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### On the decline in propensity to consume during the Abenomics period<sup> $\dagger$ </sup>

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#### Abtract

During the Abenomics period, the Japanese government implemented policies aimed at promoting economic growth and job creation through the "three arrows" of bold monetary easing, fiscal policy, and growth strategies. Although successful in creating jobs, the propensity to consume declined in a manner inconsistent with the expectations derived from the life cycle/permanent income hypothesis (LC/PIH) as the population aged. While the increase in the consumption tax rate in April 2014 (from 5% to 8%) is often cited as the cause of the consumption decline, this paper focuses on the types of income that increased and attempts to explain the decline within the standard LC/PIH framework. Despite an increase in household disposable income during the Abenomics period, most of it came from temporary sources, such as labor income to current income decreased, leading to a decline in the propensity to consume. To achieve domestic demand-led growth driven by consumption, policies are needed that generate an increase in household income perceived as permanent rather than temporary.

<sup>&</sup>lt;sup>†</sup> This work forms part of our micro-data based research project on household behavior in Japan at the Economic and Social Research Institute, Cabinet Office. We are grateful to Kazuyasu Sakamoto for thoughtful comments on the earlier draft of this study. We also would like to thank the Statistics Bureau of Japan for providing us with the microdata from the Family Income and Expenditure Survey (FIES) and the Ministry of Health, Labour and Welfare for the dataset from the Longitudinal Survey of Adults in the 21st Century. The authors, Murata and Hori, were supported by JSPS KAKENHI Grant Numbers 20K01709 and 19K01715, respectively.

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#### 1. Introduction

The second Abe Administration, which started at the end of 2012, implemented economic policies known as the 'three arrows': bold monetary easing policy, flexible fiscal policy and economic structural reform. These policies initially led to an improvement in the Japanese economy, with increased economic growth, rising stock prices, and a weaker yen due to the monetary easing policy. The employment situation also improved and household disposable income increased. However, while household consumption expenditure initially grew in 2013, it subsequently declined for three consecutive years in real terms, indicating a limitation of Abenomics in boosting household consumption. The average household propensity to consume in Japan has been on an upward trend for about 30 years under the ageing population, but has reversed and fallen since 2014 (Figure 1).



Figure 1. The average propensity to consume of households (SNA vs. FIES)

Source: National Accounts and Family Income and Expenditure Survey. Workers' household and non-occupation household mean that the head of the household is working or not working, respectively.

To investigate the decline in consumption propensity, Table 1a shows trends in disposable income and consumption. Between 1997 and 2014, the annual growth rate of disposable income was 0.1%, which increased to 0.7% between 2014 and 2018<sup>1</sup>. Conversely, the

<sup>&</sup>lt;sup>1</sup> As shown in Figure 1, until the mid-1990s there was a significant discrepancy in the consumption trends of Japanese households between the Family Income and Expenditure Survey (FIES) and the

annual growth rate of consumption declined from 0.8% to 0.1% over the same period. Meanwhile, Japan's population has continued to age, with the ratio of the population aged 65 and over rising from 9.1% in the early 1980s to 17.4% in 2000 and 28% in 2018, making Japan one of the countries with the highest elderly population ratios in the world. Table 1b shows that the increase in social security benefits contributed significantly to the increase in household disposable income during 1997-2014 due to the aging of the population, while employer compensation remained stagnant.

Table 1a. The average growth of household income and expenditures(%)

	1997-2014	2014-2018
Expenditures	0.78	0.11
Disposable income	0.10	0.72

	1997-2014	2014-2018
Disposable income	1.8	2.8
Contributions		
Operating surplus and mixed income, net	-0.7	-1.6
Compensation of employees, receivable	1.2	6.9
Property income, net	-1.6	0.4
Social benefits other than social transfers in kind, receivable	8.7	0.1
Current taxes on income, wealth, etc., payable	0.1	-0.7
Net social contributions, payable	-5.7	-2.3
Other current transfers	-0.2	0.1

Table 1b. Disposable income growth and contribution of income sources(%)

Source: National Accounts.

Note: Table 1a shows the average annual growth during each period in real term. Table 1b shows the real disposable income growth rate for each period and the contribution of each item to that growth rate.

According to the life-cycle permanent income hypothesis (LC/PIH), an ageing population leads to the proportion of retired households with a high propensity to consume, resulting in an increase in Japan's consumption propensity (and a lower savings rate). Figure 2 displays the level and trends in average propensity to consume by age group of household head from the Family Income and Expenditure Survey (FIES) published by the Ministry of Internal Affairs and Communications. As expected, the consumption propensity of elderly households

System of National Accounts (SNA), as highlighted by Ueda and Ohno (1993) and Iwamoto et al. (1995, 1996). This study focuses on the period after 1997, when this discrepancy disappeared and similar consumption trends were observed in both the FIES and the SNA.

(households with a head aged 65 or older) is high and has remained above 1 since the 2000s.<sup>2</sup> In contrast, the consumption propensities of the working-age population have remained below one, as shown in Figure 2. Furthermore, the figure also reveals that the consumption propensity of households in each age group has changed over time. Specifically, from 1997 to 2014, that of older households was on the rise, while that of working-age households (up to their mid-50s) was gradually declining. However, from 2014 to 2017, the trend began to decline for households of all age groups: the trend reversed for older households, while it continued to fall for working-age households.



Figure 2. The average propensity to consume: by age of household head

Notes: Calculated from FIES. Workers' households and no-occupation households.

Given the observed facts presented above, this paper examines the factors behind the decline in household consumption propensity since 2014 in Japan amid population aging, a trend that appears to contradict standard LC/PIH presumptions. To explain this seemingly puzzling situation, this paper focuses on the breakdown of income growth and uses micro data on household income and consumption to show that income increases during the Abenomics period were skewed toward types of income that are often viewed as temporary income increases. Through the results, we also hope to shed light on the policies needed to stimulate household consumption and overcome economic stagnation in today's Japanese economy.

There are a number of previous studies that have examined the relationship between the

 $<sup>^2</sup>$  This reflects a pattern whereby household income declines significantly as a result of the head of household entering retirement around the age of 60 and turning no-occupation, whereas consumption levels decline slowly after a peak around the early 50s of the age of the head of household (Murata 2019).

aging of our economy and society and its impact on consumption and saving patterns. Until the 1980s, the explanation for Japan's high household saving rate was a topic of much attention (e.g., Hayashi, 1986; Horioka, 1990). Since then, the savings rate in Japan has been on a downward trend. Horioka (2005) lists a number of factors that explain this downward trend and emphasizes that the aging of the population, in particular, will continue to be a factor in lowering the savings rate. Numerous studies have examined how population aging has contributed to the decline of Japan's macro saving rate, resulting in an increase in the propensity to consume. Some notable examples include Koga (2006) and Braun et al. (2009).

