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Sustainable Path to Inclusive Growth in Japan: How to Tackle Income Inequality?

Japan

Purva Khera and Yun Gao

SIP/2024/026

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Sustainable Path to Inclusive Growth in Japan: How to Tackle Income Inequality?
Prepared by Purva Khera and Yun Gao

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ABSTRACT: Market income inequality in Japan has been on a steady rise since the 1980s, and is now close to the OECD average. Gross and disposable income inequality, on the other hand, have risen much less but remain higher relative to several comparator countries. This paper employs inequality index decompositions by income source using household panel survey data from 2010-19 to identify the factors driving income inequality in Japan. Results indicate that while increase in the employment of females and the elderly in the last decade has helped lower income inequality, this has been offset by them being mostly employed in low-paid part-time nonregular jobs. Rapid aging of the population has also exacerbated income inequality over time. Moreover, while fiscal redistributive effects of social transfers are found to be a somewhat equalizing force, its impact on inequality is relatively weaker.

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SUSTAINABLE PATH TO INCLUSIVE GROWTH IN JAPAN: HOW TO TACKLE INCOME INEQUALITY?¹

A. Introduction

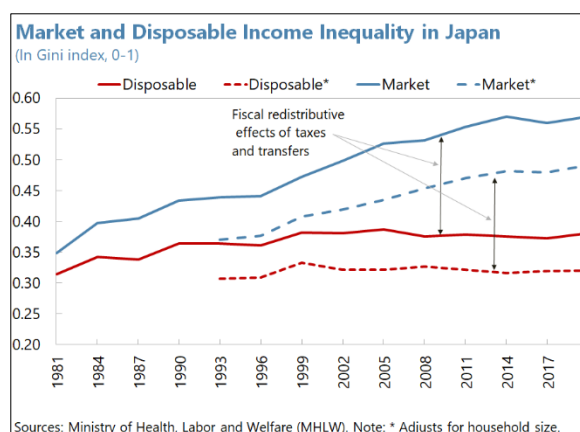
1. Income inequality matters for growth and sustainability. Increasing concentration of incomes is found to reduce aggregate demand and undermine growth, because the wealthy spend a lower fraction of their incomes than middle- and lower-income groups (Carvalho and Rezai, 2016). Higher inequality may also lead to policy choices that hurt growth. For instance, it may increase demands for hikes in public expenditure to counter inequality, resulting in tax increases down the pipeline that may have negative implications for growth (Dabla-Norris and others, 2015).

2. In this paper we seek to understand the key sources of income inequality in Japan and identify the policies that could help make the Japanese society more equal. This is a relevant exercise as: (i) Income inequality in Japan has been on a rise and is high across comparator countries. (ii) Reducing inequality is a key focus of PM Kishida's New Capitalism agenda. (iii) While most of the current literature provides theoretical arguments for what might be driving the income inequality in Japan using macro-level data (Colacelli and Anh, 2018; Aoyagu and others, 2015), our paper provides a comprehensive analysis by digging deeper into micro household-level survey data to better identify the underlying factors that drive inequality, including how these drivers vary across different household characteristics.

B. Macroeconomic Trends in Income Inequality

3. Market income inequality in Japan has been on a steady rise since the 1980s. The Gini coefficient for market income (income before taxes and transfers) has been on a steady rise since the 1980s – increasing by close to 60 percent between 1980-2019 – and is now close to the OECD average. This rise is partially attributable to the demographic transition, i.e., the rise in the share of the elderly in the population (Aoyagi and others, 2015).

4. Gross and disposable income inequality have risen much less, reflecting the active role of fiscal redistribution through taxes and transfers. The Gini coefficient of gross income (income after transfers) worsened by close to 19 percent between 1980-2010, but has somewhat stabilized in the last decade before the pandemic

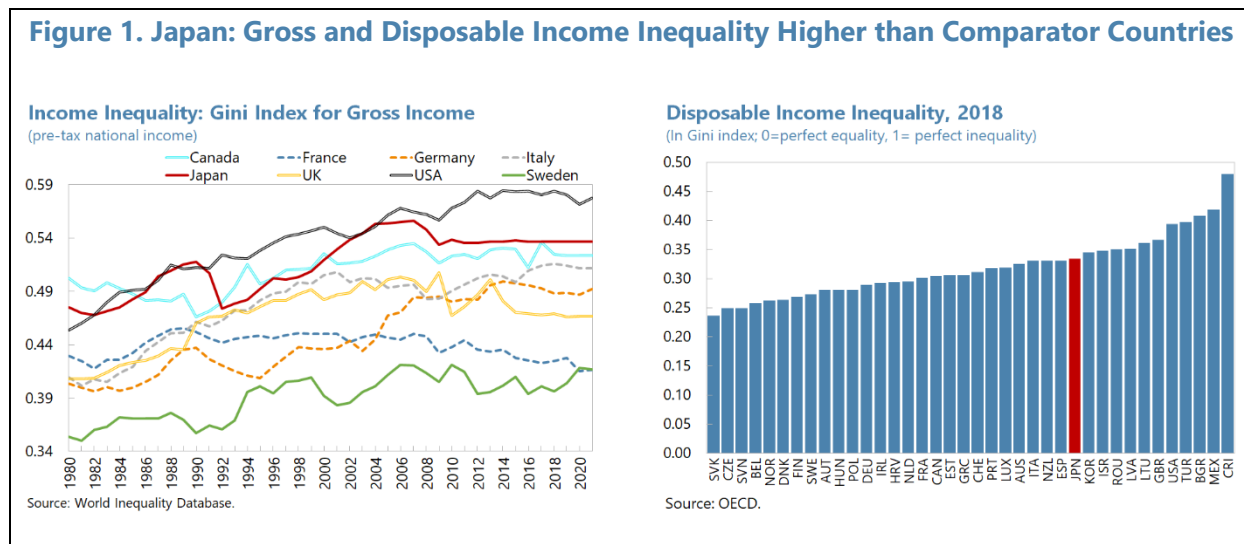


¹ Prepared by Purva Khera (APD) and Yun Gao (OAP).

