

(Box 4) Recent Developments in the CPI mainly regarding Mobile Phone-Related Prices

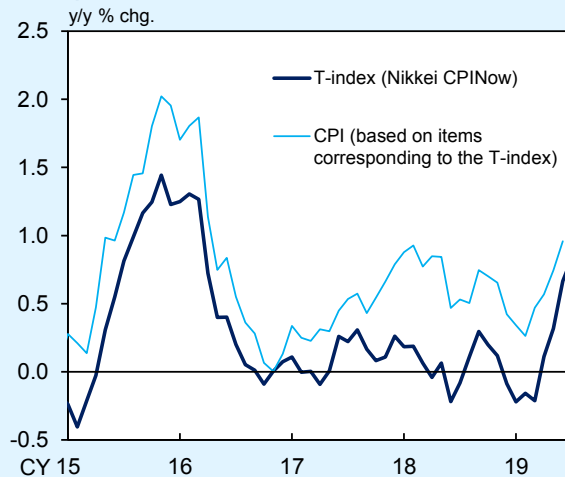
This box examines recent developments in the CPI, elaborating on key characteristics by category with a focus on mobile phone-related prices, on which downward pressure has intensified of late.

Looking at price-setting trends at retailers since April this year, prices of nondurable goods, in particular food products, have been rising for a wide range of items. In fact, sales price indicators that aggregate retailers' point-of-sales (POS) data, such as the Nikkei CPINow, show that the year-on-year rate of increase clearly has been accelerating since April (Chart B4-1).

In addition, developments in prices of durable goods also have been relatively firm. Specifically, with regard to durable goods other than mobile phones, price rises have been seen for a wide range of household electrical appliances, in particular room air conditioners, for which the front-loaded increase in demand prior to the consumption tax hike has begun to materialize (Chart B4-2). On the other hand, the year-on-year rate of decline in mobile phone prices has been accelerating of late, partly due to price reductions on older models prior to the launch of new ones.

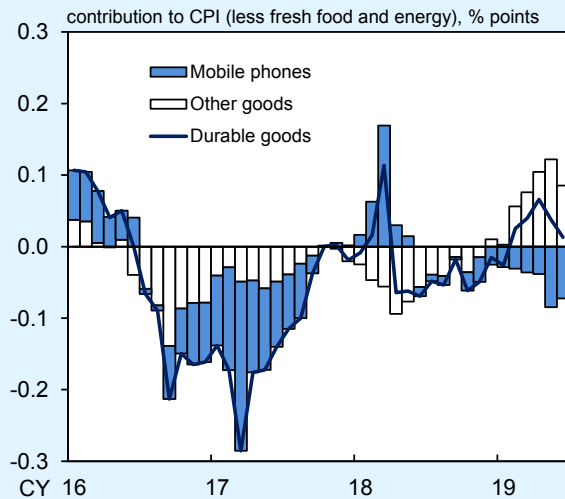
With regard to services prices, an uptrend in the year-on-year rate of increase has taken hold, particularly in dining-out and housework-related services, where a rise in personnel expenses is

Chart B4-1: Sales Price Changes in Supermarkets



Source: NOWCAST, Inc.
Note: Figures are adjusted for changes in the consumption tax rate.

Chart B4-2: Durable Goods



Source: Ministry of Internal Affairs and Communications.

being passed on. Charges for package tours to overseas and for hotels, which fluctuate considerably from month to month, have continued on their uptrend on the back of solid demand for travel and an increase in the number of inbound tourists. However, mobile phone charges have continued to decline as a result of intensifying competition among carriers in the mobile phone market. In June, when some carriers reduced their charges, mobile phone charges pushed down the year-on-year rate of change in the CPI (all items less fresh food and energy) by slightly more than 0.1 percentage point (Chart B4-3).

