.9% in 2019. During the same period, marriage rates declined sharply as also discussed in section 2. The number of workers in each household has declined since the 1980s, driven by a rise in the number of retirees.

The fraction of households with a female head increased over time, from 12.7% in 1984 to 24.4% in 2019, as shown in the middle section of Table 1. The rise is accounted for by an increase in the number of households headed by elderly women aged 65 and above.

Table 1 also reports the distribution of employment status, which is based on the occupation indicator (*shokugyo fugo*) assigned to household heads. Employees include employed workers in both private and public sectors, and both regular and irregular workers. Self-employed workers include merchants and craftsmen, firm owners, workers in agriculture, forestry and fishery sectors, corporate managers, and freelance workers.

Figure 7 plots the age distribution of household head counts in our NSFIE/NSFICW dataset in 1984, 1994, 2004 and 2019. In 1984, the peak of the age distribution of our

household samples is in their late 30s, which consists of the first baby boom generation born immediately after World War II. By 2019, most baby boomers are in their early 70s. The second baby boomers, born in the early 1970s, are in their 20s in the 1990s and should have started working, though not all will appear immediately in our samples as household heads. The rise in the number of households headed by this generation starts to be seen in 2004. The 2019 added more single-member households, which is reflected in a larger share of households headed by older individuals.

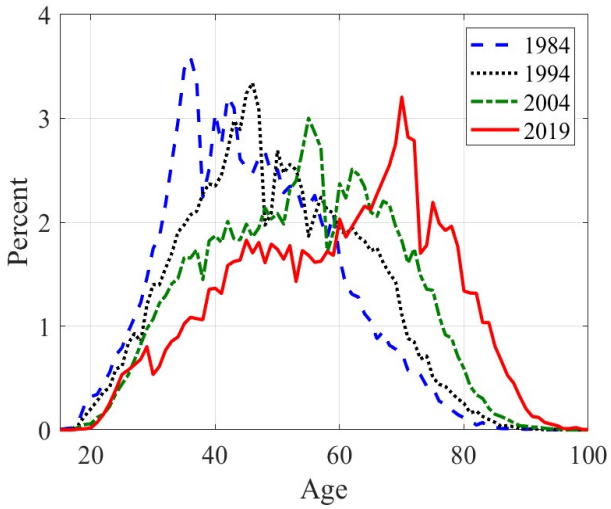


Figure 7: Age Distribution of Household Heads in the NSFIE/NSFICW

4 Analysis

4.1 Summary of Inequality: 1984-2019

Tables 2 to 4 show summary statistics for the three variables of our interest: earnings, income and wealth, respectively, for the eight survey years. As shown in Table 2, average earnings increased from 1984 to 1994 and have declined monotonically since then, until it recovered in 2019.[21] The path of average income shows a similar trend as shown in

[21]Part of the decline in earnings and income is due to the changing size of households. However, even after adjusting earnings and income by the number of household members, they still decline between 1994 and 2014. GDP per capita during the same period increased, except for the period between 2004 and 2009. Since GDP covers more items including corporate income and the labor share changes overtime, GDP per capita does not necessarily move with the household variables we study here. Investigating factors that account for the difference between the movement of the two series would be important, which we leave for future research.

Table 3. The rise in the 1980s and the early 1990s reflects growth of the economy during the bubble period as discussed in section 2. The decline after the 1990s is driven by both a change in demographic composition and a slow-down of the macroeconomy. Average wealth, as shown in Table 4, increased from 7.1 million yen in 1984 to 14.1 million in 2004 and stayed in the range of 12.5 to 14.4 million yen thereafter.

The range of Gini coefficients of earnings is 0.38-0.63. It is lower for income at 0.32-0.37 and higher for wealth at 0.58-0.67. The Gini coefficient of earnings monotonically rose from 0.38 in 1984 to 0.63 in 2014, falling to 0.56 in 2019. Income Gini rose from 0.32 in 1984 to 0.37 in 2014 but has remained in a relatively small range during the sample period. Wealth Gini has also increased though less mildly than that of earnings, from 0.58 in 1984 to 0.67 in 2019. The ratio of mean to median wealth also increased from 1.73 in 1984 to 2.42 in 2019.

It is noteworthy that between 2014 and 2019, there was an increase in the mean of earnings and a slight decrease in the Gini coefficient. This trend was also observed by Kitao and Yamada (2024a), which used the Family Income and Expenditure Survey (FIES), and, similarly to the present study, the unit of analysis is household earnings/income. The fact that both the NSFIE/NSFICW and FIES data sets show this trend suggests that inequality in fact narrowed, albeit slowly, in the second half of the 2010s.

As shown in the bottom rows of Tables 2 and 3, the three variables are positively correlated with each other. The correlation between earnings and income is high and stayed in the range of 0.80-0.89. The correlation between earnings and wealth fell from 0.33 in 1984 to 0.13 in 2019. The fall, however, is driven by an increase in the number of retired households and the correlations among households aged 25-59 have not declined as much, as shown in the last two rows of Table 2.

Table 2: Summary of Earnings Inequality

(Earnings in JPY1,000)

Year	1984	1989	1994	1999	2004	2009	2014	2019
Mean	5,109.8	5,600.8	5,856.7	5,195.7	4,398.3	3,829.2	3,391.8	3,944.4
Median	4,768.9	5,178.4	5,375.0	4,653.1	3,664.9	2,764.4	1,866.7	3,050.0
Concentration								
Gini index	0.381	0.425	0.448	0.482	0.550	0.588	0.627	0.559
Coefficient of variation	0.749	0.845	0.890	0.929	1.088	1.161	1.287	1.105
Ratio of top 1% to median	3.444	3.770	3.876	4.101	5.000	6.223	8.973	5.902
Ratio of top 10% to median	1.980	2.109	2.176	2.353	2.783	3.409	4.731	3.049
Skewness								
Skewness	3.124	3.305	4.455	2.882	2.900	2.756	3.048	2.254
Ratio of mean to median	1.071	1.082	1.090	1.117	1.200	1.385	1.817	1.293
Percentiles								
10%	122	0	0	0	0	0	0	0
20%	2,190	1,623	969	0	0	0	0	0
40%	4,015	4,223	4,292	3,571	2,136	1,120	308	1,930
60%	5,474	6,099	6,458	5,765	4,963	4,188	3,446	4,160
80%	7,494	8,631	9,271	8,643	7,843	7,173	6,646	6,960
90%	9,440	10,921	11,698	10,949	10,199	9,424	8,831	9,300
95%	11,387	13,119	14,083	13,367	12,565	11,686	11,077	11,600
99%	16,423	19,522	20,833	19,082	18,325	17,204	16,749	18,000
Age Group								
≤ 34	4,018	4,325	4,666	4,356	4,382	4,223	4,319	4,119
35-49	6,040	6,784	7,341	7,019	6,497	6,078	5,866	5,837
50-64	5,763	6,515	7,208	6,553	5,878	5,291	5,244	5,984
≥ 65	2,185	2,002	1,771	1,471	1,125	928	942	1,375
Correlation								
Earnings and income	0.885	0.848	0.867	0.854	0.840	0.808	0.835	0.871
Earnings and wealth	0.331	0.218	0.208	0.167	0.148	0.115	0.120	0.128
Earnings & income (aged 25-59)	0.893	0.886	0.894	0.872	0.853	0.848	0.865	0.919
Earnings & wealth (aged 25-59)	0.382	0.337	0.335	0.366	0.343	0.342	0.346	0.302

Table 3: Summary of Income Inequality

(Income in JPY1,000)

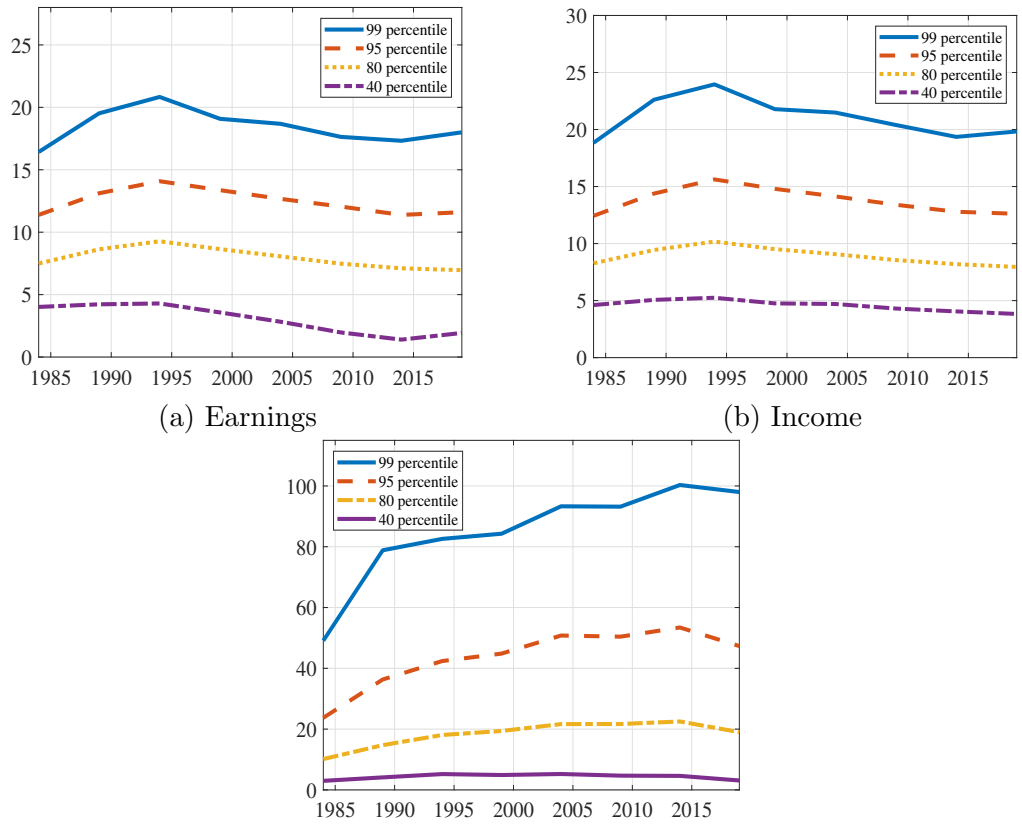
Year	1984	1989	1994	1999	2004	2009	2014	2019
Mean	5,994.8	6,795.5	7,203.1	6,662.6	6,208.9	5,762.2	5,376.6	5,544.6
Median	5,316.3	5,868.8	6,250.0	5,663.3	5,235.6	4,795.8	4,400.0	4,550.0
Concentration								
Gini index	0.319	0.337	0.345	0.350	0.356	0.362	0.370	0.359
Coefficient of variation	0.659	0.750	0.737	0.722	0.757	0.755	0.783	0.744
Ratio of top 1% to median	3.542	3.853	3.833	3.847	4.000	4.127	4.312	4.358
Ratio of top 10% to median	1.952	2.025	2.050	2.133	2.160	2.205	2.289	2.237
Skewness								
Skewness	4.093	12.781	5.769	4.009	4.677	4.529	4.414	3.059
Ratio of mean to median	1.128	1.158	1.153	1.176	1.186	1.202	1.222	1.219
Percentiles								
10%	2,190	2,301	2,292	2,092	1,958	1,749	1,662	1,800
20%	3,102	3,383	3,417	3,122	2,869	2,565	2,328	2,530
40%	4,611	5,063	5,250	4,755	4,387	4,042	3,651	3,830
60%	6,083	6,904	7,292	6,704	6,188	5,728	5,282	5,420
80%	8,273	9,436	10,177	9,510	8,838	8,346	7,774	7,950
90%	10,377	11,887	12,813	12,082	11,309	10,576	10,072	10,180
95%	12,433	14,384	15,625	14,796	13,927	13,089	12,379	12,610
99%	18,832	22,612	23,958	21,786	20,942	19,791	18,974	19,830
Age Group								
≤ 34	4,299	4,679	4,962	4,603	4,666	4,726	4,857	4,483
35-49	6,654	7,540	8,123	7,772	7,336	6,935	6,781	6,473
50-64	7,050	8,095	8,715	8,144	7,596	6,957	6,765	7,057
≥ 65	4,453	4,732	4,891	4,671	4,446	4,200	3,929	4,366
Correlation								
Income & wealth	0.484	0.340	0.341	0.341	0.317	0.286	0.284	0.269
Income & wealth (aged 25-59)	0.487	0.437	0.381	0.425	0.397	0.391	0.394	0.337