(2010-19). When including the effects of taxes, the Gini coefficient for disposable income (income after transfers and taxes) rose by 21 percent between 1980 and 2000, but has stabilized since.

5. Income inequality is high in comparison to several advanced economies. While the total fiscal redistributive effects—the gap between the respective market and disposable income Gini coefficients—have increased over time in Japan, disposable income inequality is still higher than the OECD average. However, these cross-country measures of income inequality could be sensitive to the underlying dataset used. For instance, Mikayama and others (2023) use a more comprehensive dataset for Japan—combining the largest household survey dataset with close to 70,000 households with the income tax dataset—for a more accurate estimation of the income distribution in Japan. They find that the top 1 percent and 10 percent income shares in Japan are lower than those for the U.S. and at similar levels to European countries in 2019.

6. Moreover, fiscal redistribution through taxes and transfers may have an efficiency cost. [OECD \(2011\)](#) discusses that reliance on the tax and transfer system as a major mechanism of equalization of income may not be an efficient (including posing a tradeoff with economic growth) or financially sustainable strategy. It is therefore important to tackle market income inequality through other means, and this paper delves deeper into those.



C. Empirical Analysis: Data and Methodology

7. For a more granular study of inequality in Japan, we use the Japan Household Panel Survey and the Keio Household Panel Survey (JHPS/KHPS). This is a representative Japanese household panel survey conducted every year since 2004, with a total sample size of about 5,000 households (Box 1).² The JHPS/KHPS asks about the various income sources of the respondent, their spouse, and the aggregated incomes of other family members in the household. Since the

² The KHPS and the JHPS had similar questionnaires and were managed independently before 2014. Since 2014 their questionnaires were unified and combined as the Japan Household Panel Survey.

2009 wave, the survey has included data about labor income of households, and divides income sources into wage employment income, self-employment income, capital income, and transfer income. In our analysis we focus on the data from 2010-19 (corresponding to survey waves 2011-20), which spans the period after the global financial crisis and until before the pandemic.

8. Inequality is measured based on per capita household gross income and market income.

The use of the “household” as the income unit follows the most common practice in the literature.³ Market income is the sum of wage income, self-employment income, and capital income. Gross income is the sum of market income and cash transfers. Wage income is segregated into wages and salaries from regular and nonregular employment, respectively. Self-employment income includes net business income of self-employed workers and home-work income (including agriculture, forestry and fishery income). Capital income includes rent income, interest, and dividends. Cash transfers include public pension, corporate and personal pensions, unemployment benefit, childcare allowances, and other transfers.⁴ The JHPS/KHPS does not collect data on tax payments, which is why we were unable to analyze the income inequality in disposable income – and therefore this paper does not comment on the impact of taxes on inequality.

9. We decompose the overall Gini index (G) to estimate how each income source contributes to total inequality. The methodology follows Lerman and Yitzhaki (1985) and is described in Box 2.

10. There are three channels through which each income source (k) affects overall income inequality. (i) share of each income source in total income (S_k); (ii) inherent within-group income inequality with which the income source is distributed (G_k); and (iii) the correlation of income source with total income inequality (R_k). The change in the overall Gini coefficient over time can be decomposed into the changes in the shares of each income source (share effect) and changes in the concentration coefficients (concentration effect) of the different income sources (see below).

11. The concentration coefficient⁵ (also referred to as the quasi-Gini coefficient in the literature), which lies between -1 and 1, is a product of G_k and R_k . It captures both the inherent inequality with which a given income source is distributed (source Gini coefficient) and the correlation of that source with overall income inequality. A negative (or positive) value shows that a given source is negatively (or positively) correlated with overall income, i.e., it is progressive (regressive). For instance, an inherently unequal source, such as social assistance, with a high Gini coefficient will have a low or negative correlation with overall income (as most social assistance

³ Given that income is often shared within a family or a household, we find it more appropriate to look at disparities in household income, as opposed to individual income. Typically, earnings dispersion among households is lower than among individuals because of income pooling within the household, as well as the fact that families can provide insurance against individual risks.

