### (Box 3) Marginal Propensity to Consume by Income Class

The government's latest economic policy package includes income support measures that aim to accelerate the process toward achieving a society in which all citizens are dynamically engaged, such as (1) the provision of simple benefits and (2) the shortening of the qualifying period for pension benefits. In order to assess the extent to which these measures can stimulate private consumption, marginal propensity to consume by income class was estimated using household panel data surveyed by Osaka University. Specifically, marginal propensity to consume was calculated by (1) estimating the income elasticity of consumption expenditure by household income class and (2) multiplying this by average propensity to consume (Box Chart 3 [1]).

The estimation results suggest the following (Box Chart 3 [2] and [3]). First, the lower the household income, the higher the marginal propensity to consume; for example, marginal propensity to consume reaches around 0.4 for households with annual income of less than 2 million yen. Second, when focusing on households not only with lower income in terms of flow but also with fewer financial asset holdings, marginal propensity to consume tends to be even higher. In recent years, the weight of households with annual income of less than 4 million yen is rising, mainly reflecting the aging population and an increase in the number of non-regular employees (Box Chart 3 [4]). Taking this into consideration, income support measures for low-income households, whose marginal propensity to consume is relatively high, are expected to have certain underpinning effects on private consumption.

Box Chart 3

# Marginal Propensity to Consume

## (1) Data and Estimation Methodology

**Data**

Panel data surveyed by Osaka University's Global COE Program: "The Preference Parameters Study"

Observation Period: CY 2003-13

Survey respondent: Male and female, age 20-80

Number of respondents: 4,341 persons (in CY 2013)

**Estimation Methodology**

Specification:

*Household expenditure* (y/y % chg.)

$=\beta\times$ *Household income* (y/y % chg.) $+$ *Constant*

$+$ *Fixed effect* (household) $+$ *Time dummy*

$+\gamma\times$ *Number of household members*

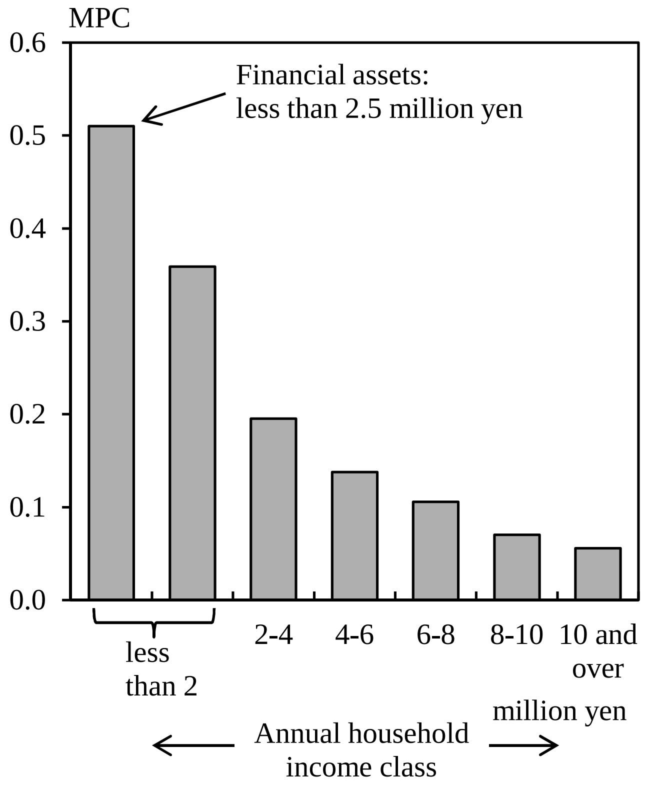
(chg. from previous year)

Marginal propensity to consume (MPC) is calculated by multiplying β (income elasticity) and average propensity to consume (APC).