Table 4: Summary of Financial Wealth Inequality

(Financial wealth in JPY1,000)

Year	1984	1989	1994	1999	2004	2009	2014	2019
Mean	7,052.6	10,730.9	12,412.6	12,761.2	14,149.3	13,577.5	14,351.6	12,481.0
Median	4,075.4	5,638.7	7,052.1	6,989.8	7,445.0	6,806.3	6,841.0	5,150.0
Concentration								
Gini index	0.577	0.614	0.584	0.600	0.609	0.629	0.642	0.671
Coefficient of variation	1.442	2.006	1.486	1.447	1.420	1.483	1.553	1.832
Ratio of top 1% to median	12.048	13.982	11.710	12.058	12.522	13.631	15.016	19.029
Ratio of top 10% to median	3.958	4.306	4.165	4.460	4.833	5.171	5.397	6.245
Skewness								
Skewness	5.155	14.800	8.556	4.870	4.142	5.118	5.018	8.309
Ratio of mean to median	1.731	1.903	1.760	1.826	1.901	1.995	2.098	2.423
Percentiles								
10%	414	345	521	306	63	0	0	0
20%	1,217	1,496	1,979	1,531	1,382	838	677	450
40%	2,981	4,120	5,208	4,898	5,236	4,482	4,410	3,100
60%	5,474	7,560	9,375	9,510	10,513	10,000	10,256	8,000
80%	10,146	14,730	18,073	19,388	21,822	21,466	22,533	19,000
90%	16,131	24,281	29,375	31,173	35,979	35,194	36,923	32,160
95%	23,723	36,329	42,385	44,847	51,099	50,052	53,703	47,330
99%	49,100	78,838	82,583	84,286	93,225	92,775	102,728	98,000
Age Group								
≤ 34	3,017	3,689	4,065	3,561	3,730	3,824	3,979	3,426
35-49	6,627	9,060	10,109	9,770	9,503	8,733	8,133	8,164
50-64	10,265	14,779	16,185	16,451	17,298	16,060	16,589	15,536
≥ 65	9,346	16,140	18,005	18,656	18,836	17,271	17,422	16,441

Figure 8 plots the levels of earnings, income and wealth at different percentiles. Income and earnings exhibit a rise during the bubble period of the late 1980s and early 1990s, but the change is mostly visible among households at higher percentiles. Earnings at the 40th percentile decline after 1999, partly due to demographic aging and a rise in the number of retirees. The wealth level increased at the upper percentiles of the distribution and a major growth is observed at the very top of the distribution.



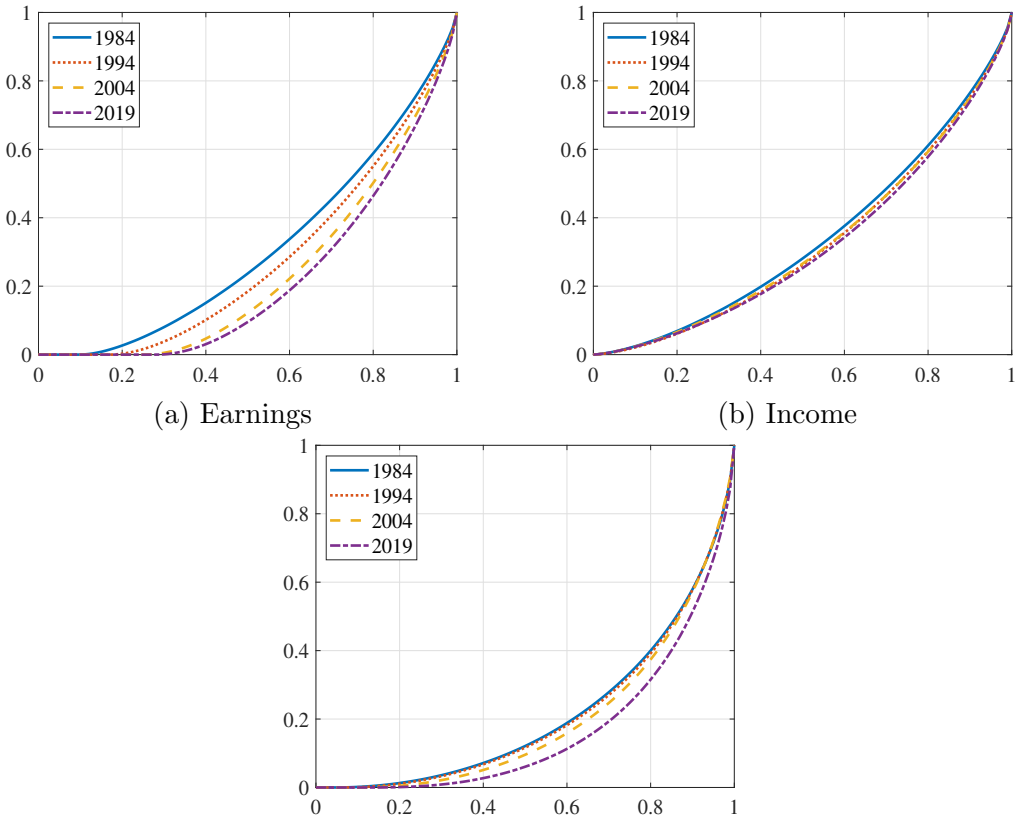
(a) Earnings

(b) Income

(c) Financial Wealth

Figure 8: Earnings, Income and Financial Wealth at Different Percentiles (JPY mm)

Lorenz curves for the distribution of earnings, income and wealth are shown in Figure 9. Consistent with the increase in Gini coefficients discussed above, the curves shifted to the right in all three variables. The Lorenz curves for wealth are closer to the horizontal axis compared to earnings and income, as wealth is more unequally distributed and concentrated at the top.



(a) Earnings

(b) Income

(c) Financial Wealth

Figure 9: Trends in Lorenz Curves

4.2 Rich and Poor: Households Ranked by Percentiles

Tables 5 to 10 show more detailed inequality statistics in 1984 and 2019, in which we group household samples according to the quintiles as well as the top percentiles of earnings, income and wealth, respectively.[22]

As shown in Tables 5 and 6, households in the top earnings quintile earn 2.1 to 2.7 times the average and the top 1% earn 4.5 to 6.3 times the average. The tables also report the decomposition of the sources of income for households in each earnings quintile. As mentioned in section 3.1, some households fail to report the breakdown of their total income and these households are excluded in the computation of the sources of income in all tables. Households with low earnings have a large fraction of their income from transfers. For example in 2019, they earn 94% of income from transfers, while those

[22]Due to space limitations, the paper only presents data for 1984 and 2019. Similar tables for other years are available on the author's website: https://tomoakiyamada.github.io/publication/

in the highest quintile receive only 3.0% of income from transfers. The share of capital income is high at the top percentiles and it is 16% among households at the top 1% in 2019, for example. The average share of capital income has decreased since 1980s, reflecting a fall in returns from financial assets including interest income.

Income is less concentrated than earnings. Households in the highest quintile receive 1.9 to 2.1 times the average income. The top 1% receive 4.4 to 5.0 times the average. The average income of the top quintile increased during the bubble period but declined thereafter, reaching 11.7 million yen in 2019, the same level as in 1984. The average age of households in the top 20% of income increased from below 50 in 1984 to 54.1 in 2019. The majority of households in the lowest income quintile are one-person households in 2019.

The share of income earned by households in the bottom 20% has not changed much; it's stayed in the range between 6 and 7%. The share of the top 20% increased from less than 39% in 1984 to 42% in 2019. The share of the top 1% increased slightly but remained almost unchanged, in the narrow range of 4.4% and 5.0%.

Wealth is much more concentrated at the top tail than earnings and income, as already implied by statistics such as the higher mean-to-median ratios in Table 4. Those in the highest quintile hold 3.0 to 3.4 times the average wealth and the top 1% own 10.2 to 12.7 times the average. The average age is increasing in wealth quintile, except for the bottom quintile of wealth in 2019. The fraction of married household heads also increases in wealth quintile.

Comparison to the U.S. and Other Countries: In the U.S., the income grew the fastest among top earners since the late 1980s until the financial crisis of 2007-2008 (Kuhn and Ríos-Rull 2016), while the share of the top earners in Japan remained almost unchanged during the post-bubble period. The finding is consistent with Moriguchi and Saez (2008) and Moriguchi (2017), who compared historical concentration of income at the top tail of the distribution and emphasized different experience between the U.S. and Japan during the past decades, due to factors such as the compensation scheme of extremely high executive bonuses in the U.S.[23]

[23] Moriguchi (2017) studies the long-term trend of income inequality in Japan and presents detailed analysis of not only the top tail but also the bottom tail of the income distribution. She argues that rising income inequality since 1980s in Japan is characterized by rising relative poverty and further impoverishment of low-income households, concentrated among those headed by the elderly, single mothers, irregular workers and individuals not in the labor force. As discussed below, our finding that rising wealth inequality is explained not only by demographic aging but also by a rise in the relative size of households with zero or little wealth is in line with her findings that the poor has become even poorer during the

Wealth is highly concentrated at the top in Japan, but the degree of concentration is milder than in many other developed countries. As shown in Tables 9 and 10, the wealthiest 1% held 10.3% and 12.7% of the entire wealth in 1984 and 2019, respectively. According to a study of wealth distribution across OECD countries by Balestra and Tonkin (2018), the top 1% households own 42.5% of the total wealth in the U.S., 23.7% in Germany, 18.6% in France, and 20.5% in U.K. Some other countries have lower concentration, such as Australia at 15.0%, Italy at 11.7% and Greece at 9.2% but the majority of OECD countries with reported statistics show higher concentration at the top 1% than in Japan.

Table 5: Households Ranked by Earnings in 1984

	Households in Earnings Quintiles					Top Percentiles			Total
	1st	2nd	3rd	4th	5th	10-5%	5-1%	1%	Sample
Mean (JPY1,000)	683	3,200	4,777	6,421	10,522	10,277	13,068	22,895	5,110
Ratio to all avg	0.134	0.626	0.935	1.257	2.059	2.011	2.557	4.481	1.000
Share of Total Sample (%)									
Earnings	2.7	12.7	18.7	24.8	41.2	10.1	10.2	4.6	100.0
Income	9.8	12.4	17.3	22.8	37.6	9.2	9.3	4.2	100.0
Wealth	16.3	11.6	15.6	20.3	36.2	8.6	9.6	4.3	100.0
Sources of Income (%, Share of Each Group's Income)									
Labor	27.0	71.3	76.1	78.9	78.7	78.7	77.2	59.0	67.2
Capital	10.0	19.9	17.9	15.7	15.9	16.1	17.4	34.2	16.0
Business	7.9	1.8	1.7	2.0	2.6	2.6	3.2	4.7	3.1
Transfers	47.2	5.2	3.1	2.4	2.0	1.7	1.5	1.4	11.2
Others	7.9	1.8	1.2	1.0	0.8	0.8	0.7	0.7	2.4
Age of Household Head (%, Share of Each Group's Sample)									
≤ 34	17.6	47.2	31.1	14.1	6.2	3.8	3.0	3.1	23.3
35-49	15.6	27.8	47.6	57.9	48.2	49.8	40.0	33.6	39.3
50-64	33.0	19.7	17.8	25.0	41.6	42.7	52.1	55.0	27.4
≥ 65	33.8	5.3	3.5	3.0	4.0	3.7	4.9	8.2	9.9
Average age	54.4	39.2	41.1	44.3	48.4	48.6	50.7	52.4	45.5
Household Structure (%, Share of Each Group's Sample)									
Married Head	49.3	62.5	86.2	93.5	96.3	95.9	97.6	97.6	77.5
One-person household	41.8	31.7	10.1	3.6	1.7	2.4	0.9	0.6	17.9
Average HH Size	2.12	2.81	3.69	3.98	4.17	4.20	4.25	4.31	3.35

last few decades, contributing to a rise in overall inequality.