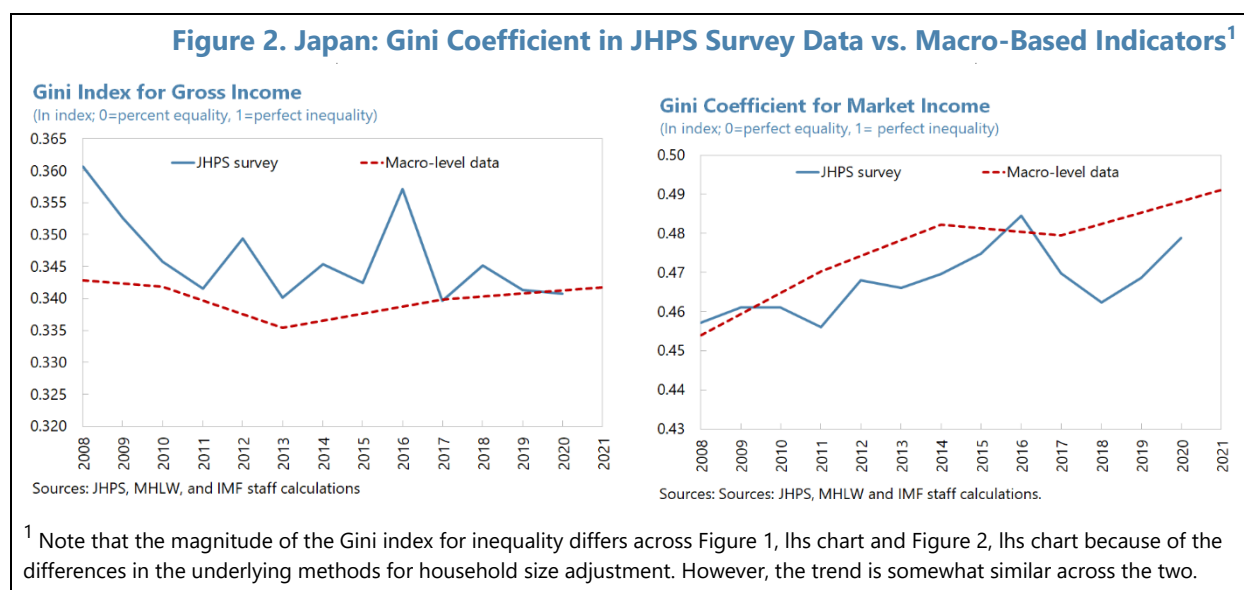
⁴ For example, the “Special Cash Payment” during the covid pandemic is included in the other transfers.

⁵ The concentration coefficient shows the concentration (or cumulative percentage) of an income source (for example, social transfers or wages), when recipients are ranked by amount of income. The coefficient ranges from -1, when the entire income source is received by the poorest (by income) recipient; through 0, when all recipients receive the same amount; to +1 when the entire income source is received by the richest recipients.

recipients are likely targeted towards the poor), and its concentration coefficient will be low or negative. Moreover, as long as $C_k < G$ (even if it is positive), the income source k will have some redistributive effects.

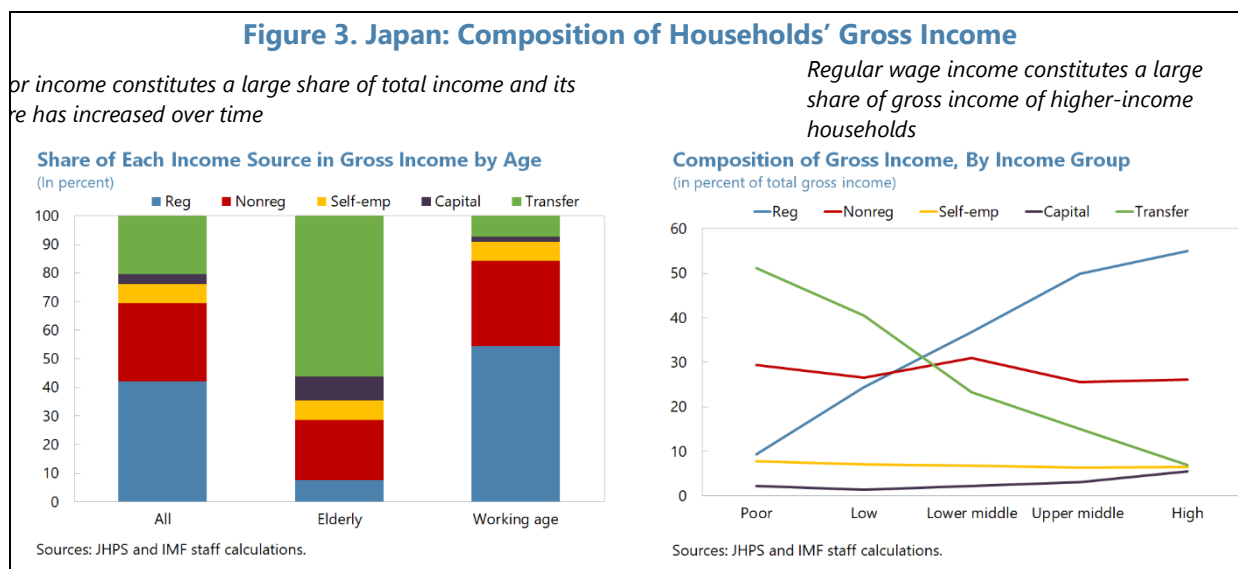
D. Results

12. On an aggregate level, the findings from the household-level data match the macro-based indicators (Figure 2). Before we begin to use the JHPS data to analyze inequalities in Japan, we check whether the micro data from the JHPS are consistent with the macro data. The Gini coefficients for gross and market income are consistent across the two and show that income inequality somewhat stabilized over the decade prior to the pandemic. This suggests that the household survey data forms a reliable representation of the population at large.