The above studies primarily focused on the impact of the growing share of elderly households on reducing the household savings rate in Japan. Since the mid-1990s, data on retired households have become available from the FIES, which revealed a negative and declining trend in the savings rate of retired households. Horioka (2010) pointed to reductions in social security benefits as a significant factor contributing to the declining savings rate of retired households, while Iwaisako and Okada (2012) noted the non-linearity of the declining trend in the household savings rate and argued that the decline in the savings rate cannot be explained solely by the one-track progression of ageing. Unayama and Ohno (2017) disaggregated household savings rates by age of head of household using dataset from the National Survey of Family Income and Expenditure (NSFIE) and found that only one-third of the decline in the household savings rate was due to the increase in the share of older households. Unayama and Ohno (2018) noted that declining property income due to the zero-interest rate policy and decreasing public pension benefits as potential factors for the decline in the savings rate of elderly households.

Although these previous studies examined the relationship between population ageing and savings rates, they have primarily focused on the effect of the population share of elderly and declining income among elderly, such as lower pension benefits. Moreover, these analyses were based on data prior to the Abenomics period, and thus do not explain why the trend of increasing propensity to consume reversed. In addition, the consumption tax rate increase in April 2014 (from 5 to 8%) is cited as a factor in the slump in consumption during the Abenomics period, but much of the street debate is not based on sufficient empirical evidence. One of the few exceptions is Cashin and Unayama (2016; 2021), but no clear conclusions to our question can be drawn, with the former (2016) arguing that it pushed down permanent income and reduced consumption, while the latter (2021) concludes that the decline in consumption due to the consumption tax hike is temporary.

Based on this situation in previous studies, this study attempted to elucidate the causes of sluggish consumption during the Abenomics period by empirically analyzing the income process and consumption behavior of Japanese households facing a declining birthrate, aging population, and declining growth potential, while setting the permanent income/life cycle hypothesis (LC/PIH) of consumption as the basic framework for our analysis.

Arguments that attribute the stalling of consumption during the Abenomics period to the consumption tax often ignore the fact that raising the consumption tax rate may also have the effect of boosting permanent income through fiscal consolidation.<sup>3</sup> We focus on the expansion of disposable income achieved during the Abenomics period and consider its decomposition into temporary income and permanent income based on the LC/PIH. During the income growth phase of the Abenomics period, there was an increase in the income of women, the elderly, and part-time employment. However, this increase in income may not be considered as a permanent income increase since it is less sustainable than the income increase of male household heads in full-time employment in Japan. In other words, the increase in income during the Abenomics period was to a large extent realized as an increase in temporally income, and permanent income did not increase as much as the current income. If consumption is determined according to the LC/PIH, this increase in disposable income will be manifested as a decrease in the propensity to consume.

Our hypothesis is generally supported by the observed data in published statistics, such as the SNA and the Family Income and Expenditure Survey, and by the results of econometric analysis using two microdata sets, namely, the Longitudinal Survey of Middle-aged and Older Adults and the Family Income and Expenditure Survey. Specifically, the increase in income during the Abenomics period occurred mainly in income categories with low persistence of expansion based on past experience. Moreover, the increase in the share of temporary income (and the decrease in the share of permanent income) was accompanied by a decline in households' propensity to consume. However, explaining the decline in the propensity to consume after 2014 with the decline in the share of permanent income considered in this study is limited. At least part of the slump in consumption may have been caused by the consumption tax hike.

The paper is organized as follows: In Section 2, we present two hypotheses that aim to explain the decline in consumption during the Abenomics period. We also outline the empirical strategy we might use to test the relative importance of each hypothesis. Section 3 describes the data used in this paper and identifies the components of household income that increased during Abenomics. In Section 4, we examine the impact of increases or decreases in each income item on household permanent and lifetime income, and show that the increase in household income during Abenomics was mainly driven by temporary income. Section 5 examines changes in the

<sup>&</sup>lt;sup>3</sup> If the consumption tax leads to fiscal consolidation, it may raise households' permanent income by increasing confidence in future funding of social security benefits and generating expectations of future tax cuts.

propensity to consume before and after Abenomics by household type and argues that the decline in the propensity to consume during Abenomics was at least partly due to an increase in temporary income. Finally, we draw conclusions in Section 6.

#### 2. Hypotheses and strategies for empirical analysis

We consider the following two possible explanations or hypotheses about the reversal and decline in the average consumption propensity of Japanese households after 2014, which had been rising against the backdrop of an aging population. The first hypothesis is that the increase in the consumption tax rate (from 5 to 8%) in April 2014 may have suppressed consumption: a three percentage point increase in the consumption tax rate may imply a three percent fall in the real value of future income, under the assumption that it has no effect on future nominal income, so it is not surprising that a corresponding fall in consumption occurs after the consumption tax hike. Indeed, in the debate on the macroeconomic environment in Japan, there are scattered arguments that the 2014 consumption tax hike caused Abenomics to stall (e.g. Takahashi, 2019; Fujii and Morii, 2022; Morinaga, 2017).

However, this hypothesis is limited in that it does not take into account the possibility that a consumption tax hike could have a positive effect on permanent income by bringing fiscal stability and fostering expectations for future social security benefits and tax cuts. Given these potential consequences, it is difficult to imagine a decline in permanent income on the scale of a consumption tax hike. Moreover, the 2014 consumption tax hike was decided in 2012 under the Democratic Party of Japan and follows a predetermined (and expected) path. While there is a possibility that consumption will increase due to the intertemporal substitution effect and then decrease in reaction to the increase, since it is an expected tax hike, the impact on permanent income will be limited and the slump in consumption is likely to be only temporary. The actual consumption tax rate increase during the Abenomics period resulted in a rush of consumption, expanding by 8.1% year-on-year in the January-March 2014 period. However, this was followed by a reactionary decline of 18.2% in the April-June period and a further decline in consumption for three consecutive years until 2016 (-0.9% in 2014, -0.3% in 2015 and -0.6% in 2016). Since the weak consumption trend has continued since then, if the consumption tax source hypothesis is to be adopted, it would be necessary to assume that permanent income decreased considerably at the time of the tax rate increase in April 2014, which is not consistent with the fact that the increase was anticipated much in advance.