Table 6: Households Ranked by Earnings in 2019

	Households in Earnings Quintiles					Top Percentiles			Total
	1st	2nd	3rd	4th	5th	10-5%	5-1%	1%	Sample
Mean (JPY1,000)	0	1,024	3,103	5,445	10,579	10,282	13,756	24,683	3,944
Ratio to all avg	0.000	0.260	0.787	1.380	2.682	2.607	3.488	6.258	1.000
Share of Total Sample (%)									
Earnings	0.0	3.1	15.7	27.6	53.6	13.1	13.9	6.4	100.0
Income	16.8	6.3	14.5	22.0	40.4	9.9	10.4	4.8	100.0
Wealth	33.1	10.5	12.4	15.5	28.4	6.3	8.2	3.6	100.0
Sources of Income (%, Share of Each Group's Income)									
Labor	0.0	39.1	75.5	85.6	88.4	89.2	88.6	80.7	58.8
Capital	0.0	6.7	8.9	7.0	7.3	6.7	7.7	15.9	5.8
Business	5.3	3.1	1.5	1.1	1.1	1.0	1.2	1.5	2.4
Transfers	94.0	50.1	13.6	5.9	3.0	3.0	2.5	1.8	32.4
Others	0.8	1.0	0.5	0.4	0.1	0.1	0.1	0.1	0.5
Age of Household Head (%, Share of Each Group's Sample)									
≤ 34	2.9	9.5	29.8	22.2	7.1	5.9	3.4	1.7	13.8
35-49	6.1	12.0	23.8	39.1	39.0	38.7	32.2	21.0	23.5
50-64	10.7	21.2	24.2	27.1	45.2	46.3	55.4	60.7	24.8
≥ 65	80.3	57.3	22.2	11.7	8.7	9.1	9.0	16.5	37.9
Average age	71.8	61.5	48.2	46.8	50.7	51.2	52.7	56.0	56.6
Household Structure (%, Share of Each Group's Sample)									
Married Head	47.5	41.6	38.3	64.0	85.7	85.3	93.9	90.1	55.9
One-person household	44.1	43.3	49.6	28.8	10.3	10.7	3.2	6.2	35.3
Average HH Size	1.82	1.84	1.94	2.63	3.19	3.22	3.43	3.27	2.28

Table 7: Households Ranked by Income in 1984

	Households in Income Quintiles					Top Percentiles			Total
	1st	2nd	3rd	4th	5th	10-5%	5-1%	1%	Sample
Mean (JPY1,000)	2,069	3,879	5,347	7,082	11,676	11,286	14,526	26,542	5,995
Ratio to all avg	0.345	0.647	0.892	1.181	1.948	1.883	2.423	4.427	1.000
Share of Total Sample (%)									
Earnings	5.5	12.7	18.9	23.7	39.3	9.6	9.7	4.2	100.0
Income	6.9	12.9	18.4	23.0	38.8	9.5	9.7	4.4	100.0
Wealth	8.5	12.5	17.0	21.3	40.6	9.8	11.2	5.1	100.0
Sources of Income (%, Share of Each Group's Income)									
Labor	47.9	68.0	72.8	75.4	72.3	72.5	69.3	49.0	67.2
Capital	14.3	17.5	17.4	14.7	16.0	15.4	17.1	32.8	16.0
Business	3.2	2.3	2.2	2.8	5.0	4.8	7.5	13.1	3.1
Transfers	29.3	10.0	5.9	5.5	5.1	5.8	4.6	2.8	11.2
Others	5.3	2.1	1.6	1.6	1.5	1.5	1.5	2.3	2.4
Age of Household Head (%, Share of Each Group's Sample)									
≤ 34	34.4	41.2	23.4	12.0	5.2	3.9	3.0	2.2	23.3
35-49	15.7	31.5	50.5	54.8	44.4	44.2	35.3	32.1	39.3
50-64	25.6	19.0	20.8	28.2	43.9	45.4	54.0	53.0	27.4
≥ 65	24.4	8.3	5.4	5.0	6.5	6.4	7.7	12.7	9.9
Average age	47.4	41.4	43.2	45.8	49.6	49.9	51.9	53.5	45.5
Household Structure (%, Share of Each Group's Sample)									
Married Head	37.1	72.7	89.0	93.2	95.6	96.8	96.1	97.6	77.5
One-person household	55.2	22.1	7.0	3.2	1.7	0.6	1.3	0.6	17.9
Average HH Size	1.90	2.99	3.69	3.96	4.22	4.27	4.30	4.38	3.35

Table 8: Households Ranked by Income in 2019

	Households in Income Quintiles					Top Percentiles			Total
	1st	2nd	3rd	4th	5th	10-5%	5-1%	1%	Sample
Mean (JPY1,000)	1,732	3,190	4,588	6,543	11,692	11,245	15,046	27,762	5,545
Ratio to all avg	0.312	0.575	0.827	1.180	2.109	2.028	2.714	5.007	1.000
Share of Total Sample (%)									
Earnings	2.8	7.6	14.8	24.8	49.9	12.2	13.3	5.8	100.0
Income	6.3	11.5	16.5	23.6	42.2	10.1	10.9	5.0	100.0
Wealth	12.2	17.0	17.1	19.2	34.5	7.8	9.6	4.1	100.0
Sources of Income (%, Share of Each Group's Income)									
Labor	28.0	45.4	62.0	75.9	81.0	81.7	80.7	67.4	58.8
Capital	3.9	4.8	6.6	6.4	7.2	6.8	8.4	16.2	5.8
Business	2.3	2.0	2.0	2.4	3.3	3.2	4.1	11.7	2.4
Transfers	65.0	47.4	28.9	14.8	8.1	7.9	6.5	4.4	32.4
Others	0.7	0.5	0.4	0.6	0.4	0.4	0.4	0.2	0.5
Age of Household Head (%, Share of Each Group's Sample)									
≤ 34	11.7	18.8	20.8	12.0	5.5	5.0	2.6	0.0	13.8
35-49	11.8	14.8	23.2	36.0	31.8	32.6	24.2	18.8	23.5
50-64	17.9	15.7	19.7	27.7	43.0	42.9	53.1	49.3	24.8
≥ 65	58.6	50.7	36.3	24.2	19.7	19.5	20.1	31.9	37.9
Average age	63.7	58.9	54.1	52.4	54.1	54.2	55.9	59.8	56.6
Household Structure (%, Share of Each Group's Sample)									
Married Head	14.7	46.1	59.2	74.5	85.4	86.5	92.0	85.3	55.9
One-person household	74.5	44.3	30.9	17.5	8.9	8.0	3.3	7.4	35.3
Average HH Size	1.34	1.81	2.26	2.79	3.21	3.30	3.49	3.31	2.28

Table 9: Households Ranked by Financial Wealth in 1984

	Households in Wealth Quintiles					Top Percentiles			Total
	1st	2nd	3rd	4th	5th	10-5%	5-1%	1%	Sample
Mean (JPY1,000)	476	2,088	4,142	7,477	21,173	19,310	31,954	72,280	7,053
Ratio to all avg	0.067	0.296	0.587	1.060	3.002	2.738	4.531	10.249	1.000
Share of Total Sample (%)									
Earnings	11.7	17.0	20.3	23.0	27.9	6.8	5.9	2.2	100.0
Income	12.9	15.8	19.1	22.3	29.9	7.3	6.9	2.7	100.0
Wealth	1.4	5.8	11.7	21.1	60.0	13.7	18.2	10.3	100.0
Sources of Income (%, Share of Each Group's Income)									
Labor	70.8	73.2	70.2	66.2	56.1	55.6	48.5	42.3	67.2
Capital	12.4	15.2	16.7	17.6	18.0	17.2	17.4	21.3	16.0
Business	1.0	1.1	1.8	3.0	8.5	7.6	13.4	22.1	3.1
Transfers	11.8	8.6	9.2	11.3	15.1	17.1	18.4	11.3	11.2
Others	4.1	1.9	2.1	2.0	2.2	2.5	2.2	2.9	2.4
Age of Household Head (%, Share of Each Group's Sample)									
≤ 34	43.8	33.3	20.4	13.3	5.4	4.4	2.1	1.2	23.3
35-49	28.4	39.9	47.3	45.9	35.5	33.9	25.3	25.5	39.3
50-64	17.4	19.6	24.4	30.9	44.9	46.6	54.9	53.2	27.4
≥ 65	10.4	7.1	7.9	9.9	14.3	15.0	17.8	20.2	9.9
Average age	40.4	42.1	44.9	47.7	52.3	53.0	55.4	56.5	45.5
Household Structure (%, Share of Each Group's Sample)									
Married Head	52.0	75.4	84.1	86.8	89.7	91.2	89.8	88.7	77.5
One-person household	41.8	20.4	11.6	9.4	5.5	4.3	5.0	6.4	17.9
Average HH Size	2.58	3.26	3.59	3.68	3.65	3.68	3.52	3.54	3.35

Table 10: Households Ranked by Financial Wealth in 2019

	Households in Wealth Quintiles					Top Percentiles			Total
	1st	2nd	3rd	4th	5th	10-5%	5-1%	1%	Sample
Mean (JPY1,000)	70	1,642	5,360	12,688	42,842	38,747	63,839	158,659	12,481
Ratio to all avg	0.006	0.132	0.429	1.017	3.433	3.105	5.115	12.712	1.000
Share of Total Sample (%)									
Earnings	12.5	18.5	21.7	23.2	24.0	5.7	5.5	1.6	100.0
Income	15.0	16.3	19.8	22.3	26.6	6.4	6.1	2.1	100.0
Wealth	0.1	2.6	8.6	20.4	68.3	15.5	20.5	12.7	100.0
Sources of Income (%, Share of Each Group's Income)									
Labor	62.1	68.4	64.3	55.8	44.5	43.6	42.5	32.2	58.8
Capital	6.1	6.8	6.1	5.2	5.0	4.1	6.1	7.0	5.8
Business	0.8	1.1	1.8	2.2	5.7	5.9	7.9	19.1	2.4
Transfers	30.3	23.3	27.3	36.3	44.1	46.0	42.6	40.7	32.4
Others	0.6	0.4	0.5	0.4	0.6	0.4	0.9	1.1	0.5
Age of Household Head (%, Share of Each Group's Sample)									
≤ 34	20.9	26.4	14.4	5.7	1.4	1.0	0.7	0.5	13.8
35-49	25.1	26.5	29.6	23.9	12.4	12.3	10.1	6.3	23.5
50-64	20.8	19.5	23.4	28.0	32.5	31.4	36.4	33.5	24.8
≥ 65	33.2	27.7	32.7	42.5	53.7	55.3	52.8	59.8	37.9
Average age	53.4	50.5	54.4	60.1	64.8	65.6	65.2	66.8	56.6
Household Structure (%, Share of Each Group's Sample)									
Married Head	44.3	46.4	59.5	63.2	66.2	65.6	68.5	54.9	55.9
One-person household	43.4	44.3	32.6	29.8	26.3	26.1	23.6	33.8	35.3
Average HH Size	2.12	2.16	2.41	2.40	2.33	2.33	2.37	2.16	2.28

4.3 Dimensions of Inequality: By Age, Employment, and Marital Status and Household Structure

We now examine distribution of earnings, income and wealth by the dimensions that are essential in understanding the dynamics of household inequality over the past four decades. Tables 11 and 12 show the levels and concentration of earnings, income and wealth conditional upon various characteristics of households, including age and employment status of household heads, marital status, and household structure, in 1984 and 2019, respectively.[24]

[24]Tables for additional years between 1984 and 2019 are included in Appendix A.