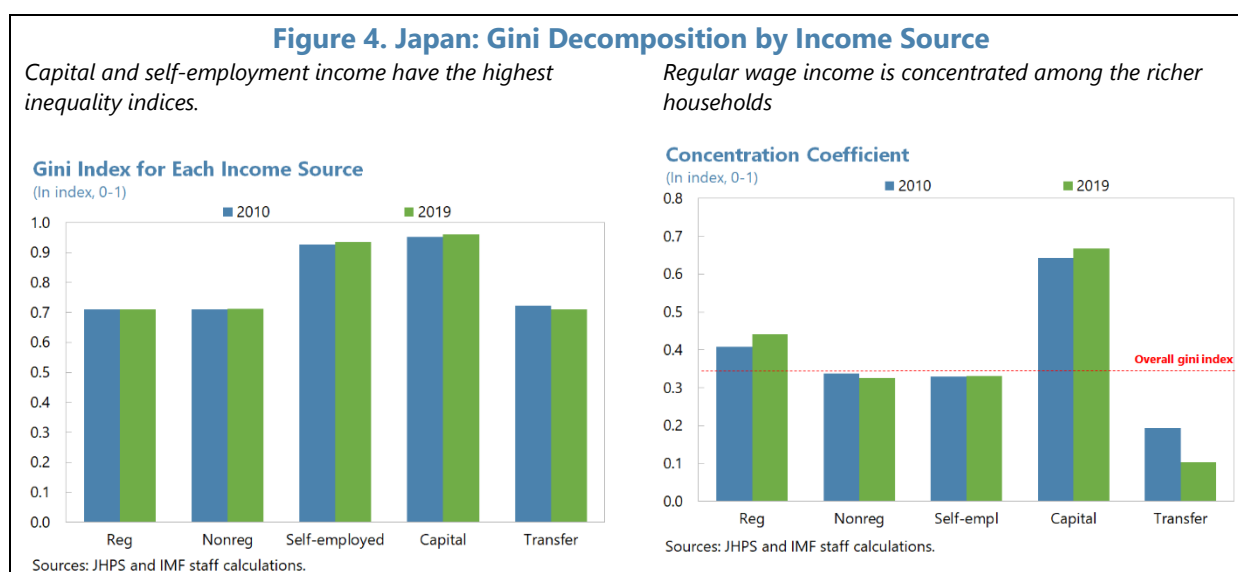
13. Overall gross income inequality has marginally declined, whereas market income inequality has increased. Consistent with the macro data, market income inequality is much higher than the gross income inequality. The former has somewhat stabilized and overall declined by 1.3 percent over the pre-COVID decade. Market income inequality, on the other hand, has increased by 1.7 percent.

14. Wage income constitutes on average 70 percent of household income (S_k), followed by transfers which account for 20 percent in 2019 (Figure 3, lhs chart). Within wage income, regular wage income constitutes two thirds and its share in total income has increased over time. On the other hand, the share of nonregular wage income has remained broadly unchanged. However, it varies substantially across income groups – share of regular wage income is the highest amongst the richer households whereas transfers form the largest income component amongst the lower-income households (Figure 3, rhs chart). Moreover, the income sources also differ across the elderly vs. the working age population – transfers and capital income constitute a relatively larger share of the income of the elderly population, whereas the regular wage income as a share of gross income is less than 8 percent.

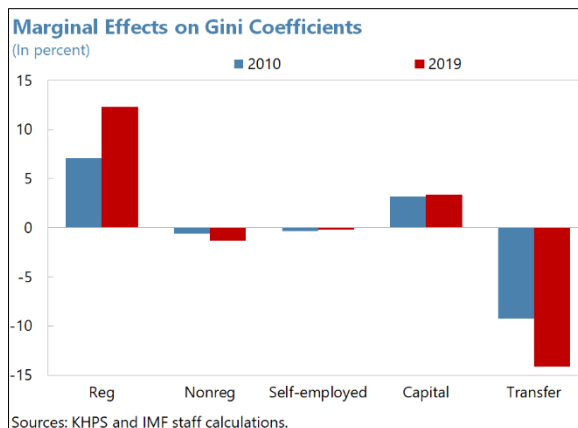


15. Capital income is the most unequally distributed among the various income components, followed by income from self-employment (Figure 4, lhs chart). This is based on the Gini index for each income source (G_k) , which has not changed much over time. Wage income inequality among nonregular workers is slightly higher than within regular workers, although the difference is small.

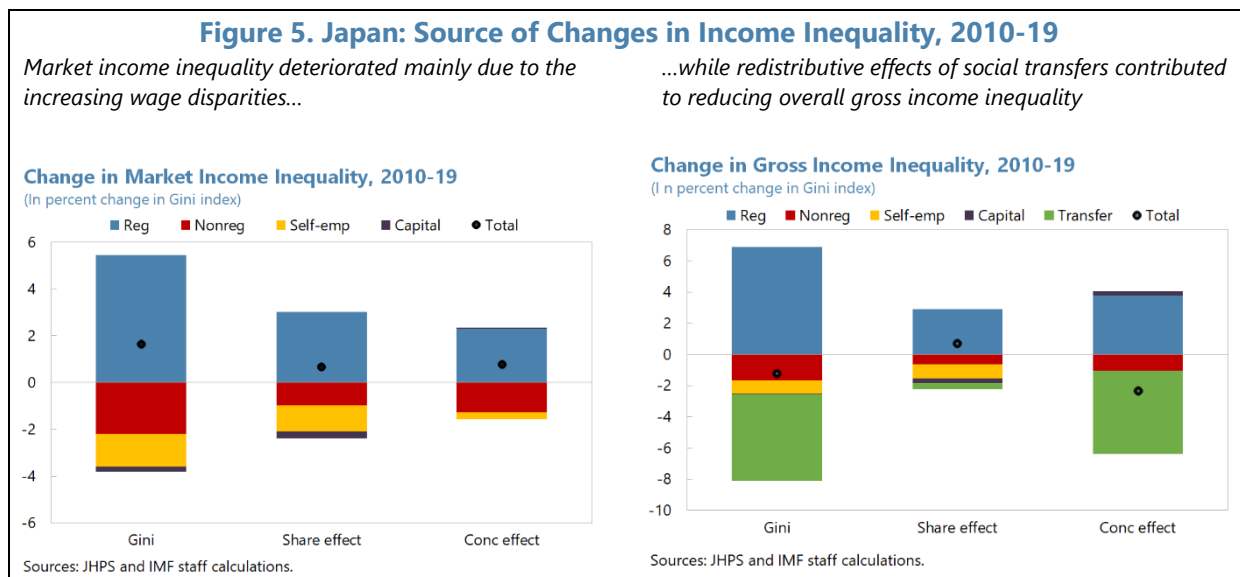
16. Regular wage income and capital income are more concentrated among the richer households (Figure 4, rhs chart). This is based on the concentration coefficient for each income source (C_k) . On the other hand, transfers and nonregular employment are relatively more concentrated among the lower-income groups (as $C_k < G$), and thus have a somewhat redistributive effect.