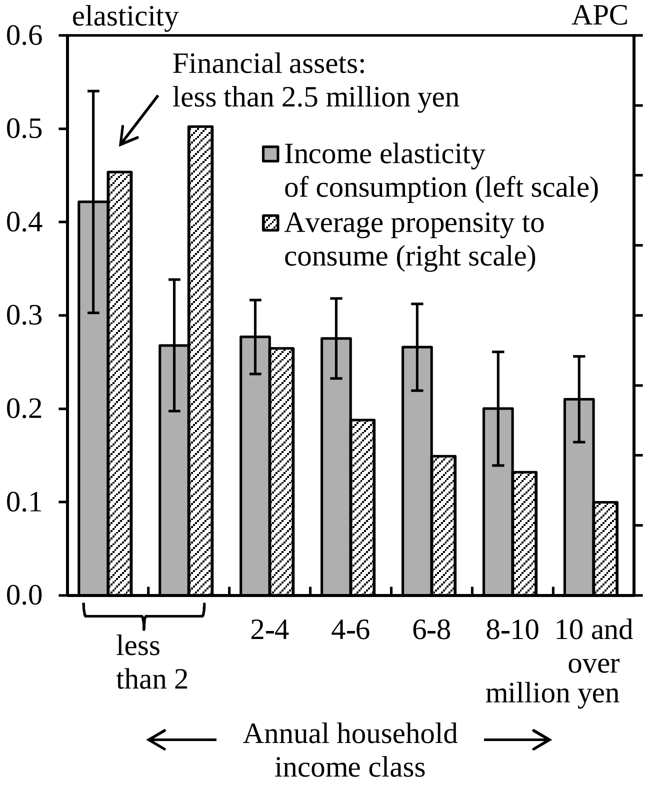
C: Consumption  Y: Income

$$\underbrace{\frac{\Delta C}{\Delta Y}}_{\text{MPC}} = \underbrace{\frac{\Delta C/C}{\Delta Y/Y}}_{\text{Income Elasticity}} \times \underbrace{\frac{C}{Y}}_{\text{APC}}$$

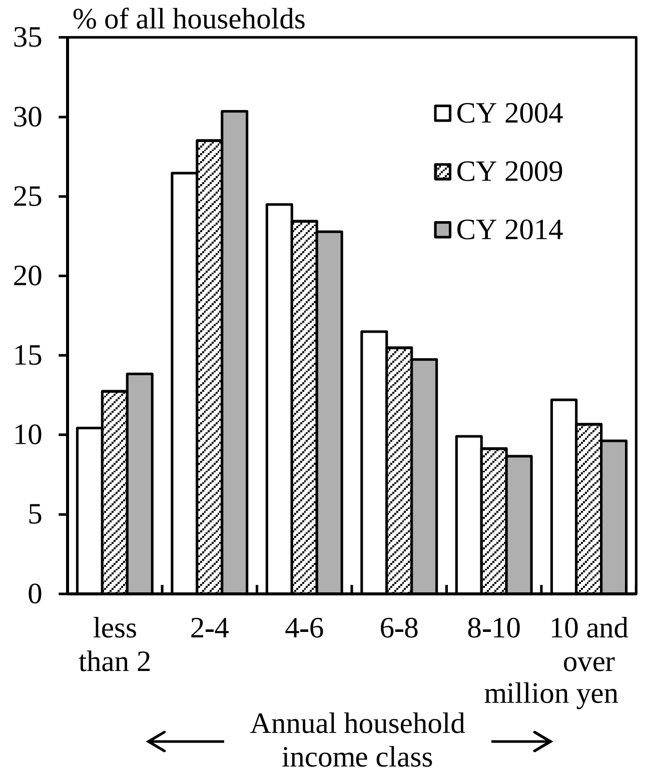
## (2) Marginal Propensity to Consume (MPC)




## (3) Average Propensity to Consume (APC) and Income Elasticity of Consumption




## (4) Distribution of Household by Income Class (National Survey of Family Income and Expenditure)




Notes: 1. In the estimation, data of self-employed persons are excluded.

2. Error bands in (3) represent 95% confidence intervals.

Sources: Osaka University's Global COE Program; Ministry of Internal Affairs and Communications.