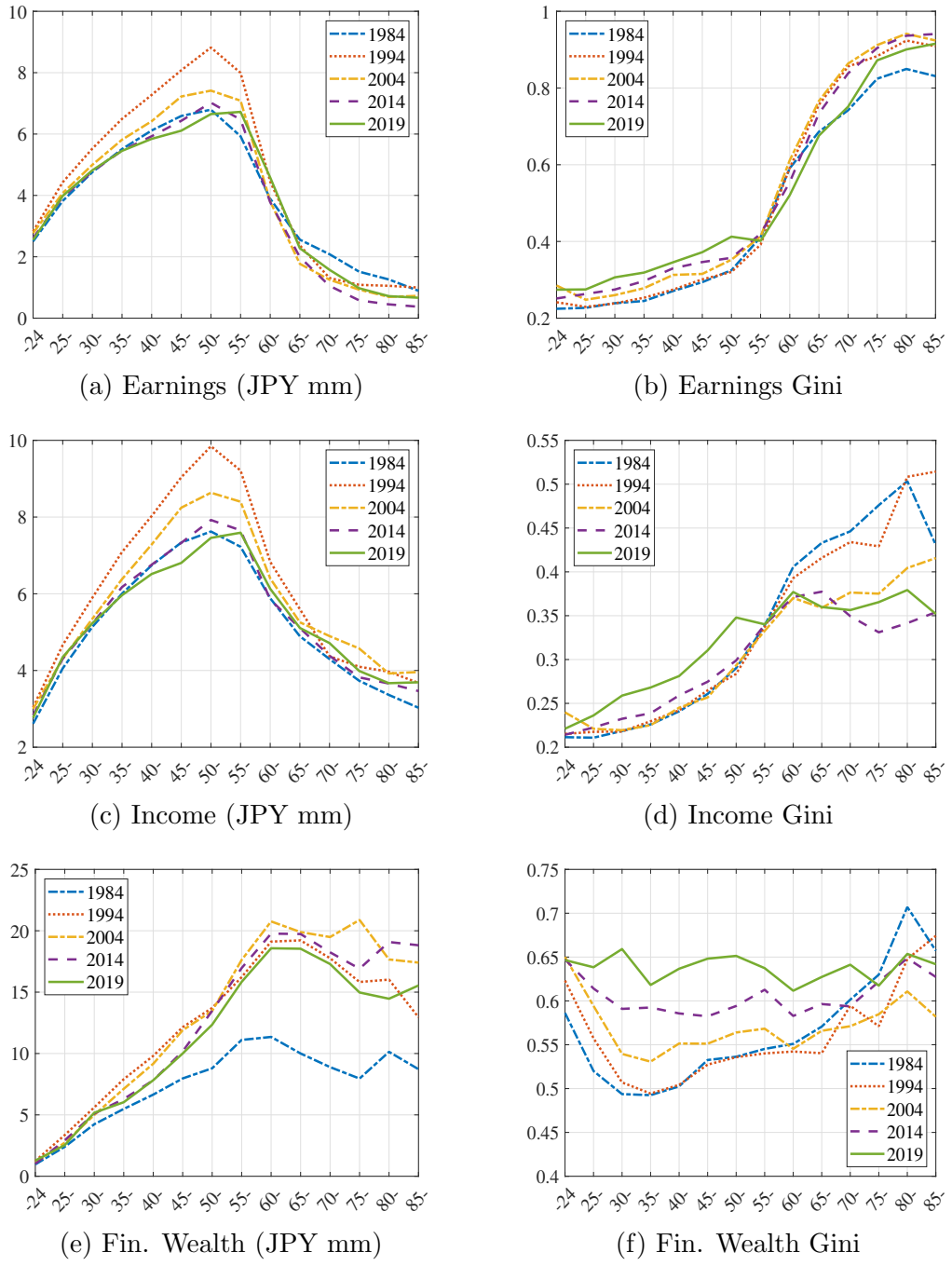
Table 11: Other Dimensions of Inequality in 1984

	Average Level (JPY1,000)			Concentration (Gini Index)				Avg.	Avg.
	Earnings	Income	Fin. Wealth	Earnings	Income	Fin. Wealth	Sample size (%)	hhld size	worker size
Age									
≤ 24	2,503	2,614	968	0.224	0.211	0.586	4.7	1.220	1.042
25-29	3,821	4,055	2,403	0.227	0.211	0.520	7.2	2.131	1.195
30-34	4,760	5,139	4,237	0.239	0.219	0.494	11.5	3.452	1.346
35-39	5,510	6,002	5,485	0.245	0.226	0.493	14.1	4.099	1.479
40-44	6,117	6,743	6,651	0.271	0.241	0.503	13.4	4.198	1.566
45-49	6,589	7,336	7,969	0.294	0.261	0.533	11.8	3.954	1.805
50-54	6,794	7,623	8,796	0.325	0.290	0.536	10.7	3.486	2.046
55-59	5,927	7,226	11,108	0.411	0.339	0.545	9.9	3.221	1.936
60-64	3,891	5,884	11,351	0.591	0.406	0.551	6.8	2.862	1.535
65-69	2,558	4,893	10,002	0.686	0.433	0.571	4.9	2.628	1.233
70-74	2,084	4,298	8,893	0.742	0.446	0.601	3.1	2.521	1.094
75-79	1,515	3,733	7,959	0.824	0.476	0.630	1.5	2.185	0.779
80-84	1,261	3,364	10,136	0.850	0.504	0.707	0.4	2.099	0.724
≥ 85	893	3,029	8,721	0.831	0.431	0.657	0.1	2.301	0.617
Employment Status									
Employee	5,612	6,068	5,877	0.286	0.273	0.551	63.8	3.301	1.498
Self-employed	5,407	6,829	9,437	0.429	0.350	0.583	27.5	3.937	2.076
Not working	488	2,823	8,147	0.886	0.390	0.614	8.7	1.861	0.212
Marital Status and Workers									
Married	5,829	6,766	7,951	0.332	0.277	0.544	77.5	3.919	1.722
Married (# worker=0)	139	3,194	11,023	0.941	0.251	0.525	3.1	2.199	0.000
Married (# worker=1)	5,425	6,199	7,304	0.305	0.257	0.550	32.3	3.662	1.000
Married (# worker=2)	6,175	6,979	7,789	0.294	0.263	0.541	29.8	3.916	2.000
Married (# worker ≥ 3)	7,467	8,625	9,280	0.292	0.260	0.525	12.3	5.029	3.373
Non-married	2,638	3,344	3,961	0.463	0.345	0.665	22.5	1.395	0.935
Not married (# worker=0)	77	1,697	4,864	0.941	0.352	0.678	4.2	1.154	0.000
Not married (# worker=1)	3,017	3,407	3,301	0.329	0.284	0.658	16.3	1.210	1.000
Not married (# worker ≥ 2)	4,940	6,294	7,424	0.344	0.288	0.572	2.0	3.397	2.377
Family Structure									
One-person household	2,422	2,948	3,195	0.454	0.322	0.656	17.9	1.000	0.790
Two-or-more person household	5,695	6,658	7,893	0.341	0.282	0.549	82.1	3.862	1.709
without child aged ≤ 16	5,282	6,729	10,042	0.435	0.322	0.553	31.4	2.854	1.739
with child(ren) aged ≤ 16	5,951	6,615	6,561	0.279	0.254	0.526	50.7	4.486	1.691
without old aged ≥ 65	5,865	6,558	7,157	0.311	0.269	0.545	61.4	3.680	1.649
with old aged ≥ 65	5,191	6,956	10,079	0.427	0.314	0.540	20.7	4.401	1.887
Total Sample	5,110	5,995	7,053	0.381	0.319	0.577	100.0	3.350	1.545

Table 12: Other Dimensions of Inequality in 2019

	Average Level (JPY1,000)			Concentration (Gini Index)				Avg.	Avg.
	Earnings	Income	Fin. Wealth	Earnings	Income	Fin. Wealth	Sample size (%)	hhld size	worker size
Age									
≤ 24	2,553	2,769	1,276	0.274	0.221	0.647	1.9	1.171	1.045
25-29	3,985	4,350	2,540	0.275	0.236	0.638	6.2	1.459	1.148
30-34	4,819	5,232	5,175	0.306	0.259	0.659	5.6	2.282	1.344
35-39	5,453	5,962	6,032	0.319	0.268	0.618	6.6	2.702	1.416
40-44	5,843	6,516	7,822	0.346	0.281	0.637	7.8	2.894	1.457
45-49	6,110	6,805	10,003	0.372	0.310	0.648	9.1	2.717	1.501
50-54	6,651	7,457	12,350	0.412	0.348	0.651	8.6	2.593	1.596
55-59	6,722	7,592	15,836	0.401	0.340	0.637	7.9	2.402	1.701
60-64	4,583	6,130	18,572	0.521	0.377	0.612	8.3	2.372	1.545
65-69	2,279	5,109	18,536	0.676	0.360	0.627	9.6	2.164	1.129
70-74	1,576	4,715	17,291	0.751	0.356	0.641	9.6	2.188	0.937
75-79	975	3,989	14,971	0.872	0.365	0.617	7.8	2.035	0.586
80-84	717	3,669	14,462	0.901	0.379	0.654	6.4	1.902	0.413
≥ 85	665	3,692	15,544	0.916	0.352	0.642	4.6	1.799	0.330
Employment Status									
Employee	5,480	6,244	9,596	0.367	0.304	0.667	54.7	2.377	1.524
Self-employed	5,509	7,672	16,490	0.534	0.382	0.685	11.8	2.800	1.910
Not working	874	3,644	15,789	0.865	0.356	0.646	33.4	1.943	0.405
Marital Status and Workers									
Married	5,078	6,969	14,178	0.506	0.305	0.631	55.9	3.054	1.532
Married (# worker=0)	128	3,694	18,463	0.965	0.217	58.0	9.8	2.137	0.000
Married (# worker=1)	4,450	6,362	14,808	0.484	0.283	0.630	15.0	2.927	1.000
Married (# worker=2)	6,691	7,881	11,844	0.351	0.259	0.639	24.4	3.199	2.000
Married (# worker ≥ 3)	7,911	9,842	14,979	0.369	0.267	0.642	6.6	4.165	3.290
Non-married	2,507	3,739	10,330	0.577	0.353	0.721	44.1	1.303	0.769
Not married (# worker=0)	132	2,251	14,562	0.976	0.324	0.699	13.9	1.129	0.000
Not married (# worker=1)	3,525	4,232	8,307	0.382	0.300	0.722	27.2	1.218	1.000
Not married (# worker ≥ 2)	4,320	6,192	8,988	0.427	0.302	0.707	3.0	2.879	2.253
Family Structure									
One-person household	2,416	3,452	10,114	0.580	0.343	0.719	35.3	1.000	0.645
Two-or-more person household	4,778	6,686	13,772	0.521	0.316	0.644	64.7	2.981	1.496
without child aged ≤ 16	3,983	6,351	15,861	0.600	0.331	0.630	44.6	2.531	1.385
with child(ren) aged ≤ 16	6,544	7,431	9,138	0.342	0.274	0.647	20.1	3.980	1.742
without old aged ≥ 65	6,754	7,491	10,520	0.350	0.283	0.653	34.8	3.192	1.789
with old aged ≥ 65	2,480	5,750	17,556	0.703	0.335	0.615	29.9	2.736	1.156
Total Sample	3,944	5,545	12,481	0.559	0.359	0.671	100.0	2.282	1.196

By Age: Levels Levels of earnings, income and wealth as well as Gini coefficients by age are shown in the upper section of Tables 11 and 12. To make the trend visible, age-profiles of levels and concentration between 1984 and 2019 are also displayed in Figure 10. Earnings and income of households increase in age until about their early 50s and decline sharply thereafter. The profile of wealth levels shows an increase until around age 60 and becomes flatter, declining slightly in their 60s and 70s. Wealth declines much more slowly than earnings and income among the old households.



(a) Earnings (JPY mm)

(b) Earnings Gini

(c) Income (JPY mm)

(d) Income Gini

(e) Fin. Wealth (JPY mm)

(f) Fin. Wealth Gini

Figure 10: Lifecycle Profiles: Household

As shown in Figure 10a, earnings of working-age households increased across age groups from 1984 to 1994 during the bubble period, but they declined monotonically since then. Earning levels of those aged 20s to 50s in 2014 and 2019 are close to those

in 1984. Income profiles exhibits a similar trend as shown in Figure 10c. The average wealth held by households significantly increased from 1984 to 1994 during the bubble period across all age groups and the level has not changed much since then, though it fell at ages between 20 and 50 and fluctuated up and down among older households.

While average earnings and income of households aged 20s to 60s fell rather sharply from the 1990s to 2010s, their wealth does not exhibit a decline of the same magnitude, as shown in Figure 10e. There could be different explanations for such outcomes. First, if consumption fell more than proportionately to the decline in income, that is, if saving rates increased, wealth can stay high while income falls. As discussed in section 3, there is limitation with the consumption data of the NSFIE/NSFICW to verify the hypothesis, because expenditure data are collected only in three particular months of a year rather than the entire year. Unayama and Ohno (2017) combined the consumption data of the NSFIE with data of another survey and estimated annual consumption of households. They show that the saving rates in fact fell, rather than increased, across age groups since the 1990s.