17. Transfers contribute to lowering inequality, while an increase in regular employment and capital income increases inequality.⁶ This is because although the former is also unequally distributed (its respective Gini index is close to that of regular wage income), it is mostly concentrated amongst the lower-income households, so a marginal increase in it all else equal will have an equalizing effect on the overall income distribution across the population. In 2019, a 1 percent increase in income from transfers, all else equal, reduces inequality by close to 14 percent. While a similar increase in regular wage income and capital increases it by 12 and 4 percent, respectively. These unequalizing effects of regular employment income and equalizing effects of transfers have increased considerably over the years.



18. In terms of the change in gross income inequality over time, four factors are found to be the key drivers: (i) changes in the age distribution (i.e., ageing of the population); (ii) changes in the labor market structure (i.e., increasing dualism), (iii) increase in the labor force participation/ employment of females and elderly; and (iv) changes in the distributions of social transfers. While the former two had a unequalizing impact, the latter two helped lower income inequality. On aggregate, the equalizing impact of the redistributive effects of transfers and the higher labor force participation/ employment of females and elderly marginally offset the negative impact of ageing population and increased dualism in the labor market (Figure 5).



⁶ If $C_k < G$ ($C_k > G$), then income source k reduces (increases) inequality.

The Effects of Transfers

19. Fiscal redistribution through social transfers is found to be effective in lowering income inequality. It reduced the Gini coefficient on market income by 33 percent in 2010 and by 37 percent in 2019, although note that this includes the impact of pension benefits (Figure 6, lhs chart).⁷ Consistent with macro-level data, this mainly benefits the elderly, with a significantly smaller reduction for the working age population, as social spending in Japan is mainly concentrated on the elderly (Hisanaga, 2022). Moreover, over time, it also helped reduce the Gini coefficient on total gross income by 6 percent between 2010-19 (Figure 5, rhs chart). This is largely because social transfers have become relatively more concentrated among the lower-income groups over time, i.e., their redistributive effects have become stronger.

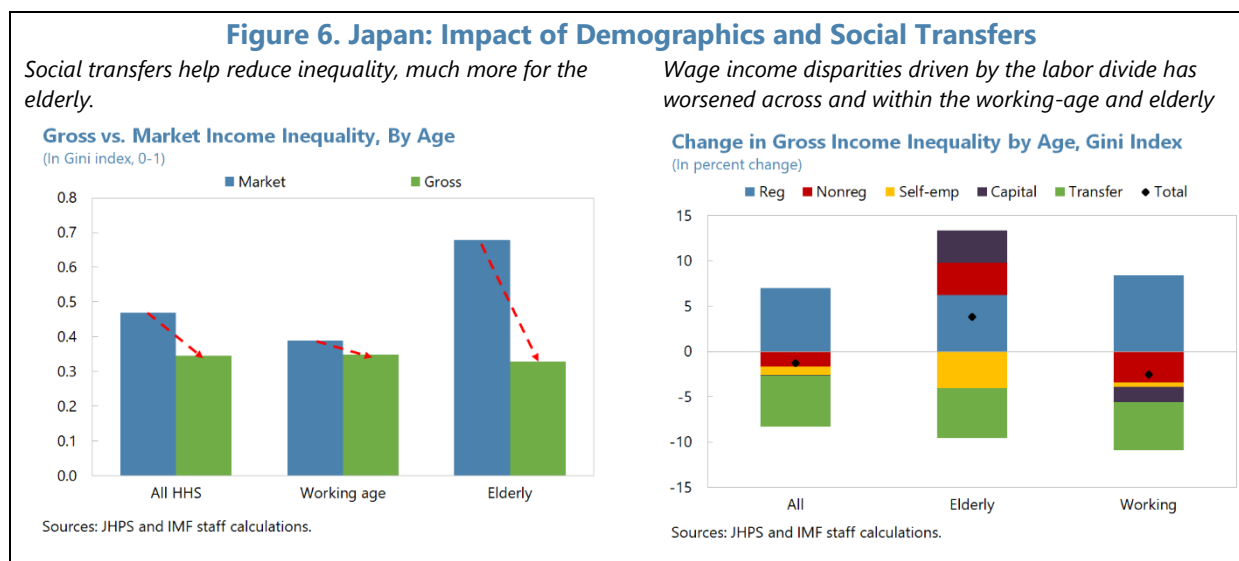
20. However, the distributional impact is weak. For the elderly, the concentration coefficient is positive in most countries, including Japan, as it includes pension benefits whose amount is linked to past income. For the working age population, in contrast, this coefficient is negative in most OECD countries, indicating that the amount of transfers increase as the level of household income declines (“progressivity”). In contrast, in Japan, it is positive, suggesting that the distributional impact of transfers on low-income households is relatively weak in comparison to other countries (An and Asao, 2023).⁸ [Heisz and Murphy \(2015\)](#) show that for two equal-sized transfers, the more appropriately targeted and progressive transfer would have a larger redistributive effect.