Given that household consumption may be affected differently by age, it may be worthwhile to examine the effects of a consumption tax increase on different age groups. An increase in the consumption tax rate would change the ratio of direct taxes to indirect taxes and generate an income transfer from the elderly to the working-age population. The benefits of a stronger tax base resulting from a consumption tax increase, such as the improvement of the social security infrastructure and future tax cuts, will be enjoyed mainly by the younger generation. Therefore, the negative impact of the consumption tax hike is expected to fall heavily on older households. If this is the case, a comparative analysis of working-age and elderly households would be useful in examining the impact of the consumption tax hike on household consumption.

The second hypothesis focuses on sources of income in the household using the basic framework of the standard LC/PIH. Although the decline in consumption propensity under an aging population appears to be inconsistent with the LC/PIH at first glance, the LC/PIH may explain the slump in consumption during the Abenomics period if we consider the following. The consumption propensity observed in the statistics is calculated by dividing consumption expenditure in the current period by disposable income in the same period. If households follow the standard LC/PIH, the impact on consumption will differ depending on whether the observed income change is a permanent income change or a temporary income change. Let us consider the propensity to consume in equation (1):

$$\frac{C_t}{Y_t} = \frac{C_t}{Y_t^P + Y_t^T} = \frac{\beta Y_t^P}{Y_t^P + Y_t^T}$$
(1)

where  $Y_t^P$  represents permanent income and  $Y_t^T$  represents temporary income. If temporary income,  $Y_t^T$ , increases or decreases, consumption will remain unchanged and the propensity to consume will decrease or increase in the current period, respectively. If permanent income,  $Y_t^P$ , increases (or decreases), the effect on the propensity to consume depends on the sign of  $Y_t^T$ : it the sign of  $Y_t^T > 0$ , the effect on the propensity to consume will be positive; if  $Y_t^T < 0$ , the effect is negative.<sup>4</sup>

According to equation (1), we can attribute the upward trend in consumption propensity among older households prior to 2014 to a decrease in temporary income relative to permanent or lifetime income. This approach also provides a consistent explanation for the decline in pension benefits identified by Horioka (2010) and Unayama and Ohno (2018), by considering the reduction in pensions as a decrease in temporary income<sup>5</sup>. Moreover, the gradual downward trend in consumption propensity observed among working-age households during the same period may

 $<sup>4 \</sup>quad \frac{\partial (C_t/Y_t)}{\partial Y_t^P} = \frac{\beta}{Y_t^P + Y_t^T} - \frac{\beta Y_t^P}{(Y_t^P + Y_t^T)^2} = \frac{\beta Y_t^T}{(Y_t^P + Y_t^T)^2}$ 

<sup>&</sup>lt;sup>5</sup> Income declines in old age are considered to be temporary income declines because they typically conform to a pattern where the rate of current income decline is greater than the rate of lifetime income decline.

be interpreted as a result of a larger decline in permanent or lifetime income than in temporary income, due to the flattening of the wage-age profile in the labor market. Similarly, the decline in propensity to consume for all age groups after 2014 can be understood by interpreting the increase in household income as an increase in temporary income. If the increase in household disposable income achieved during the Abenomics period was concentrated in the type of income perceived by households as temporary, then consumption propensity could decline even under an ageing population, consistent with the LC/PIH.

The main challenge in empirically testing the second hypothesis is how to identify whether changes in income of each household are permanent or temporary. To address this challenge, we focus on three key features related to how households perceive changes in their income. The first is the difference in employment status (i.e., regular vs. non-regular employment<sup>6</sup>). Under Japanese employment practices, regular employees are entitled to senioritybased wages and a stable increase in income, and have a high probability of continuing to work under dismissal restrictions. On the other hand, non-regular employees' wage does not increase much, but they often leave their jobs. Therefore, it is not as easy to predict their future income based on their current income as it is for regular employees. The increase in income for regular employees is strongly correlated with future income and can therefore be easily recognized as an increase in permanent income, whereas a large proportion of the increase in income for nonregular workers will have to be recognized as an increase in temporary income.

The second is the gender-based differences. Typically, in Japan, husbands are the main breadwinners in the household, while wives' labor often serves as a buffer against shocks that occur in the home. Wives are usually the ones who have to make the decision to leave their jobs when they are needed in the household due to marriage, childbirth or caring for parents. Given this fact, an increase in the husband's income can be recognized as a permanent increase in household income, while an increase in the wife's income is more likely to be considered a temporary increase. Based on this, we can predict that one-worker households with a male head of household will have higher consumption propensity than two-worker households, as the share of permanent income in total income is higher in one-worker households where the husband is the only breadwinner.

The third is the age-based differences. Under Japanese employment practices, where lifetime employment and seniority wage systems are applied, changes in earnings from work during the young age has a permanent effect on working income during subsequent periods of

<sup>&</sup>lt;sup>6</sup> Regular employees are, in principle, full-time employees with no fixed term of employment, while nonregular employees are those who are not in regular employment, such as part-time workers, temporary workers and day laborers.

employment. Conversely, income changes in older individuals have a smaller effect on lifetime/permanent income than in the case of younger individuals, since they foresee the shorter period in the future. This suggests that an increase in income during old age has a greater impact on temporary income than permanent income, leading to a decrease in consumption propensity.

#### 3. Household income growth during the Abenomics

#### 3.1 Data

This study uses microdata obtained from two statistics: the Family Income and Expenditure Survey (FIES) issued by the Ministry of Internal Affairs and Communications and the Longitudinal Survey of Adults in the 21st Century (LSA) issued by the Ministry of Health, Labour and Welfare.

The FIES is a monthly survey of income and expenditure for approximately 8,000 households nationwide for a continuous period of six months. One-sixth of the households surveyed are replaced by new households each month. While the FIES provides comprehensive data on household income and expenditures, the survey period for each household is limited to six months, so annual panels and the like cannot be constructed to allow analysis of long-term economic behaviors.

The LSA covers men and women within the age range of 20 to 34 years old at the end of October 2002. It covers approximately 30,000 people (and their spouses) and has been conducted annually from 2002 to 2015, collecting information including job status, type of employment, income<sup>7</sup>, expenditures, education, marital status, childbirth and health status. As a result, it is possible to construct long-term panels suitable for analyzing economic behavior over a longer period of time.

#### 3.2 Contribution of household income growth by household head and spouse

To investigate how household income growth in Abenomics period was brought about from an aspect of permanent or temporary income, as discussed in Section 2, we focus on three key attributes, i.e., age, gender and employment status. First, we analyze the respective contributions of the head of household and spouse to changes in household income. Specifically, we calculated the average increase in household disposable income and the contribution by the head of

<sup>&</sup>lt;sup>7</sup> The question on income changed from income solely from work to income including other income such as interest income, starting from the sixth survey. Still, as other income was small and the series obtained from respondents showed few discontinuous changes, we used the income from these questions as a single series for our analysis.

household and spouse for each age group of the head of household (in 10-year increments) for the period 1997 to 2014 and the period 2014 to 2017. Household disposable income *declined* across all age groups from 1997 to 2014 (Table 2, top panel). The husband's earnings from work decreased across all age groups, while the wife's earnings from work increased across all age groups, with a higher growth rate observed in the younger age groups.