Second, households may have other sources of income that are not reported in the NSFIE/NSFICW, but added to their accumulated wealth. In particular, there is no survey question that explicitly asks about bequests from parents or other relatives, which may in particular explain the small change or a moderate increase in the wealth level of households above their 50s since 1994. Third, disposable income could increase even if income falls, for example, if income tax rates decline or other expenditures fall. Income tax rates, however, changed in both directions over the last few decades and increased moderately during the last decade.[25]

By Age: Inequality Right panels of Figure 10 show the trend of inequality within age groups in the three variables. As shown in Figure 10b, Gini coefficients of earnings increase over the lifecycle, rising from around 0.25 to 0.3 in their early 20s to around 0.4 in their mid-50s. Thereafter, the Gini increases more sharply, and this is due to waves of household members exiting the labor force, or changing work hours and employment types in their late 50s and 60s. Figure 10b also shows that earnings inequality among the young households also increased from the 1980s to 2010s.

Gini coefficients of income increase as well until their 60s in all years, but the pattern

[25]The highest marginal income tax rate fell from 50% to 40% in 1999 and to 37% in 2007 and then increased to 45% in 2015. The marginal tax rate at the income level of 10 million yen, the rate fell from 35% to 30% in 1988 and increased to 33% in 2007. At 5 million yen, the rate fell from 25% to 20% in 1987 and hasn't changed since then.

of inequality above 65 has changed since 1984. Income Gini of households continued to rise until their 80s in 1984, but the profile became flatter after 2000, implying that income has become more equally distributed among old-aged households.

The change in the trend decline in inequality of income among the old is mostly due to availability of a more comprehensive coverage of public pension benefits. The national pension system started in 1961 but the coverage was not mandatory until the reform in 1985 made it compulsory for all individuals to be enrolled in the pension system. To isolate effects of the national pension system, Figure 11 shows Gini coefficients of income when we exclude public pension benefits from the definition of income. Unlike in Figure 10d, there is no major decline in income Gini coefficients among the old. Gini coefficients continue to rise even after their 70s and reach the peak of above 0.80 in their 80s except for 1984.

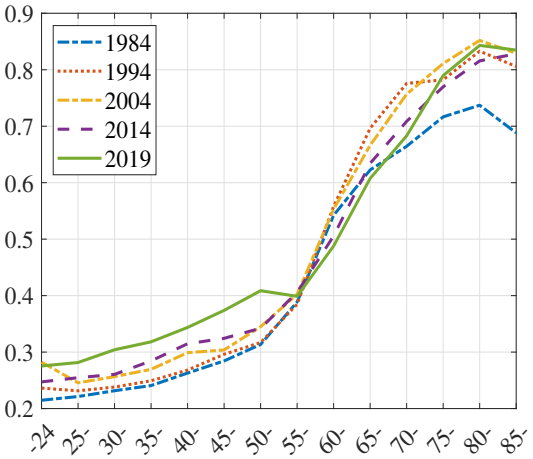


Figure 11: Lifecycle Profile: Income Gini Excluding Public Pensions

Figure 10f shows that Gini coefficients of wealth among households in their 20s to 60s increased since the 1980s. As we saw in Table 4, aggregate wealth Gini increased over time from 0.58 in 1984 to 0.67 in 2019, but the Gini coefficients by age increased by more, for example, from around 0.50 to 0.60-0.65 in their 30s. The rise of Gini coefficients among young and middle-aged households is driven by an increase in the fraction of households reporting zero wealth, rather than by an rise in the wealth concentration in the upper end of the distribution. Figure 12 shows the fraction of households who report possession of zero wealth by age between 1984 and 2019. The fraction of households with zero wealth increased across all age groups since 1980s. The increase is particularly significant among young households, for example from 4.0% in 1984 to 12.6% in 2019 among households

aged 30-34. The increase in the size of the very poor will push the Lorenz curve down in the left end and increases the value of Gini coefficients.

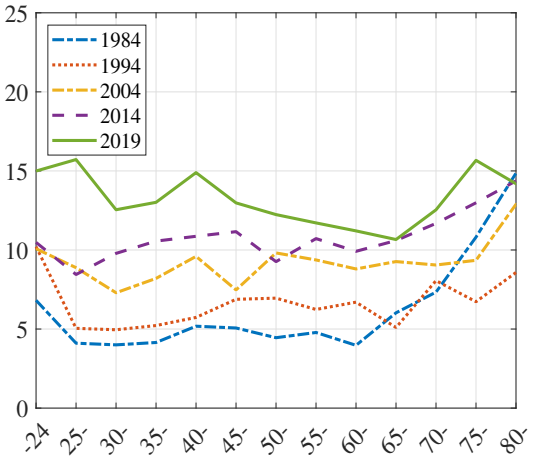
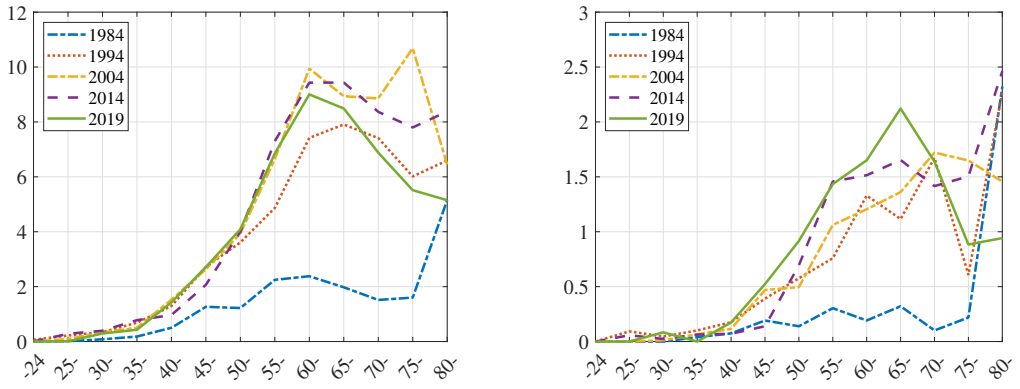


Figure 12: Households with Zero Financial Wealth (%)

Greater concentration of wealth in the upper tail of the distribution would also contribute to a rise in Gini coefficients. Figure 13 shows the shares of households that own wealth greater than 50 million yen and 100 million yen, respectively.[26] The share of households with more than 50 million yen increased from less than 1% of all households in 1984 to 5% in 2019. Those with more than 100 million yen rose from 0.1% in 1984 to about 1% in 2019. Conditional on age, the share of households that own large wealth increased the most among older households aged 60 and above.

[26]The cutoff levels are in real terms. Also note that the sample size of the wealthiest households, especially those with more than 100 million yen, is very small and some caution is needed in the interpretation of the results because the fractions above the high cutoffs and other statistics about these households are based on a limited number of households.



(a) Above 50 Million Yen (b) Above 100 Million Yen

Figure 13: Households with Large Financial Wealth (%)

Tables 11 and 12 also report the distribution of the sample size of each age group. The largest age group in 1984 was that aged 35-39, with 14.1% of samples, and the age of the largest group increased over time. The largest age group of households in 2019 was in their late 60s (aged 65-69) and early 70s (70-74) with 9.6% of samples each. The group aged 35-39 takes up only 6.6% in 2019, less than one half of their relative size in 1984. Therefore, in computing the aggregate statistics such as average earnings and wealth or Gini coefficients, they tend to be driven by the characteristics of older generations when we look at more recent data.

By Age: Gini Decomposition Changes in aggregate inequality indices, such as Gini coefficients, can arise from shifts in age distribution, changes in the relative earnings by age, and variations in within-age-group inequality. To decompose these changes, in addition to original Gini coefficients reported in Tables 2 to 4, we calculate alternative Gini coefficients under two counterfactual scenarios.[27] First, we assume that the age distribution remains fixed at its 1984 level. This approach isolates the effects of demographic aging and shifts in age distribution. Second, we assume both the age distribution and average earnings by age remain constant over time. This third series captures changes in within-age inequality by excluding the effects of demographic aging and differential growth in average earnings across age groups.

More precisely, we compute these alternative Gini coefficients as follows. Denote by $y_{i,t,j}$ the variable (earnings, income, or wealth) of sample i, aged j in year t. $\mu_{i,t,j}$

[27] We thank Satoshi Tanaka for suggesting that we analyze the transition of inequality by decomposing Gini coefficients.

represents the sample weight, which is normalized so that $\sum_{i,j} \mu_{i,t,j} = 1$ for all t. Denote the Gini coefficient of the variable for samples $y_{i,t,j}$ using the sample weight of $\mu_{i,t,j}$ as $G_0 = g(\{y_{i,t,j}, \mu_{i,t,j}\})$, where g represents the function that computes the Gini coefficient as described above. This G_0 is the baseline Gini coefficient and we now explain how we compute G_1, the Gini coefficient without the effects of demographic aging, and G_2, without the effects of both demographic aging and changes in the average values by age.

We let $\bar{\mu}_{t,j}$ denote the total measure of samples aged j in year t, and $\bar{y}_{t,j}$ the average value of the variable for the group of samples aged j in year t:

$$\begin{aligned} \bar{\mu}_{t,j} &= \sum_i \mu_{i,t,j} \\ \bar{y}_{t,j} &= \frac{\sum_i y_{i,t,j}\mu_{i,t,j}}{\sum_i \mu_{i,t,j}} \end{aligned}$$

We compute G_1, the Gini coefficient assuming that the age distribution remains unchanged, as follows.

$$G_1 = g(\{y_{i,t,j}, \tilde{\mu}_{i,t,j}\})$$

where

$$\tilde{\mu}_{i,t,j} = \frac{\bar{\mu}_{1984,j}}{\bar{\mu}_{t,j}}\mu_{i,t,j}. \tag{1}$$

Note that the sample weights are adjusted so that the age-distribution in year t is the same as the age-distribution in the initial year of 1984.

Finally, G_2, the Gini coefficient assuming that both the age distribution and the average earnings by age remain the same, is computed as follows.

$$G_2 = g(\{\tilde{y}_{i,t,j}, \tilde{\mu}_{i,t,j}\})$$

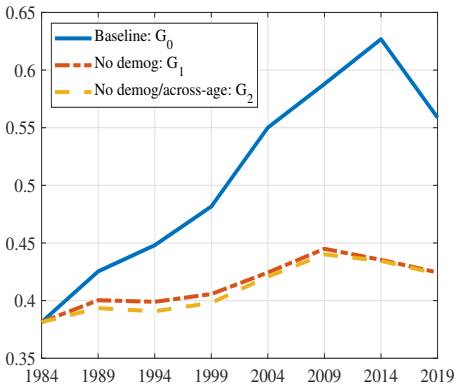
where $\tilde{\mu}_{i,t,j}$ is defined as in (1) and

$$\tilde{y}_{i,t,j} = \frac{\bar{y}_{1984,j}}{\bar{y}_{t,j}}y_{i,t,j}.$$

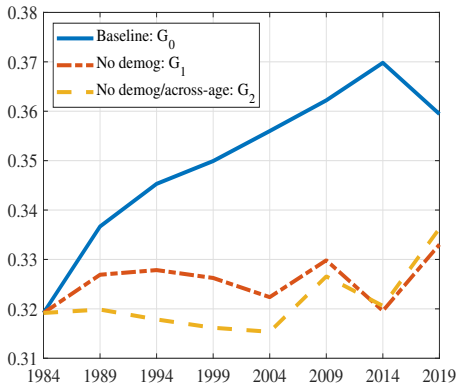
Note that the variable is adjusted so that the average value of the variables for samples aged j in year t is the same as that for samples of the same age in the initial year of 1984.