Progressivity of Transfers Concentration Coefficients in 2019		
	Japan	OECD avg.
Total	0.10	0.14
Pensioners	0.17	-0.06
Working-age	0.10	-0.07

21. Moreover, fiscal transfers are not an efficient means to tackling inequality. Fiscal costs of redistribution could be high, especially in a constrained fiscal environment (para 6). The increasing share of the elderly population and the current high public debt is expected to put further pressure on Japan’s public finances.

⁷ Pensions constitute close to 40 percent of the total transfers in the dataset.

⁸ The progressivity of social spending is measured by the concentration coefficient which varies from -1 to 1. A value of zero indicates that the same amount of transfer is paid to each household. Positive values indicate that the amount of transfers increases with private income (regressive).



The Effects of Demographics

22. Ageing of the population where there are growing elderly and fewer share of younger people has led to an increase in overall income inequality. The share of the population aged above 65 has increased by 10 percentage points over the last decade. The incomes of elderly are lower than average including because many have no labor income, and growing numbers of them widens the income differentials between the old and young. Also, the distribution of wages is more unequal for older workers.

23. However, some of this increase has been offset by redistributive effects of transfers (discussed above), as well as the increasing labor force participation and employment of the elderly (discussed below).

The Effects of Female and Elderly Labor Supply

24. More participation and employment of females and elderly in the labor market is found to be an income equalizing force.

Japan added 2.9 million women and 3.5 million elderly (age 65 and above) to the labor force between 2010-19. This reflects better childcare availability and other policy reforms to alleviate labor shortages as a result of demographic trends. Both female and elderly labor force participation rates went up by 6 ppt each, respectively. At the same time, the

	Average Gini (2010-19)		% Change Between 2010 and 20219	
	Gross	Market	Gross	Market
All hhs	0.34	0.47	-1.3	1.6
Working age	0.35	0.39	-2.5	-4.8
Elderly	0.33	0.68	3.8	-2.9
Male	0.33	0.44	1.3	0.5
Female	0.55	0.69	-9.2	-4.9

unemployment rate declined from 5 to 2.3 percent. This helped increase employment income for those that were outside the labor force before, while also increasing the incidence of dual and multi-income earner households, making the labor income overall more equally distributed.⁹ It also

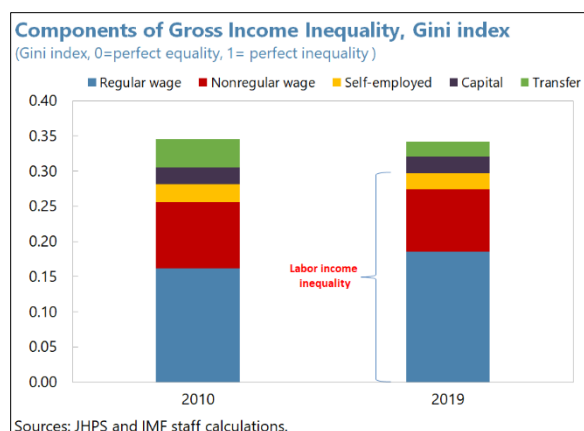
⁹ It also increases the inequality between dual-earner households and single households.

helped reduce the Gini index for market income among females by close to 5 percent between 2010-19, and that amongst the elderly by 3 percent.

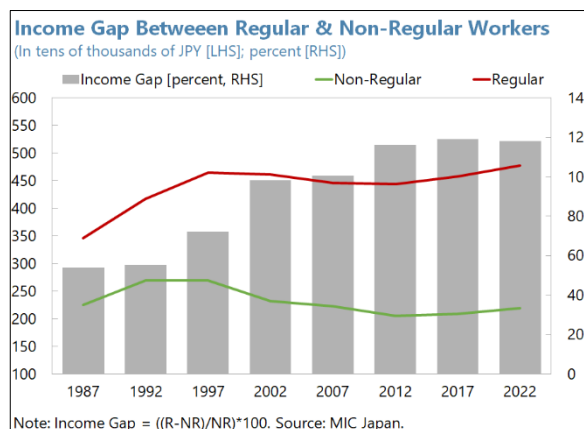
The Effects of the Dual Labor Market Structure

25. The increasing duality in the labor market and structural barriers to full-time employment is associated with worsening market income inequality over time.

- Overall wage inequality constitutes close to 80 percent (90 percent) of the gross (market) income inequality. More than half of the overall income inequality is associated with inequality in regular wages, and its influence on inequality has increased by 10 percentage points over time. This is because the average share of regular wage income in total gross income has grown and this has increasingly benefited the higher-income households. Households with regular employment have become even richer over time, thus widening the income divide with the rest of the Japanese population.