Table 2.	Household	disposable	income and	expenditures	by age	of household	head
					- /		

												(%)
	Aged	25-34	Aged	35-44	Aged	45-54	Aged	55-64	Aged	1 65-74	A	A11
	Average annual growth rate	Contri- bution to income										
1997-2014												
Disposable income	-0.3		-0.6		-0.8		-1.1		-1.6		-1.2	
Working income of the head	-0.7	-0.6	-0.7	-0.7	-0.7	-0.7	-0.8	-0.6	-2.5	-0.4	-1.6	-1.3
Working income of spouse of the head	1.6	0.2	1.6	0.2	0.2	0.0	1.1	0.1	0.0	0.0	0.2	0.0
Others		0.1		-0.1		-0.1		-0.6		-1.2		0.1
Expenditures	-0.2		-0.7		-0.9		-0.3		-0.2		-0.6	
2014-2017												
Disposable income	1.1		0.0		1.0		1.3		2.0		1.1	
Working income of the head	0.1	0.1	-0.4	-0.4	0.5	0.5	2.7	2.3	13.0	2.2	0.6	0.2
Working income of spouse of the head	3.6	0.7	0.9	0.2	4.3	0.7	6.8	1.1	15.2	0.8	4.1	1.0
Others		0.4		0.3		-0.3		-2.1		-1.1		-0.2
Expenditures	-1.0		-2.5		-0.7		-1.2		-0.3		-0.6	

Notes: Calculations are based on data collected from workers' and no-occupation households with a male head who responded over a six-month period in the FIES. Income and expenditures are deflated using the consumer price index.

From 2014 to 2017, household disposable income increased across all age groups (Table 2, bottom panel). Husband's working income increased mainly in the older age groups (aged 55-64 and aged 65-74), but were weaker in the working age group (aged 54 and below). In contrast, wife's working income continued to increase in all age groups. Notably, for households whose head was aged 54 and below, the contribution of the wife's working income to the increase in household income was greater than that of the husband's working income.

Table 2 shows that household disposable income has turned from declining to increasing for all age groups since 2014, and that this increase has been driven by increases in the incomes of women (wives) and the elderly. Next, we will look at the increase in disposable income of women (wives), distinguishing between those in regular employment and those in non-regular employment. In Japan, the ratio of regular employees to total employees is about two-thirds, but there is a large gender gap: for men, this ratio reaches about 80%, while for women it is less than half (according to the Labor Force Survey). As discussed above, since non-regular workers have higher turnover and lower wage seniority than regular workers, the impact of current income increases on lifetime earnings is expected to be larger for the former (regular workers) than for the latter (non-regular workers) for the same age group.

Unfortunately, the FIES does not provide information on whether a person is in regular or non-regular employment, but it does provide information on occupational categories, such as private sector employees, public sector employees, non-office laborers, temporary laborers<sup>8</sup>. We initially considered using this information to compare the distribution of wives' earnings (the sixmonth total covered by the survey) for each household according to these occupational categories. As shown in Figure 3, the distribution of wives' working income, regardless of occupational category, is concentrated below around 1 million yen or less per annum, indicating a tendency to control their own income within the so-called '1.06 million' or '1.3 million' barrier.





Note: The six-month total of each household's wife's wage income was calculated from the FIES and multiplied by two to obtain an estimate of the yearly figures.

Under Japan's tax and social security systems, a wife can receive various tax and social security exemptions and deductions if her income is small and her husband income is high<sup>9</sup>. For example, a wife is exempt from income tax if her annual income is less than 1.03 million yen. In addition, depending on the conditions of employment, she becomes eligible for her own social insurance if her annual income is JPY 1.06 million or more, and is obliged to join her own social insurance if her income is JPY 1.3 million, resulting in her premium burden. Other requirements could also change with her annual income of 1.5 or 2 million yen. Therefore, we abandoned the use of "occupational categories" and attempted to divide wives' labor income into two groups: those with annual labor income of at least 2 million yen (referred to as 'regular' employee wives) and those with less (referred to as ' non-regular' employee or without occupation wives).<sup>10</sup>

<sup>&</sup>lt;sup>8</sup> Beginning in 2018, a question asking whether the respondent is a regular employee or not was added.

<sup>&</sup>lt;sup>9</sup> This can be adapted to a husband if he earns less than his wife.

<sup>&</sup>lt;sup>10</sup> 2 million corresponds to 1,000 yen per hour multiplied by 40 hours for 50 weeks; analysis was also

Table 3 compares changes in household disposable income and expenditures by the employment status of the spouse of household head ('regular' vs. 'non-regular'/no-occupation) and the age of the household head. Household disposable income by age of household head decreased from 1997 to 2014, regardless of the wife's employment status ('regular' vs. 'non-regular'/no-occupation). By income earner, while the husband's income decreased during the 1997-2014 period, the wife's income decreased for wives with regular employment status and, conversely, increased for wives with non-regular or no-occupation employment status.