Figure 14 shows the paths of the three Gini coefficients for earnings, income and wealth, respectively. Figure 14a shows a sharp difference when effects of demographic aging are removed, indicating that most of the rise in Gini coefficients of earnings in the aggregate

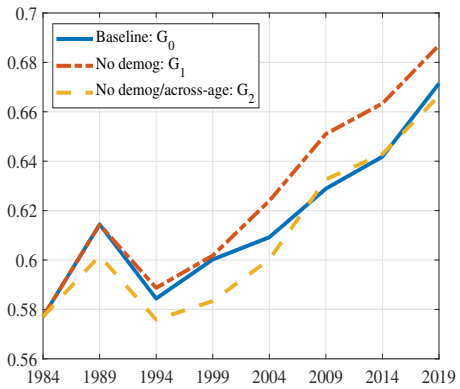
level is driven by shifts in age distribution during the past four decades. This does not, however, imply that the rise in earnings inequality among younger households is trivial. Gini coefficients without demographic aging have also increased since the early 1980s, as shown in the figure. Figure 14b shows the paths of Gini coefficients for income. As with earnings, removing effects of demographic aging reduces the rise in aggregate inequality because age-dependent Gini coefficients are much higher among older households as we saw above.



(a) Earnings



(b) Income



(c) Financial Wealth

Figure 14: Gini Coefficient and Contributing Factors

Lastly, Figure 14c shows wealth Gini coefficients under alternative assumptions. Interestingly, without effects of age distribution, inequality would rise more sharply. This is because age-dependent Gini coefficients increased among the young more sharply, as we saw in Figure 10. Without aging effects, Gini coefficients would weigh a sharp rise in inequality among the young by more relative to the path of original Gini coefficients.

When we also exclude effects of across-age inequality, Gini coefficients would be lower since inequality of average wealth across age groups was less severe in the 1980s.

(Ohtake 2005) computes variance of log income between 1984 and 1999 under alternative scenarios, isolating effects of demographic aging and changes in inequality across and within age groups. He finds that demographic aging largely explains the rise in income inequality during this period. We confirm that this trend persisted through 2019.

By Marital Status and Number of Workers in Households The third section of Tables 11 and 12 shows how earnings, income and wealth differ by marital status of household heads and a number of workers in each household. The fraction of households with a married head declined from 78% in 1984 to 56% in 2019. At the same time, the average number of workers in a household also decreased from 1.72 for the married 0.94 for the non-married (1.55 on average) in 1984 to 1.53 and 0.77 (1.20 on average) in 2019. Married households earn more than non-married households and own more wealth.

By Household Structure In terms of the household structure, as shown in the bottom section of Tables 11 and 12, the fraction of one-person households increased from 17.9% in 1984 to 35.3% in 2019. Among households with multiple members, the percentage of households with children aged 16 and below decreased dramatically, from 50.7% in 1984 to 20.1% in 2019. This change is due to a decline in fertility rates that has continued since the early 1970s and a rise in the population share of the elderly. The number of households with a member aged 65 or above increased from 20.7% of the population in 1984 to 29.9% in 2019. One-person households report lower earnings, income and wealth than households with two or more members, which of course is not surprising given a larger number of workers. One-person households, however, also have higher Gini index in all three variables than multiple-person households, implying that there is a greater degree of heterogeneity among them. Among two-or-more person households, those with heads aged 65 and above own the largest amount of wealth.

5 Conclusion

This study examines trends in earnings, income, and wealth inequality among Japanese households from 1984 to 2019, using data from the NSFIE/NSFICW survey. By analyzing data across various dimensions, we highlight the importance of considering changes at both micro and macro levels, including demographic transitions and business cycles. The 1980s

and early 1990s were marked by an economic boom driven by rising real estate and stock prices, alongside a sharp fertility decline that accelerated Japan's demographic aging. Population decline began in 2008, reversing a trend that had persisted since the 19th century. Over the past four decades, marriage rates fell, female labor force participation increased, and irregular employment rose relative to regular employment, all contributing to shifts in household inequality dynamics.

We find that inequality of earnings, income and wealth across households increased over this study period. Demographic aging is a major driver of rising earnings and income inequality, as older households tend to exhibit higher inequality. However, income inequality among older households declined due to expansions in public pension coverage. Wealth inequality followed a different trajectory, with a notable rise in the share of households holding minimal assets, particularly among younger and middle-aged groups.

Average earnings and income peaked during the late 1980s and early 1990s bubble period but declined thereafter due to prolonged economic stagnation and population aging. Since the mid-19902, wealth levels have risen for households above the median but stagnated for those below it.

Looking ahead, Japan faces the dual challenges of managing a shrinking labor force and sustaining its social insurance system amid rising old-age dependency ratios. The distribution of income and wealth will depend on the effectiveness of redistributive policies. Analyzing data across diverse dimensions will remain essential for understanding inequality trends and evaluating policy impacts.

While this paper focuses on inequality across households, future research should explore the implications of shifts in household composition, particularly changes in marriage and fertility patterns, to provide a more comprehensive understanding of inequality dynamics.

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A Dimensions of Inequality

Tables A.1, A.2 and A.3 show the levels and concentration of earnings, income and wealth conditional upon various characteristics of households in 1994, 2004 and 2014, respectively.

Table A.1: Other Dimensions of Inequality in 1994

	Average Level (JPY1,000)			Concentration (Gini Index)				Avg.	Avg.
	Earnings	Income	Fin. Wealth	Earnings	Income	Fin. Wealth	Sample size (%)	hhld size	worker size
Age									
≤ 24	2,832	3,040	1,246	0.242	0.215	0.623	3.1	1.305	1.039
25-29	4,429	4,664	3,361	0.229	0.218	0.557	5.3	2.058	1.208
30-34	5,527	5,896	5,611	0.239	0.218	0.507	8.1	3.124	1.309
35-39	6,493	7,088	7,909	0.253	0.230	0.494	9.9	3.936	1.442
40-44	7,274	8,027	9,807	0.274	0.242	0.504	12.1	4.096	1.582
45-49	8,079	9,038	12,147	0.301	0.265	0.527	12.5	3.854	1.783
50-54	8,820	9,847	13,715	0.320	0.284	0.536	11.5	3.383	2.063
55-59	7,993	9,213	16,221	0.392	0.337	0.540	10.0	2.964	1.978
60-64	4,447	6,833	19,117	0.592	0.393	0.542	9.6	2.545	1.373
65-69	2,371	5,599	19,218	0.756	0.416	0.540	8.7	2.187	0.874
70-74	1,308	4,372	17,763	0.856	0.434	0.594	5.3	1.892	0.589
75-79	1,086	4,098	15,828	0.883	0.429	0.571	2.5	1.884	0.519
80-84	1,055	3,969	16,019	0.924	0.508	0.648	1.1	1.763	0.440
≥ 85	998	3,677	12,954	0.909	0.514	0.674	0.3	1.705	0.397
Employment Status									
Employee	6,873	7,588	10,002	0.314	0.284	0.563	64.0	3.240	1.588
Self-employed	6,876	8,949	16,824	0.485	0.389	0.599	19.2	3.546	2.077
Not working	807	3,727	16,550	0.883	0.378	0.564	16.8	1.812	0.214
Marital Status and Workers									
Married	6,940	8,294	13,562	0.379	0.294	0.560	74.3	3.643	1.679
Married (# worker=0)	280	4,033	20,865	0.937	0.238	0.516	5.9	2.129	0.000
Married (# worker=1)	6,235	7,308	12,040	0.330	0.261	0.568	28.4	3.469	1.000
Married (# worker=2)	7,766	8,823	12,549	0.306	0.265	0.555	27.8	3.707	2.000
Married (# worker ≥ 3)	9,916	11,437	15,855	0.304	0.266	0.539	12.3	4.634	3.338
Non-married	2,720	4,044	9,086	0.581	0.388	0.649	25.7	1.370	0.792
Not married (# worker=0)	304	2,468	12,143	0.955	0.381	0.595	8.0	1.133	0.000
Not married (# worker=1)	3,542	4,370	6,926	0.402	0.333	0.667	15.7	1.259	1.000
Not married (# worker ≥ 2)	5,866	7,727	13,771	0.384	0.324	0.604	2.0	3.159	2.302
Family Structure									
One-person household	2,291	3,447	8,039	0.595	0.363	0.654	20.4	1.000	0.642
Two-or-more person household	6,769	8,164	13,531	0.389	0.299	0.563	79.6	3.586	1.659
without child aged ≤ 16	6,371	8,312	16,975	0.478	0.332	0.552	41.6	2.818	1.666
with child(ren) aged ≤ 16	7,203	8,001	9,768	0.283	0.259	0.539	38.1	4.426	1.651
without elderly aged ≥ 65	7,318	8,150	11,305	0.327	0.278	0.557	55.6	3.495	1.681
with elderly aged ≥ 65	5,498	8,196	18,682	0.530	0.345	0.541	24.0	3.799	1.608
Total Sample	5,857	7,203	12,413	0.448	0.345	0.584	100.0	3.060	1.452

Table A.2: Other Dimensions of Inequality in 2004

	Average Level (JPY1,000)			Concentration (Gini Index)				Avg.	Avg.
	Earnings	Income	Fin. Wealth	Earnings	Income	Fin. Wealth	Sample size (%)	hhld size	worker size
Age									
≤ 24	2,730	2,943	1,045	0.281	0.238	0.650	1.6	1.399	1.056
25-29	4,071	4,295	2,771	0.252	0.226	0.589	4.1	1.992	1.201
30-34	4,980	5,319	4,987	0.261	0.222	0.541	6.6	2.765	1.272
35-39	5,801	6,365	7,155	0.281	0.228	0.530	7.7	3.355	1.356
40-44	6,390	7,286	9,187	0.318	0.246	0.552	8.4	3.669	1.485
45-49	7,212	8,241	11,880	0.319	0.258	0.551	8.8	3.663	1.667
50-54	7,343	8,561	13,442	0.360	0.300	0.566	9.9	3.371	1.888
55-59	7,000	8,319	17,527	0.420	0.338	0.564	10.9	2.858	1.857
60-64	3,552	6,078	20,415	0.629	0.383	0.551	11.5	2.402	1.272
65-69	1,601	4,905	19,080	0.784	0.371	0.575	10.9	2.111	0.785
70-74	1,043	4,465	18,994	0.883	0.389	0.575	9.5	1.871	0.512
75-79	759	4,156	19,441	0.924	0.380	0.594	6.6	1.715	0.378
80-84	541	3,494	15,987	0.952	0.416	0.621	2.7	1.615	0.302
≥ 85	550	3,505	18,172	0.933	0.409	0.583	0.8	1.713	0.299
Employment Status									
Employee	6,195	7,054	10,904	0.343	0.287	0.598	54.0	3.021	1.563
Self-employed	5,502	8,183	18,108	0.548	0.386	0.627	16.4	3.089	1.962
Not working	497	3,563	17,887	0.904	0.333	0.578	29.5	1.813	0.218
Marital Status and Workers									
Married	5,554	7,425	15,493	0.471	0.302	0.582	67.6	3.320	1.509
Married (# worker=0)	175	4,078	21,495	0.951	0.215	0.521	10.5	2.132	0.000
Married (# worker=1)	5,283	6,812	13,934	0.396	0.263	0.598	24.0	3.253	1.000
Married (# worker=2)	7,018	8,330	13,852	0.346	0.272	0.584	24.1	3.497	2.000
Married (# worker $\geq$ 3)	8,636	10,550	17,067	0.354	0.285	0.572	9.0	4.409	3.318
Non-married	1,988	3,673	11,347	0.366	0.664	0.689	32.4	1.331	0.652
Not married (# worker=0)	89	2,335	14,061	0.965	0.305	0.624	13.9	1.100	0.000
Not married (# worker=1)	3,234	4,372	8,817	0.430	0.310	0.690	16.4	1.322	1.000
Not married (# worker $\geq$ 2)	4,822	7,091	13,231	0.444	0.349	0.636	2.1	2.949	2.260
Family Structure									
One-person household	1,717	3,204	11,037	0.696	0.338	0.668	25.8	1.000	0.501
Two-or-more person household	5,333	7,256	15,234	0.483	0.309	0.588	74.2	3.259	1.486
without child aged $\leq$ 16	4,657	7,185	18,699	0.578	0.335	0.565	46.5	2.692	1.421
with child(ren) aged $\leq$ 16	6,472	7,377	9,398	0.317	0.263	0.575	27.6	4.215	1.595
without elderly aged $\geq$ 65	6,441	7,453	12,120	0.368	0.285	0.589	45.8	3.320	1.632
with elderly aged $\geq$ 65	3,538	6,938	20,280	0.666	0.346	0.559	28.3	3.160	1.249
Total Sample	4,398	6,209	14,149	0.550	0.356	0.609	100.0	2.675	1.231