- This is because the growing share of nonregular workers—it has increased from 33 percent in 2010 to 38 percent in 2019—and their declining hours of work has widened the income gap between regular and nonregular workers.¹⁰ On an hourly basis, part-time workers – who account for 70 percent of nonregular workers – were paid only 57 percent as much as full-time workers in 2019. While this hourly wage gap between full-time and part-time workers has narrowed over time, the declining work hours of nonregular workers (due to distortionary effects of tax and social security benefits that force second earners in the family to reduce working hours) and limited mobility opportunities¹¹ has exacerbated income inequality between households with regular employment and others (IMF, 2023). This comparison understates the gap as it excludes bonus payments and retirement



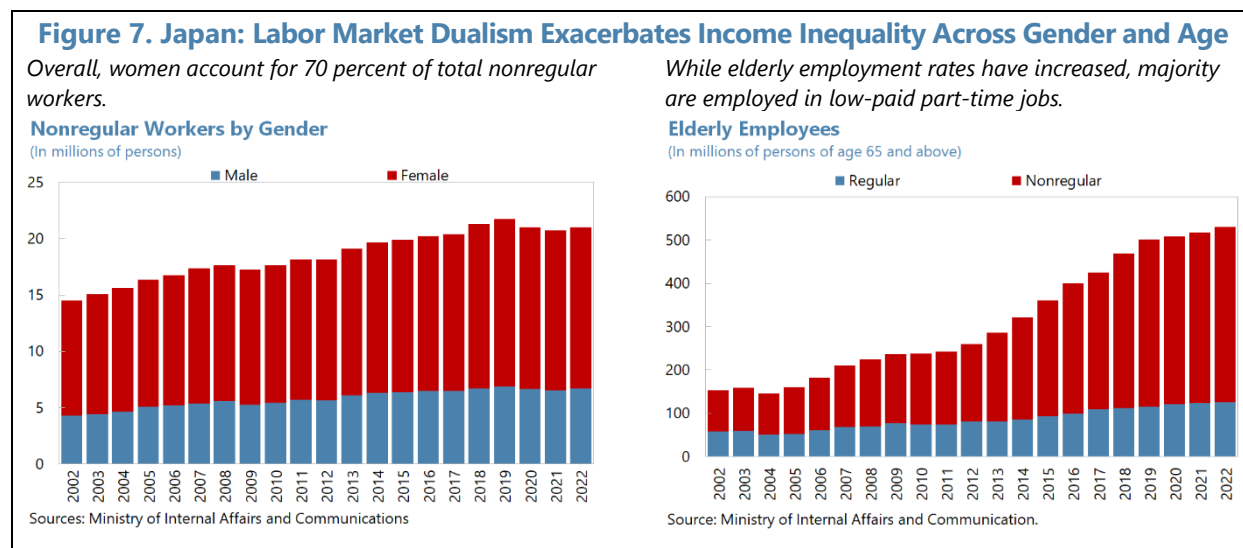
¹⁰ Wage inequality within regular workers and nonregular workers, respectively has remained fairly unchanged since 2010.

¹¹ This is in contrast to many other OECD countries, where informal work is frequently a temporary stop to permanent employment.

benefits, which most nonregular workers do not receive.¹² Moreover, opportunities for career progression and training are typically limited. The wage gap between regular and irregular workers has thus enlarged over time.

26. The dual labor market structure has also weighed on the equalizing effects of increase in female and elderly labor force participation and employment. 70 percent of the females and 85 percent of the elderly that were employed during 2010–19 worked in nonregular jobs. Even women who are employed as regular workers and leave the labor force to care for children tend to be relegated to nonregular status when they return to employment. This has exacerbated the gender wage gaps. For the elderly, under Japan’s seniority-based wage system, firms cannot afford to keep regular workers, prompting them to impose mandatory retirement and transform regular workers to non-regular status thereafter. This shift discourages some employees from continuing to work and lowers the productivity of those who stay, as noted above. Hence, we find that the inequality among the elderly has widened.

27. These results could vary based on the underlying dataset used. For instance, Yoshino and others (2018) use the quarterly dataset from Japan’s Family Income and Expenditure Survey, and find that a rise in the price of financial assets (i.e., capital gains) — possibly linked to an increase in the money supply — that benefited mainly richer Japanese households resulted in a widening of the income gaps and is a key driver of the increase in Japan’s income inequality.



E. Policy Recommendations

28. The following policies are key to achieving sustainable and inclusive growth in Japan:

- **Reducing labor market dualism and improving labor mobility.** While laws to end discrimination (such as the ‘equal pay for equal work’ implemented in 2020) are welcome,

¹² 70 percent of part-time workers do not receive bonus payments and 90 percent do not receive the lump-sum retirement benefit paid by firms.

breaking down dualism requires addressing the factors that encourage firms to hire non-regular workers in the first place, i.e., mainly lower labor costs and greater employment flexibility. As suggested in Aoyagi and Ganelli (2013), one reform option is to introduce a Single Open-Ended Contract for all newly hired workers, complemented by a shift towards a model that combines labor market flexibility and security. In addition, programs to increase skill training would also help enhance the career opportunities and mobility for nonregular workers – raising their productivity and real incomes – and reducing income gaps.

- **Continuing to further boost labor participation of females and the elderly and removing disincentives to employment in the social benefit policies.** Advancing implementation of work-style reforms, including flexible work arrangements such as telework, will help bring more women and elderly into the labor force and in full-time employment (IMF, 2022, Annex IX). The social security and tax distortions related to dependent spouses should also be eliminated to allow for voluntary increases in working hours (Xu and Chahande, 2023).
- **Better targeting of existing social benefit programs can help advance a more equal society.** The fiscal debt situation limits the scope for greater social spending and hence shifting the allocation of social spending to increase the share received by low-income households would help lower income inequality (IMF, 2024).