Table 3. Household disposable income and expenditures, by employment status of the v	wife
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												(70)
	Agec	125-34	Aged	1 35-44	Aged	1 45-54	Aged 55-64		Aged 65-74		A	11
	Average annual growth rate	Contri- bution to income	Averag e annual growth rate	Contri- bution to income								
Employment status of the wife of the head												
A. 'Regular' employee												
1997-2014												
Disposable income	-0.6		-1.1		-0.6		-1.0		-1.9		-0.9	
Working income of the head	-0.6	-0.4	-0.9	-0.6	-0.5	-0.3	-1.2	-0.7	-4.5	-0.7	-0.9	-0.6
Working income of spouse of the head	-0.4	-0.2	-0.9	-0.4	-0.1	0.0	-0.3	-0.1	-2.3	-1.4	-0.4	-0.2
Others		0.1		-0.1		-0.2		-0.2		0.1		-0.1
Expenditures	-0.3	*****	-1.2		-0.8	*****	-0.4	*****	-1.1	****	-0.8	*****
2014-2017												
Disposable income	1.2		-0.6		-1.3		0.8		2.7		0.2	
Working income of the head	1.5	0.9	-0.8	-0.5	-1.2	-0.8	3.3	1.8	22.1	3.1	0.1	0.1
Working income of spouse of the head	0.9	0.4	-1.2	-0.6	-1.6	-0.8	0.5	0.3	1.6	0.9	-0.1	0.2
Others		-0.2		0.5		0.4		-1.3		-1.4		-0.1
Expenditures	0.8		-1.9		-3.2		0.2		-2.6		-0.8	
B. 'Non-regular' employee or without occupation												*****
1997-2014												
Disposable income	-0.4		-0.7		-0.8		-1.2		-1.6		-1.3	
Working income of the head	-0.7	-0.7	-0.7	-0.8	-0.7	-0.8	-0.7	-0.6	-2.4	-0.4	-1.7	-1.5
Working income of spouse of the head	4.1	0.2	2.5	0.1	1.0	0.1	2.1	0.1	2.3	0.0	1.3	0.1
Others		0.1		0.0		-0.1		-0.7		-1.2		0.1
Expenditures	-0.3		-0.7		-0.9		-0.3		-0.2		-0.6	
2014-2017												
Disposable income	0.7		0.0		0.9		0.6		1.5		0.8	
Working income of the head	-0.2	-0.2	-0.3	-0.3	1.0	1.1	2.4	2.2	12.4	2.2	0.5	0.1
Working income of spouse of the head	0.6	0.0	2.6	0.2	2.1	0.2	4.5	0.3	10.5	0.3	2.9	0.5
Others		0.8		0.2		-0.3		-2.0		-1.0		0.2
Expenditures	-1.6		-2.7		-0.3		-1.7		-0.3		-0.7	

Notes: See notes to Table 2. 'Regular' employee wives are those with annual labor income of at least 2 million yen and 'non-regular' employee wives are those earn less than 2 million yen.

From 2014 to 2017, the household disposable income of households with wives being non-regular workers or without occupation started to increase for all age groups. This is because wives' incomes increased for all age groups, while husbands' incomes decreased for the younger age groups (25-34 and 35-44). On the other hand, changes in the household income of regular working wives are not uniform across age groups. Households headed by males aged 34-44 and 45-54

(0/)

carried out broken down by 1.3 million yen, but this did not change the conclusions of the results obtained in Table 3.

show a decline, due to a fall in income for both the husband and the wife.

To summarize the findings from Tables 2 and 3, the decline in household income for all age groups during 1997-2014 was largely driven by a decline in the husband's income. In contrast, the increase in household income seen from 2014 onwards was largely due to an increase in wife's income as a non-regular employed worker, including those who converted to work, as well as an increase in male elderly income. These findings are consistent with the changes in employment rates by gender and age observed over the same period. Specifically, the employment rate of women in Japan has consistently increased since 1997, primarily in non-regular employment. Although the male employment rate has remained high, there has been a slight downward trend, particularly among younger age groups. For those aged 60 and over, a clear increase was observed from around 2002, attributable to the extension of the retirement age and other factors.

#### 4. Effects of various income changes on permanent/lifetime income

In the previous section, we confirmed that the increase in household disposable income during the Abenomics period was mainly driven by an increase in the labor income of wives, the elderly, as well as that of non-regular workers. In this section, we will examines whether the impact of observed increases or decreases in current income on permanent income (persistence of income changes) varies by income type, i.e. gendear, age, and employment status using annual panel data on individual earnings from the Longitudinal Survey of Adults in the 21st Century (LSA), and will derive implications of the facts found in the previous section in terms of the LC/PIH.

#### 4.1 Persistence of income changes by gender, age, and empoloyment status

To see the persistence of income changes by income type, we specifically considered the following model, with  $\alpha$  as the parameter expressing the persistence of income fluctuations:

$$Y_{i,t}^{h} = Y_{i,t-1}^{h} Z_{i,t}^{1-\alpha} (1 + \varepsilon_{i,t})$$
<sup>(2)</sup>

where  $Y_{i,t}^h$  represents the income in year t of individual i belonging to income type h,  $Z_{i,t}$  represents a certain combination of other attributes affecting individual's current income, and  $\varepsilon_{i,t}$  is the disturbance term. By log-linearizing each variable in equation (2) and taking the first difference, we estimate equation (3) to compare the value of ( $\alpha$ -1) by income type:

$$\Delta lnY_{i,t}^{h} = (\alpha - 1)lnY_{i,t-s}^{h} + \gamma X_{i,t} + \varepsilon_{i,t}.$$
(3)

We consider gender, employment status (regular vs. non-regular), and age as income types, and test how the impact of observed changes on permanent income varies among those income types<sup>11</sup>. The parameter  $\alpha$  in Equation (3) represents the persistence of income changes, with higher values indicating that income changes have a greater impact on permanent income. We anticipate that income changes for men, regular employment, and younger age groups will have a greater impact on permanent income than women, non-regular employment, and older age groups, respectively. To test income persistence at 1-year and 5-year intervals, we tried s=1 or s=5 for s in the model.<sup>12</sup>

The results of estimating equation (3) with Median regression are reported in Table 4s. Table 4a compares persistence by gender and employment type between 1-year persistence (for s=1) and 5-year persistence (for s=5). The findings are generally consistent with our expectations. The persistence of income changes after one year is higher for men than for women, and for regular employment workers than for non-regular employment workers, indicated by the smaller absolute values of  $\alpha$ -1 (or higher values of  $\alpha$ ). These patterns remain when the analysis is conducted with a five-year interval, although the estimated  $\alpha$ s become smaller for five-year persistence, as expected.

In Table 4b, we restrict the results to the 5-year case and run median regressions by dividing the sample into two categories by age group and further dividing the sample period into two periods: 5 years from 2002 and 5 years from 2007, to examine possible age differences in persistence and changes in persistence over years. Even when the sample is split in this way, the results remain stable, confirming that regular workers are more persistent than non-regular workers and that, for regular workers, male working income are more persistent than female working income. Looking at the results by age, persistence is weaker for the sample in their 20s than for the sample in their early 30s, a result that differs from our expectation that income growth at younger ages has a greater impact on permanent income. However, due to the limitations of the LCA data, the age group comparisons here are between young adults in their 20s and early 30s, which may be because the comparison is not between young adults and older adults, as assumed in the theoretical discussion. On the other hand, the change in persistence by time period shows that persistence has increased more in the more recent sample (five years since 2007).

<sup>&</sup>lt;sup>11</sup>  $X_{i,t}$  includes education dummies, age dummies and year dummies. The LSA asked respondents the question of income during the previous year in specific amounts until the 12th survey. However, from the 13th survey, the question changed to one in which respondents had to select one of 18 ranges given. Therefore, in the following analysis, we have restricted our use of income up to the 12th survey, which asked about income earned in the previous year until 2011. We assume that the empirical results obtained have not changed significantly since 2012.