Table A.3: Other Dimensions of Inequality in 2014

	Average Level (JPY1,000)			Concentration (Gini Index)				Avg.	Avg.
	Earnings	Income	Fin. Wealth	Earnings	Income	Fin. Wealth	Sample size (%)	hhld size	worker size
Age									
≤ 24	2,564	2,896	1,068	0.286	0.225	0.688	0.6	1.505	1.119
25-29	3,941	4,472	3,039	0.291	0.228	0.640	2.0	2.348	1.330
30-34	4,820	5,396	4,973	0.285	0.225	0.603	3.8	2.951	1.447
35-39	5,335	6,137	6,135	0.313	0.239	0.598	5.6	3.508	1.510
40-44	5,846	6,765	7,739	0.343	0.259	0.589	8.1	3.394	1.495
45-49	6,276	7,269	10,013	0.363	0.278	0.591	7.7	3.265	1.602
50-54	6,877	7,865	13,185	0.371	0.302	0.601	7.6	2.989	1.771
55-59	6,242	7,532	16,361	0.440	0.344	0.620	8.6	2.638	1.776
60-64	3,387	5,442	19,043	0.586	0.384	0.596	11.3	2.326	1.389
65-69	1,710	4,624	18,801	0.758	0.391	0.611	14.0	1.991	0.866
70-74	876	3,957	16,769	0.860	0.364	0.611	13.0	1.834	0.528
75-79	463	3,507	16,632	0.920	0.342	0.648	9.3	1.725	0.358
80-84	314	3,261	16,671	0.953	0.341	0.665	5.8	1.543	0.216
≥ 85	276	3,062	17,753	0.952	0.349	0.651	2.7	1.562	0.208
Employment Status									
Employee	5,453	6,536	11,083	0.380	0.287	0.630	47.7	2.872	1.611
Self-employed	4,731	7,575	17,641	0.593	0.393	0.669	13.8	2.770	1.885
Not working	349	3,144	17,228	0.923	0.328	0.623	38.4	1.716	0.187
Marital Status and Workers									
Married	4,618	6,700	15,282	0.532	0.308	0.618	61.6	3.089	1.436
Married (# worker=0)	106	3,715	20,507	0.958	0.217	0.565	12.8	2.122	0.000
Married (# worker=1)	4,452	6,367	14,894	0.469	0.275	0.631	18.4	3.049	1.000
Married (# worker=2)	6,358	7,759	12,838	0.368	0.270	0.624	23.5	3.318	2.000
Married (# worker ≥ 3)	7,447	9,469	14,992	0.374	0.275	0.621	7.0	4.195	3.316
Non-married	1,423	3,252	12,858	0.744	0.368	0.680	38.4	1.330	0.564
Not married (# worker=0)	57	2,199	14,684	0.971	0.301	0.666	19.9	1.100	0.000
Not married (# worker=1)	2,732	4,094	10,668	0.489	0.319	0.687	15.9	1.373	1.000
Not married (# worker ≥ 2)	3,898	6,206	12,284	0.445	0.315	0.705	2.6	2.849	2.238
Family Structure									
One-person household	1,154	2,822	12,940	0.787	0.344	0.677	30.1	1.000	0.391
Two-or-more person household	4,356	6,477	14,960	0.545	0.316	0.627	69.9	3.023	1.408
without child aged ≤ 16	3,551	6,187	18,038	0.638	0.338	0.605	47.7	2.543	1.291
with child(ren) aged ≤ 16	6,083	7,100	8,358	0.339	0.259	0.617	22.2	4.051	1.657
without elderly aged ≥ 65	6,144	7,180	11,198	0.373	0.283	0.631	37.6	3.302	1.726
with elderly aged ≥ 65	2,272	5,658	19,345	0.735	0.337	0.599	32.3	2.698	1.037
Total Sample	3,392	5,377	14,352	0.627	0.370	0.642	100.0	2.414	1.102

B Adult Equivalent Profiles

Our analysis showed a declining trend in household size, not only in the population average, but also conditional on age, particularly among households in their 30s to 50s. Over the same time period, the number of workers per household also decreased, although this change was much less pronounced than the decline in household size.

To study changes in household variables while controlling for time-varying household size, we calculate equivalized values for the three statistics using the OECD equivalence

scale. Specifically, we assign a value of 1.0 to the first adult household member, 0.7 to each additional adult aged 20 or older, and 0.5 to each child under 20. Based on this scale, we compute per adult equivalent values for each variable for every household.

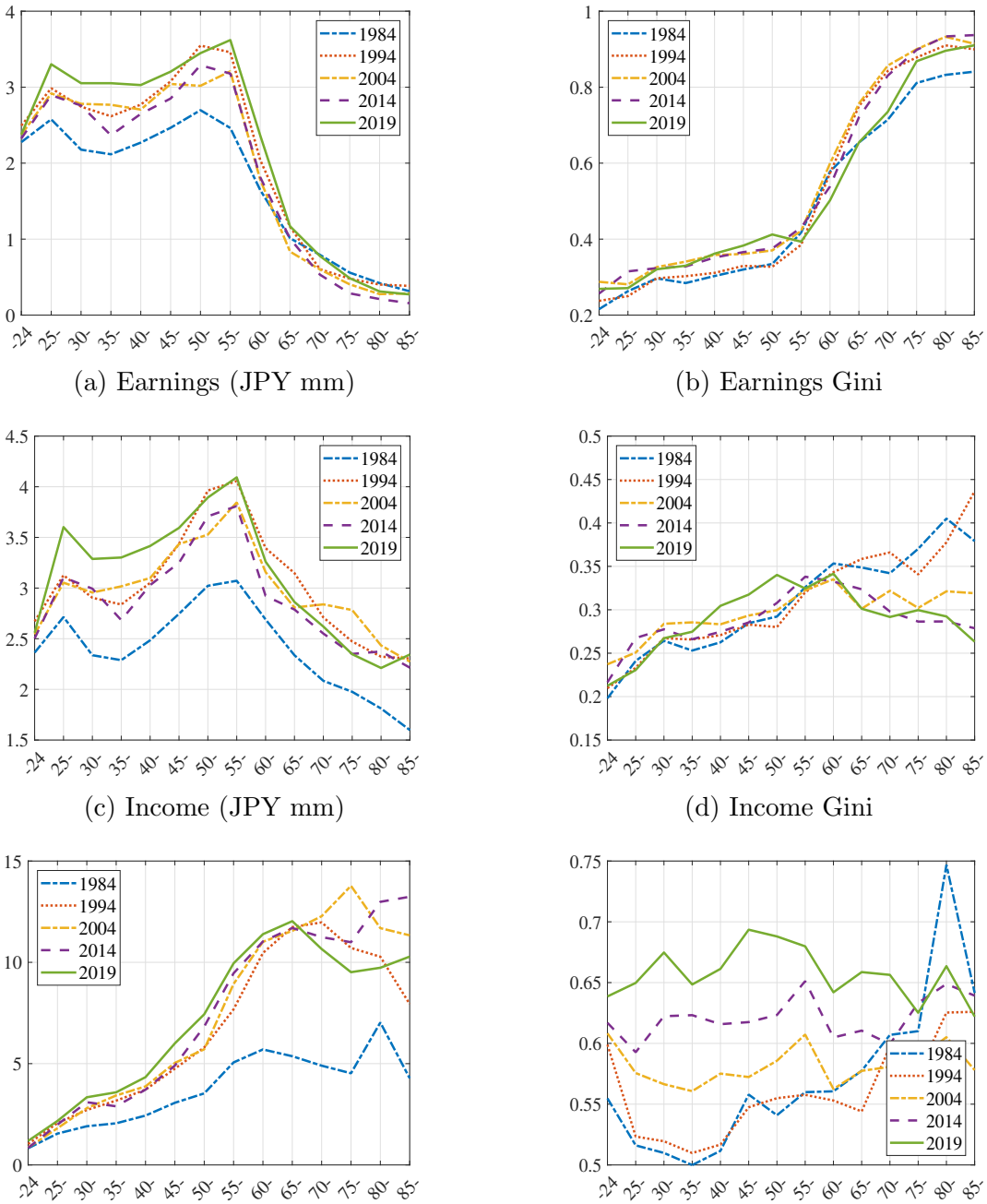
Table B.1 shows the trend in average and median levels of equivalized per adult values of earnings, income and wealth and Gini coefficients. The decline in the level of earnings and income since the peak in the 1990s is milder in per adult levels than in household levels because of the decline in household size over the past few decades. The rise in the average wealth since 1984 is also milder with equivalized values. Gini coefficients for both household and per adult variables changed in a similar fashion.

Table B.1: Per Adult Equivalent Mean, Median and Gini Coefficients

Year	1984	1989	1994	1999	2004	2009	2014	2019
Earnings								
Mean	2,164	2,357	2,536	2,476	2,038	1,833	1,629	2,188
Median	1,958	2,131	2,298	2,192	1,728	1,385	1,046	1,794
Gini index	0.377	0.417	0.441	0.479	0.547	0.587	0.623	0.550
Income								
Mean	2,581	2,951	3,262	3,306	3,095	2,998	2,861	3,156
Median	2,233	2,529	2,781	2,816	2,618	2,519	2,401	2,647
Gini index	0.294	0.301	0.310	0.315	0.310	0.320	0.315	0.320
Financial Wealth								
Mean	3,126	5,107	6,218	6,871	8,030	8,104	8,977	7,845
Median	1,693	2,376	3,109	3,323	3,689	3,484	3,672	2,970
Gini index	0.589	0.640	0.613	0.625	0.641	0.659	0.672	0.691

Mean and median are in JPY1,000.

Figure B.1 presents lifecycle profiles of equalized per adult variables. Due to the decline in average household size, the drop in earnings and income levels since 1990s is less pronounced compared to the profiles based on household totals. Similarly, the rise in wealth is more moderate on a per adult basis. The lifecycle profiles of Gini coefficients are similar in household and per adult statistics.



(a) Earnings (JPY mm)

(b) Earnings Gini

(c) Income (JPY mm)

(d) Income Gini

(e) Fin. Wealth (JPY mm)

(f) Fin. Wealth Gini

Figure B.1: Lifecycle Profiles: Adult Equivalent

C Decomposition of Household Wealth

Tables C.1 and C.2 show decomposition of household wealth by wealth quintiles and in top percentiles as well as by age groups. The Japanese households allocate a much larger fraction of their wealth to deposits including regular/cash-like deposits and time deposits, than to bonds and stocks.