Box 1. Japan: Household-Survey Database

The Japan Household Panel Survey and the Keio Household Panel Survey (JHPS/KHPS) collects data on the following 11 income categories¹ for a respondent, his/her spouse, and aggregates of other family members:

- i. Annual employment income segregated by type of employment
- ii. Self-employment, business, home-work income
- iii. Rent income
- iv. Interest and dividends
- v. Remittances and gifts
- vi. Public pension
- vii. Corporate and personal pensions
- viii. Unemployment benefits and child-care leave benefits
- ix. Child allowances and childcare allowances (household's total amounts only, without breakdown between household members)
- x. Welfare benefits (household's total amounts only, without breakdown between household members)
- xi. Other income

Annual employment incomes of a respondent and his/her spouse include bonuses and monthly salaries, and are segregated into regular employment and non-regular employment, using information about the type of employment which the KHPS asks separately. Gross incomes of a respondent and his/her spouse are obtained by adding up i~xi for each. The incomes of other family members are available only in aggregates. A household's gross income is obtained by adding up incomes of a respondent, his/her spouse, and other family members, and capital gains of a household. Household income is adjusted by dividing by the household size.

¹ The KHPS asks the amount of severance pay. However, the KHPS does not ask duration of employment which is a key input to calculation of the tax amount for severance pay. Therefore, severance pay is not considered in our model, following Kawade (2018).

Box 2. Japan: Methodology for Factor Decomposition of the Gini Index

We adopt a factor decomposition of income inequality, following Shorrocks (1982), Lerman and Yitzhaki (1985) and Stark, Taylor, and Yitzhaki (1986).

Let y_1, y_2, \dots, y_K denote household income component, and y_0 denotes household total income as below,

$$y_0 = \sum_{k=1}^K y_k.$$

The Gini coefficient of household total income, G_0 , is calculated as

$$G_0 = \frac{2Cov[y_0, F(y_0)]}{\mu_0},$$

where μ_0 denotes the mean of total income y_0 , and $F(y_0)$ denotes the cumulative distribution of total income y_0 . Then, G_0 can be rewritten as below,

$$G_0 = \sum_{k=1}^K \frac{\mu_k}{\mu_0} \cdot \frac{2Cov[y_k, F(y_k)]}{\mu_k} \cdot \frac{Cov[y_0, F(y_0)]}{Cov[y_k, F(y_k)]}$$

Here, denote $S_k = \frac{\mu_k}{\mu_0}$, as the share of component k with total income, denote $G_k = \frac{2Cov[y_k, F(y_k)]}{\mu_k}$ as the Gini coefficient corresponding to income component k, denote $R_k = \frac{Cov[y_0, F(y_0)]}{Cov[y_k, F(y_k)]}$ as the Gini correlation of component k with total income. Hence, the Gini coefficient for total income, can be represented as

$$G_0 = \sum_{k=1}^K S_k G_k R_k$$

Intuitively, S_k implies the weight of component k relative to total income, G_k implies the inequality within component k, and R_k implies the correlation of component k with total income. If R_k equals to zero, component k and total income are independent; if R_k is positive, component k flows disproportionately toward those at the top of the income distribution (i.e., favors the rich), if R_k is negative, component k tends to targets low income households (i.e., favors the poor).

Following Milanovic (1998) and Amarante (2016), we define the concentration index of component k as C_k , where $C_k = G_k \cdot R_k$. Then, the overall Gini coefficient can be rewritten as

$$G_0 = \sum_{k=1}^K S_k C_k$$

Box 2. Japan: Methodology for Factor Decomposition of the Gini Index (concluded)

where S_k represents a share effect, and C_k represents a concentration effect. Then the change of Gini coefficient can be written as

$$\Delta G_0 = \sum_{k=1}^K \Delta S_k C_k + \sum_{k=1}^K S_k \Delta C_k + \sum_{k=1}^K \Delta S_k \Delta C_k$$

where the first term shows the change of the Gini coefficient due to the change of the share effect, the second term shows the change of the Gini coefficient due to the change of the concentration effect, and the third term is the residual. Intuitively, for component k , if the concentration index C_k remains constant and is higher than average concentration index of all components $1, 2, \dots, K$, an increase in the share index S_k results in an increase in overall Gini coefficient G_0 . On the other hand, if the share index S_k remains constant, an increase in the concentration index C_k results in an increase in overall Gini coefficient G_0 .

Next, we analyze the marginal effect of changes in component k on overall Gini coefficient. We consider an exogenous change in component k by a factor of e , such that $y_k(e) = (1 + e)y_k$. Then, the partial derivative of the overall Gini coefficient G_0 with respect to e factor change of component k is described as below. (see (Stark and others, 1986))

$$\frac{\partial G_0}{\partial e} = S_k (G_k R_k - G_0)$$

Divided by G_0 , the marginal effect relative to the overall Gini coefficient G_0 is as below.

$$\frac{\partial G_0 / \partial e}{G_0} = \frac{S_k G_k R_k}{G_0} - S_k$$

The partial derivative equals to the original contribution of component k to income inequality minus component k 's share of total income. A negative sign of the marginal effect implies a marginal increase of the component k has an equalizing effect, that is, G_0 decreases.

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