<sup>&</sup>lt;sup>12</sup> Income type h is allowed to shift over the course of s years, and the income type h for each individual is estimated using the type at time *t*-*s*.

#### Table 4. Income persistence by gender, employment status, and age

	One-year	difference	Five-year difference							
			Discrepat	ncies of $\alpha$ -1			Discrepancy of $\alpha$ -1			
	- 1	1	Male-	Regular-	-1	1	Male-	Regular-		
	obs.	α-1	Female	nonregular	008.	α-1	Female	nonregular		
Regular-employment	53,818	-0.122 ***		0.074	25,899	-0.257 ***		0.291		
		(0.002)				(0.005)				
Male	30,901	-0.097 ***	0.120	0.172	14,618	-0.230 ***	0.213	0.484		
		(0.002)				(0.006)				
Female	22,917	-0.217 ***		0.007	11,281	-0.443 ***		0.165		
		(0.003)				(0.008)				
Nonregular-employment	21,256	-0.196 ***			9,215	-0.548 ***				
		(0.003)				(0.009)				
Male	1,679	-0.269 ***	-0.045		603	-0.714 ***	-0.106			
		(0.013)				(0.034)				
Female	19,577	-0.224 ***			8,612	-0.608 ***				
		(0.003)				(0.010)				

#### Table 4-a. Persistence: One-year persistence vs. Five-year persistence

Notes: Median regressions. The dependent variables is the one- or five-year differences in the natural logarithm of income. Standard errors of the coefficients are shown in parentheses.\*\*\* indicates significance at the 1 percent level.

Table 4-b.	Five-year p	ersistence	by ag	e group	and ti	me period	classification
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	Age20-2	29						
			Discrepa	ncies of a-1		Discrepancies of α-1		
	obs.	α-1	Male- Female	Regular- nonregular	obs.	α-1	Male- Female	Regular- nonregular
t = 2002								
Regular-employment	1,492	-0.528 ***		0.247	1,619	-0.242 ***		0.227
Male	544	-0.561 ***	0.134	0.425	1,049	-0.253 ***	0.104	0.298
Female	948	-0.695 ***		0.099	570	-0.357 ***		0.167
Nonregular-employment	719	(0.029) -0.775 ***			531	(0.035) -0.469 ***		
Male	62	(0.038) -0.986 ***	-0.192		31	(0.038) -0.551 ***	-0.027	
Female	657	(0.073) -0.794 *** (0.042)			500	(0.172) -0.524 *** (0.040)		
t = 2007		(0.042)				(0.040)		
Regular-employment	890	-0.234 ***		0.301	1,636	-0.184 *** (0.016)		0.210
Male	305	-0.311 ***	0.077	1.239	964	-0.140 ***	0.176	0.172
Female	585	-0.388 ***		0.244	672	-0.316 ***		0.117
Nonregular-employment	339	-0.535 ***			558	-0.394 ***		
Male	22	-1.550 ***	-0.918		40	-0.312 ***	0.121	
Female	317	(0.198) -0.632 *** (0.056)			518	(0.204) -0.433 *** (0.033)		

Notes: Median regressions. The dependent variables is the five-year differences in the natural logarithm of income. Standard errors of the coefficients are shown in parentheses.\*\*\* indicates significance at the 1 percent level.

#### 4.2 Persistence of observed employment status

While the previous subsection examined income persistence by gender, age, and employment status, this subsection examines employment status persistence by gender and age. In Japan, husbands are typically the primary breadwinners and maintain their employment as regular employees, while women often work in a more flexible role or move in and out of the labor market or changing employment status, functioning as a buffer to manage life events such as childbirth or changes in their husband's work location. To investigate this, we estimated the probability of remaining in regular employment over five years for men and women by using a simple probit regression. The fitted values obtained from the estimated probit models are reported in Figure 5.

Figure 5. Probability of regular employment persistence by age and gender



Notes: Predictive margins estimated with a probit model using data from the 21<sup>st</sup> Century Longitudinal Survey of Adults. The model estimates the probability that a person who was in regular employment this year will still be in regular employment five years later. Explanatory variables include age, age squared, education, and year dummies.

The results show that the probability of remaining in regular employment is more than 90% for men, regardless of age group, while for women it is about 60% in their 20s and 80% in their 30s, indicating that men consistently outpace women. This means that for women, even if they are currently working as regular employees, the likelihood that they will continue to do so in the future must be discounted more than in the case of men. Under these circumstances, the increase in women's working income will be less likely to be perceived as a permanent income increase (compared to men).

The findings in Section 3 indicate that household disposable income declined across all age groups from 1997 to 2014, largely due to a drop in husbands' income. However, from 2014 onwards, household disposable income increased across all age groups, with significant

contributions from wives and the elderly. Furthermore, our analysis in this Section 4 finds that the persistence of income of men and those in regular employment is higher than that of women and those in non-regular employment, respectively. The reason of the former is partly explained by the higher persistence of employment status for men than for women.

Taken together, it can be inferred that the increase in disposable income of Japanese households during the Abenomics period depended on an increase in the type of income that would be perceived as temporary income increases, and that the increase in permanent income was smaller than the increase in current income observed in the period.

5. Testing hypotheses to explain the decline in propensity to consume

Given the finding in the previous section that the ratio of permanent/lifetime income to current income are likely to have declined during the Abenomics period, this section considers whether this decline can account for the decline in Japan's average propensity to consume after 2014.

#### 5.1 Changes in average propensity to consume by household type

Using microdata from the FIES, we explore the validity of two alternative hypotheses to explain the decline in consumption during the Abenomics period. The first hypothesis (consumption tax hypothesis), which is widely circulated, attributes the weak consumption mainly to the economic setback caused by the consumption tax hike (from 5 to 8 percent) implemented in 2014. The second hypothesis (temporary income increase hypothesis), which is original to this paper, considers the slump in consumption to be the result of an increase in temporary income (or a decrease in the ratio of permanent/lifetime income to current income) during the Abenomics period.

To test the plausibility of each of the two hypotheses, we would identify the types of households that experienced a substantial decline in the average propensity to consume during the Abenomics period. This is because if the average propensity to consume had declined according to our second hypothesis, the decline in the average propensity to consume would be more pronounced for households that were facing a temporary income increases. On the other hand, under the first hypothesis, the decline in consumption propensity may be more pronounced among the elderly households, who are less likely to benefit from fiscal consolidation through higher consumption taxes<sup>13</sup>, than among the working-age households.