Thus, while further price rises have come to be observed widely and gradually among both goods and services, mobile phone-related prices (i.e., prices of and charges for mobile phones), in contrast with other items, are pushing down the overall prices to a certain degree. Therefore, a simple quantitative analysis has been used to determine whether the successive declines in mobile phone charges, which have a relatively large weight in the CPI, are affecting the formation of people's inflation expectations and whether this consequently may affect general prices overall. Specifically, this box estimates a vector auto-regression (VAR) model consisting of the following three variables: (1) the CPI for telephone charges (mobile phone), (2) the CPI for all items less fresh food, energy, and telephone charges (mobile phone), and (3) medium- to long-term inflation expectations. This model determines the extent to which an additional decline in mobile phone charges affects the CPI (Chart B4-4[1]).

Chart B4-3: General Services

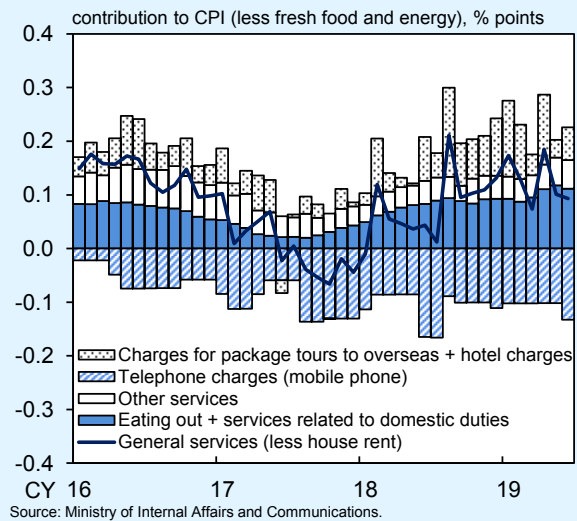


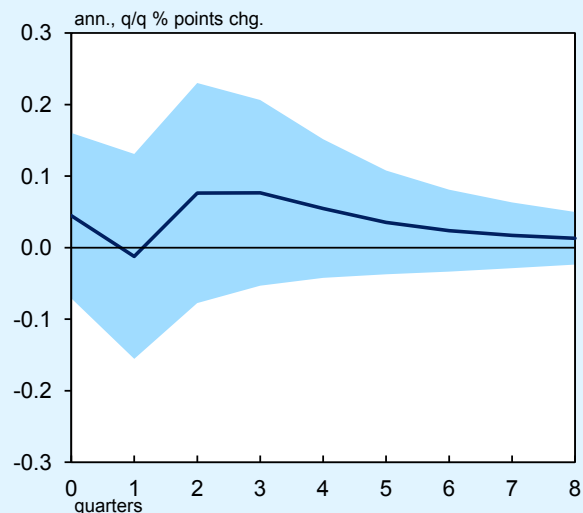
Chart B4-4: Impact of Reductions in Mobile Phone Charges

1. VAR Model Specifications

Estimation model: 3-variable VAR

- (a) CPI for telephone charges (mobile phone), ann., q/q % chg.
 - (b) CPI for all items less fresh food, energy, and telephone charges (mobile phone), ann., q/q % chg.
 - (c) Medium- to long-term inflation expectations (6 to 10 years ahead)
- Shocks are identified by Cholesky decomposition in the above order.
Lags: 2 quarters
Estimation period: 2000/Q2-2019/Q1

2. Response of the CPI to a -1σ (-3.3 Percentage Point) Shock to Mobile Phone Charges



Sources: Ministry of Internal Affairs and Communications; Consensus Economics Inc., "Consensus Forecasts."

- Notes: 1. The CPI figures are adjusted for changes in the consumption tax rate.
- 2. Figures for inflation expectations are from the "Consensus Forecasts."
- 3. The shaded area indicates the 90 percentile band.

The results suggest that the spillover effects on the CPI for all items excluding fresh food, energy, and telephone charges (mobile phone) are small and do not show a statistically significant deviation from zero (Chart B4-4[2]). Thus, the recent declines in mobile phone charges should be regarded as a sectoral shock that is specific to a certain sector, and they are unlikely to spread to general prices overall through, for example, adaptive inflation expectation formation. Nonetheless, this is based on a simple time-series analysis and the estimation results should be interpreted with a certain latitude.