Table C.1: Financial Wealth Decomposition by Financial Wealth Levels and by Age in 1984

	Households in Fin. Wealth Quintiles					The Fin. Wealth Rich			
	1st	2nd	3rd	4th	5th	10-5%	5-1%	1%	All
Average wealth (JPY1,000)	476	2,088	4,142	7,477	21,173	19,310	31,954	72,280	7,053
Decomposition (%)									
All deposit	69.4	60.3	60.5	61.1	56.4	56.2	52.8	47.8	61.2
Ordinary deposit	34.2	16.3	11.9	9.1	6.4	6.1	5.1	4.9	14.7
Time deposit	35.2	43.9	48.6	52.0	50.0	50.1	47.7	42.9	46.5
Insurance	22.4	30.3	27.1	22.4	15.8	15.8	11.6	9.7	23.6
Lending trust and money in trust	0.7	1.8	3.6	5.4	10.0	11.3	12.1	7.8	4.5
Stock and investment trust	0.4	1.1	1.9	3.4	7.7	7.2	10.6	21.3	3.0
Bond and bond trust	0.4	0.8	1.5	2.5	6.2	6.3	9.9	11.3	2.4
Others	6.7	5.7	5.5	5.2	4.0	3.2	3.0	2.2	5.4

Age	≤ 24	24-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	≥ 85
Average wealth (JPY 1,000)	968	2,403	4,237	5,485	6,651	7,969	8,796	11,108	11,351	10,002	8,893	7,959	10,136	8,721
Decomposition (%)														
All deposit	71.0	65.3	60.3	56.8	55.7	57.9	59.3	61.2	63.3	69.9	74.2	80.3	78.5	80.3
Ordinary deposit	29.9	20.7	13.5	11.9	11.5	12.7	13.1	12.9	15.0	17.5	19.4	22.0	23.6	22.1
Time deposit	41.0	44.6	46.8	44.9	44.1	45.2	46.2	48.3	48.4	52.3	54.8	58.2	54.9	58.2
Insurance	11.8	18.9	24.4	27.8	28.2	27.3	26.2	22.9	20.9	17.3	14.3	8.9	6.6	6.4
Lending	1.1	2.4	4.0	4.3	4.8	4.1	4.4	6.3	6.8	5.4	4.5	3.7	3.7	8.0
Stock	0.6	1.3	2.1	2.9	3.7	3.7	3.6	3.7	3.4	3.2	2.8	3.4	4.9	3.7
Bond	0.6	1.5	2.2	1.9	2.0	2.0	2.4	3.5	4.0	3.3	3.4	3.1	5.7	1.5
Others	14.9	10.5	7.1	6.2	5.7	5.0	4.0	2.5	1.6	0.9	0.7	0.6	0.5	0.0

Table C.2: Financial Wealth Decomposition by Financial Wealth Levels and by Age in 2019

	Households in Fin. Wealth Quintiles					The Fin. Wealth Rich			
	1st	2nd	3rd	4th	5th	10-5%	5-1%	1%	All
Average wealth (JPY1,000)	70	1,642	5,360	12,688	42,842	38,747	63,839	158,659	12,481
Decomposition (%)									
All deposit	90.2	81.2	75.8	72.4	69.8	67.1	64.3	64.8	69.7
Ordinary deposit	72.3	62.8	56.5	52.4	45.0	41.0	37.3	33.0	35.2
Time deposit	17.8	18.5	19.4	20.0	24.8	26.1	27.0	31.9	34.5
Insurance	6.5	12.3	18.0	20.6	22.7	24.9	27.9	25.9	23.8
Lending trust and money in trust	0.0	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.3
Stock and investment trust	0.0	0.3	0.6	0.5	0.3	0.8	0.6	0.9	1.2
Bond and bond trust	2.5	4.2	4.0	4.0	4.0	4.5	4.2	5.0	4.0
Others	0.8	1.8	1.5	2.4	3.0	2.6	2.8	3.2	1.0

Age	≤ 24	24-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	≥ 85
Average wealth (JPY 1,000)	1,276	2,540	5,175	6,032	7,822	10,003	12,350	15,836	18,572	18,536	17,291	14,971	14,462	15,544
Decomposition (%)														
All deposit	90.2	81.2	75.8	72.4	69.8	67.1	64.3	64.8	69.7	71.1	73.9	75.6	77.8	80.0
Ordinary deposit	72.3	62.8	56.5	52.4	45.0	41.0	37.3	33.0	35.2	33.4	34.5	34.5	34.8	36.6
Time deposit	17.8	18.5	19.4	20.0	24.8	26.1	27.0	31.9	34.5	37.7	39.5	41.0	43.0	43.3
Insurance	6.5	12.3	18.0	20.6	22.7	24.9	27.9	25.9	23.8	21.1	19.6	17.5	17.9	14.2
Lending	0.0	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.3	0.4	0.3	0.2	0.1	0.3
Stock	0.0	0.3	0.6	0.5	0.3	0.8	0.6	0.9	1.2	1.4	1.4	1.2	0.8	0.9
Bond	2.5	4.2	4.0	4.0	4.0	4.5	4.2	5.0	4.0	5.6	4.5	5.2	3.3	4.5
Others	0.8	1.8	1.5	2.4	3.0	2.6	2.8	3.2	1.0	0.5	0.3	0.3	0.1	0.3

Tables C.3 and C.4 show the level of household debt and its breakdown into mortgage and non-mortgage. A large part of households' debt is mortgage. On average, total debt accounts for 38% of wealth (32% for mortgage) in 1984 and 33% (29% for mortgage) in 2019. The relative size of debt as a ratio to wealth generally falls in wealth levels. In the dimension of age groups, households in their 30s own the highest level of debt relative to wealth since this is the time for many households to purchase housing on mortgage.

Table C.3: Debt by Financial Wealth Levels and by Age in 1984

	Households in Fin. Wealth Quintiles					The Fin. Wealth Rich			
	1st	2nd	3rd	4th	5th	10-5%	5-1%	1%	All
Debt level (JPY1,000)									
Total	1,406	2,867	3,175	2,947	2,943	2,845	2,956	5,134	2,660
Mortgage	1,116	2,507	2,791	2,592	2,414	2,373	2,280	3,545	2,277
Non-mortgage	290	360	385	355	530	471	676	1,588	383
% of wealth									
Total	295.6	137.3	76.7	39.4	13.9	14.7	9.2	7.1	37.7
Mortgage	234.6	120.0	67.4	34.7	11.4	12.3	7.1	4.9	32.3
Non-mortgage	61.0	17.2	9.3	4.7	2.5	2.4	2.1	2.2	5.4

Age	≤ 24	24-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	≥ 85
Debt level (JPY1,000)														
Total	296	944	2,541	3,882	4,283	3,975	2,928	2,251	1,275	864	742	373	357	169
Mortgage	89	699	2,274	3,537	3,855	3,403	2,423	1,763	944	517	499	225	317	126
Non-mortgage	207	245	267	345	428	573	506	489	330	347	243	148	39	43
% of wealth														
Total	30.5	39.3	60.0	70.8	64.4	49.9	33.3	20.3	11.2	8.6	8.3	4.7	3.5	1.9
Mortgage	9.1	29.1	53.7	64.5	58.0	42.7	27.5	15.9	8.3	5.2	5.6	2.8	3.1	1.4
Non-mortgage	21.4	10.2	6.3	6.3	6.4	7.2	5.7	4.4	2.9	3.5	2.7	1.9	0.4	0.5

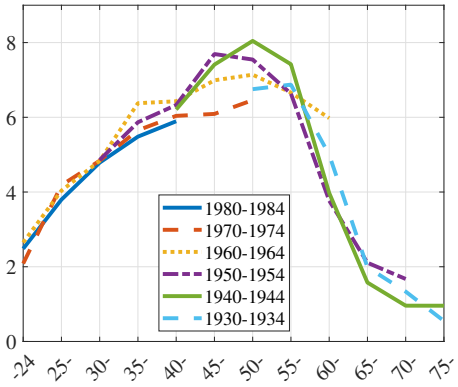
Table C.4: Debt by Financial Wealth Levels and by Age in 2019

	Households in Fin. Wealth Quintiles					The Fin. Wealth Rich			
	1st	2nd	3rd	4th	5th	10-5%	5-1%	1%	All
Debt level (JPY1,000)									
Total	1,871	4,620	5,648	4,748	3,620	2,400	3,274	12,125	4,102
Mortgage	1,502	4,058	5,157	4,095	3,067	1,882	2,577	10,999	3,576
Non-mortgage	369	563	491	653	553	518	697	1,127	526
% of wealth									
Total	2681.0	281.3	105.4	37.4	8.5	6.2	5.1	7.6	32.9
Mortgage	2152.2	247.0	96.2	32.3	7.2	4.9	4.0	6.9	28.7
Non-mortgage	528.9	34.3	9.2	5.1	1.3	1.3	1.1	0.7	4.2

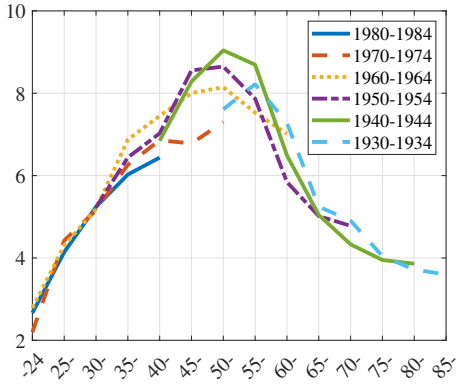
Age	≤ 24	24-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	≥ 85
Debt level (JPY1,000)														
Total	501	2,027	6,920	8,923	9,719	8,078	6,214	4,130	2,267	1,416	1,301	853	1,119	1,095
Mortgage	157	1,628	6,505	8,135	9,163	7,545	5,288	3,350	1,728	1,034	926	466	897	562
Non-mortgage	344	399	415	789	556	533	925	780	539	382	375	386	223	533
% of wealth														
Total	39.2	79.8	133.7	147.9	124.3	80.8	50.3	26.1	12.2	7.6	7.5	5.7	7.7	7.0
Mortgage	12.3	64.1	125.7	134.9	117.2	75.4	42.8	21.2	9.3	5.6	5.4	3.1	6.2	3.6
Non-mortgage	27.0	15.7	8.0	13.1	7.1	5.3	7.5	4.9	2.9	2.1	2.2	2.6	1.5	3.4

D Cohort Profiles

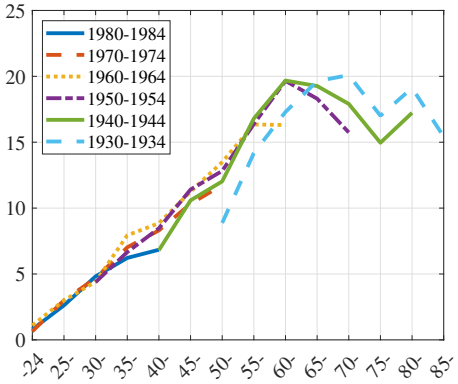
Figure D.1 shows profiles of earnings, income and wealth by cohort, indexed by each cohort's birth year (age-0). For earnings, levels among households in their 20s show little variation, though data is available only for more recent cohorts born in the 1960s and later. The cohorts achieving the highest earnings within each group corresponds to those who were in that age group during the bubble period of the late 1980s to early 1990s. For example, the peak earnings at age 50-54 were observed for the 1940-44 cohort in the 1990s. For wealth, levels among recent cohorts in their 20s and 30s have remained relatively stable. However, wealth at older ages has increased among more recent cohorts, as shown in Figure D.1c.



(a) Earnings (JPY mm)



(b) Income (JPY mm)



(c) Fin. Wealth (JPY mm)

Figure D.1: Lifecycle Profiles by Cohort Birth Year

E Households with Zero Wealth

There has been a steady increase in a fraction of households with little or no financial wealth. In this section, we examine the characteristics of such households across various dimensions. Table E.1 summarizes the distribution of zero-wealth households by gender, marital status, employment status, and family structure.

While there are more zero-wealth households headed by men than by women, the proportion of female-headed households among zero-wealth households is higher than their share in the overall population. Similarly, the proportion of non-working households is greater among zero-wealth households compared to the general population.

Table E.1: Characteristics of Households with Zero Financial Wealth

	1984	1989	1994	1999	2004	2009	2014	2019
Total (% of all HHs)	4.93	7.13	6.28	6.77	9.40	12.17	13.14	13.12
By gender of HH head (total 100%)								
Head: male	79.6	79.1	75.6	74.1	70.3	68.8	65.8	74.6
Head: female	20.4	20.9	24.4	25.9	29.7	31.2	34.2	25.4
By marital status (total 100%)								
Not married	35.0	29.7	35.7	45.9	43.0	43.9	47.6	47.4
Married	65.0	70.3	64.3	54.1	57.0	56.1	52.4	52.6
By employment status of HH head (total 100%)								
Employee	50.1	57.0	57.1	53.1	45.8	45.7	40.6	48.3
Self-employed	33.1	27.9	23.8	20.1	18.7	16.1	15.4	12.2
Not working	16.8	15.2	19.1	26.8	35.5	38.2	44.0	39.5
By family structure (total 100%)								
Married								
no child	23.7	31.7	33.4	31.3	34.8	35.4	33.7	36.0
with child(ren)	41.3	38.6	30.9	22.8	22.2	20.7	18.8	16.6
Single male								
no child	14.6	9.7	11.4	20.8	14.0	13.6	14.4	22.6
with child(ren)	0.6	0.3	0.4	0.2	0.2	0.2	0.2	0.4
Single female								
no child	16.7	17.7	22.0	22.6	26.3	27.3	30.4	20.3
with child(ren)	3.2	1.9	2.0	2.4	2.6	2.8	2.5	4.1

In terms of family structure, the fraction of households headed by single men or women is smaller than those headed by married heads as shown in the bottom section of Table E.1. However, likelihood of reporting zero wealth is much higher among households headed by singles.