<sup>&</sup>lt;sup>13</sup> It is conceivable that the consumption tax hike could have positive effects through fiscal consolidation if people form somewhat forward-looking expectations. However, this positive effect will be enjoyed by future generations, and the extent to which elderly households can benefit from it is thought to be small

To capture changes in consumption propensity by household type over time, we first estimated the regression equation in specification (4) below, which can be used to calculate average consumption propensity by household type, period, and age group.

$$\frac{C_{it}}{Y_{it}} = \beta_1 + \sum_{k=2}^{9} \beta_k HHDummy(k)_{it} + \gamma X_{it} + e_{it}$$
(4)

where  $C_{it}/Y_{it}$  represents is the propensity to consume for household *i*, defined as household *i*'s total 6-month consumption divided by household i's total 6-month disposable income. HHDummy $(k)_{it}$  (k=2,3,...,9) are household type dummies constructed to distinguish between the nine types of household. In classifying the households, we first classified each household head and spouse into three types: white-collar, blue-collar, and no-worker (without occupation) for the head; and regular worker (annual income of more than 2 million), non-regular worker (annual income of less than 2 million), and no-worker (without occupation) for the spouse.<sup>14</sup> The combination of the head and spouse types comprises a total of nine household types. To estimate the average propensity to consume for each of these nine household types, eight dummy variables *HHDummy* $(k)_{it}$  (*k*=2,3,...,9) were created with the combination of white-collar head and spouse with no occupation as a baseline.<sup>15</sup>  $X_{it}$  represents vector of other control variables such as the number of household members, a homeownership dummy, dummies for presence or absence of children by age (that of junior high school students, high school students, and that of children under five years old), an urban region dummy, and year and monthly dummies. We estimated this regression equation for a total of 15 runs, three time periods (1997-1999, 2012-2014, and 2016-2018) and five age groups (25-34, 35-44, 45-54, 55-64, 65-74).

Table 5 reports estimated  $\beta_k$ s and constant ( $\beta_1$ ) terms from our 15 median regressions. By calculating the fitted value of the regression estimated in this way, the average propensity to consume can be obtained for each household type, household head age group, and time period. The average propensity to consume for the baseline type household (or households with a white-collar husband and a full-time housewife) can be roughly captured by the coefficient on the constant term ( $\beta_1$ ), which increases from 0.57 to about 0.98 as age increases.

<sup>(</sup>compared to the working-age population).

<sup>&</sup>lt;sup>14</sup> As noted in the previous sections, the FIES does not tell us the classification of whether a worker is a regular or non-regular employee. Therefore, for the head of household (husband), we use white-collar or blue-collar as an alternative classification. For the spouse, on the other hand, we have decided to use the classification based on income level introduced in section 3.2, because we believe that the income based classification makes more sense for the spouse than the white-collar/blue-collar classification.

<sup>&</sup>lt;sup>15</sup> In Japan, a household with a full-time homemaker has been considered the standard household.

Table 5 Me 5. 2. ÷  The estimated coefficients for the household type dummies in Table 5 allow us to see the extent to which other types of households have different average consumption propensities compared to the baseline type household. The first thing that is clear from the table is the fact that, regardless of the age of the household head or observation year, the propensity to consume is lowest when the husband is working, especially as a white-collar worker, and conversely, it is highest when the husband has no occupation. This finding is consistent with the pattern that can be derived from the LC/PIH. Next, controlling for the effect of husband's employment status, the effect of the wife's employment clearly confirms that the higher the wife's income earning level, the lower her propensity to consume. This is the expected pattern under the hypothesis of this paper that the wife's income is likely to be perceived as a temporary income for the household. Moreover, looking at the results for the pre-retirement period (ages 55-64), it can be confirmed that income in this period, whether in regular or non-regular employment, reduces the propensity to consume significantly. This is the pattern expected when income growth in the elderly period is perceived as temporary income for households.

We can observe changes in average propensity to consume for each household type across time periods by calculating the differences in the propensity to consume over three estimation periods (1997-1999, 2012-2014, and 2016-2018), which are obtained as predicted values from the estimated model (4) reported in Table 5. Figure 6 first focuses on older households, showing changes in average propensity to consume over time separately for households with a head aged 55-64 (Figure 6-i) and for households with a head aged 65-74 (Figure 6-ii).



Figure 6. Projected change in propensity to consume by household type (for elderly households)

Note: The predicted values were obtained using the estimated parameters from Table 5. For the explanatory variables used in the estimation, i.e. household head age dummies, owner-occupied dummies, etc., the mean values for each group and period were employed.

Households with a head aged 55-64 are a mixture of working and retired households, so the figure shows both cases where the husband is working in a white-collar job and where he is without occupation. On the other hand, since the majority of households with a head aged 65-74 are already retired, only the case where the husband is not working is shown. For each husband's employment status, three different average consumption propensities are presented for the three different wives' employment statuses (or income level categories).

We see that from 1997-1999 to 2012-2014, the consumption propensity of elderly households continued to increase for all types of households, but after 2014 (or from 2012-2014 to 2016-2018), a reversal decline occurred for most types of households. For households with a head aged 55-64, the consumption propensity declined after 2014 when wives were employed, except when husbands were retired and wives worked as 'regular' employees. On the other hand, in households where neither the husband nor the wife works, the trend of rising consumption propensity disappeared, but the decline in consumption propensity did not occur even after 2014. These findings for elderly households are consistent with our second hypothesis, which predicts that spousal employment status affects the propensity to consume by influencing the ratio of permanent/lifetime income to current income, while they appear to be inconsistent with the first hypothesis, which expects substantial negative effects of the consumption tax increase on retired elderly.

The reversal of the trend in the consumption propensity of elderly households in the mid-2010s may be due in part to changes in the level of pension benefits during this period. In Figure 7, it can be read that the kernel distribution of social security benefits for elderly households continued to shift to the left (or decrease) from 1997 to the mid-2010s, hitting bottom after the mid-2010s. The pattern of consumption propensity among elderly households is in line with this change in social security benefits, suggesting that factors other than the consumption tax rate hike may have played a role in the reversal of consumption propensity among elderly households.



Figure 7. Social security benefits for elderly households

Note.

The six-month total of social security benefits for each household, whose head was aged 65-74, was calculated from the FIES and multiplied by two to obtain an estimate of the yearly figures. Figure 8 depicts the change in average propensity to consume over time for workingage households aged 54 or younger. Since there are few unemployed households in the workingage group, we draw figures only on households where the husband is a white-collar employee. It can be consistently confirmed that the higher the wife's income, the lower the average propensity to consume. Looking at changes over time, unlike older households, the consumption propensity of working-age households has been declining before 2014, and the rate of decline has rather slowed since 2014, except for middle-aged (45-54 years old) households where the wife is a nonregular employee (Figure 8, i) - iii)). This slower rate of decline in the propensity to consume among younger households might be considered consistent with the idea that the negative impact of a consumption tax rate hike would be smaller for younger households than for older households. On the other hand, the negative effect on the economy of raising the consumption tax rate would be offset (at least in part) by the positive effect of expectations of fiscal consolidation, suggesting that the effect would be smaller than what would be expected from the magnitude of changes in the statutory tax rate.<sup>16</sup>





Note: The predicted values were obtained using the estimated parameters from Table 5. For the explanatory variables used in the estimation, i.e. household head age dummies, owner-occupied dummies, etc., the mean values for each group and period were employed.

<sup>&</sup>lt;sup>16</sup> Although not depicted in Figures 6 and 8, the share of households with low consumption propensities may have increased during the Abenomics period due to increased employment of women and the elderly. Consequently, the decline in overall macro consumption propensity during this period could be attributed not only to the decrease in consumption propensity by household type but also to a shift in household composition towards those with lower consumption propensities.

#### 5.2 Propensity to consume vs. ratio of permanent income to current income

The findings in the previous section suggest that the decline in the propensity to consume during the Abenomics period may not have been caused solely by the consumption tax hike, as often touted, but rather by the fact that income growth during Abenomics was skewed toward temporary income. However, to test this hypothesis in a more rigorous sense, we need micro-panel data over a period of time that can simultaneously track changes in savings rates and income composition items for the same household. The FIES household micro data used in the previous section, although panel data for households, are monthly data and limited to a six-month period, which unfortunately is not suitable for the present purpose. We will therefore leave that issue for future analysis using annual medium- and long-term panels, and here we will use semi-aggregate data to confirm the relationship between average propensity to consume and ratio between permanent income and current income, which is the basis of our hypothesis.

As introduced in equation (1) of Section 2, under the LC/PIH, the propensity to consume is determined by the following equation, and a proportional relationship is expected between the average propensity to consume and the ratio of permanent/lifetime income to current income.

$$\frac{C_{it}}{Y_{it}} = \frac{C_{it}}{Y_{it}^P + Y_{it}^T} = \frac{\beta Y_{it}^P}{Y_{it}^P + Y_{it}^T} = \beta \frac{Y_{it}^P}{Y_{it}}$$

 $Y_{it}^{P}/Y_{it}$  is the permanent income to current income ratio of household *i* in year *t*. Since  $Y_{it}^{P}$ , the permanent/lifetime income of household *i* at time *t*, is not directly observable, we assume that the ratio can be approximated by the ratio of regular working income, excluding overtime payments and bonuses, of the primary income earner (or the male head) to household income. We focus only on the young and middle-aged group (household head age 25-44) since the male head's earnings from work are more likely to be strongly correlated with permanent income in this age group in Japan as suggested by Figure 5 and discussed in section 2. Bonuses or overtime salaries are excluded from working income of the head to reduce possible effects caused by business cycle fluctuations.

Here, we compared the time-series developments of the ratio of regular working income of the male head to household income, our proxy variable for  $Y_{it}^{P}/Y_{it}$ , and the average propensity to consume ( $C_{it}/Y_{it}$ ) by age group (Figure 9).



Figure 9. Consumption propensity vs. ratio of male head's working income to household income

Notes: The average propensity to consume is calculated as the mean of household propensity to consume in each age group. Similarly, Pi/Y is the mean of Pi/Y of household in each age group.

We observed that the average propensity to consume tends to decline in parallel with the decline in our proxy variable for the permanent income to current income ratio, implying that consumption is largely determined by permanent/lifetime income as predicted by the LC/PIH. Additionally, the fact that our proxy variable has continued to decline since 2014 onwards is of particular interest. Thus, if our variable is a good proxy for permanent income, the observed patterns are generally consistent with the idea that a decline in the share of permanent/lifetime income to current income has contributed to the decline in average propensity to consume since 2014.

#### 6. Conclusions.

This study aimed to understand the decline in consumption propensity since 2014 in Japan, which appears to be inconsistent with the prediction of PI/LCH, given the rapidly aging population. While the increase in the consumption tax rate from 5% to 8% in April 2014 is often cited as a cause of the slump in consumption during the Abenomics period, it is difficult to determine if it is sufficient, as the consumption tax could also have a positive impact on ensuring fiscal health and generating expectations for future tax cuts and social security benefits.

As an alternative hypothesis to account for the decline in the propensity to consume during the Abenomics period instead of a consumption tax hike, we examined the possibility that the increase in income was biased toward temporary income in the context of the LC/PIH of consumption. Under the assumption that consumption is determined according to the permanent income/lifecycle hypothesis, an increase in temporary income is expected to reduce the ratio of permanent/lifetime income to current income and thus appear as a decline in the propensity to consume. To test these hypotheses, this paper conducted empirical analyses using aggregate data from national accounts and other sources, as well as micro data from the Family Income and Expenditure Survey and the Longitudinal Survey of Adults in the 21st Century. Empirical analyses find that:

- (i) The increase in Japanese household income during the Abenomics period was largely due to the increase in income of spouses, the elderly, and non-regular workers, who are not the primary income earners in the household. (Section 3)
- (ii) Income increases for women, the elderly, and part-time or non-regular workers were less sustainable than income increases for the husbands of full-time workers, who are the primary income earners in households, and in that sense, income increases during Abenomics was in the form of temporary income. (Section 4)
- (iii) The decline in households' propensity to consume during the Abenomics occurred in synchrony with the decline in the ratio of permanent/lifetime income to current income, which resulted from the increase in temporary income during the period. In this sense, factors other than the consumption tax rate hike are likely to have had some effect on the decline in consumption after 2014.

These findings suggest that a substantial part of the decline in the propensity to consume during the Abenomics period can be attributed to structural factors beyond the effects of consumption tax suppression. Moreover, the study suggests that in order to increase consumption (i.e., reverse the decline in the propensity to consume), it is crucial to increase household income in a way that is perceived as a permanent rather than temporary increase in income. Achieving this requires a growth strategy, which has been advocated as the third arrow in Abenomics, as opposed to stimulus measures that provide only temporary income boosts. If potential growth rises, it will increase the number of workers in regular employment and raise workers' base wages, which will be perceived by households as an increase in permanent income.

In addition, the Japanese labor market has low liquidity, and it is difficult for regular workers to return to work under the same conditions after leaving their jobs, making it difficult for women, the elderly, and non-regular workers to perceive their own income increases as permanent income increases. Increasing the liquidity of the labor market and creating a system that allows individuals to easily return to work after leaving the labor market if they wish to do so will be essential to solving the problem.

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