

The new procedure for calculating seasonal items indices in Japanese chained CPI

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Outline

- 1. History of Japanese official chained CPI
- 2. Fresh foods and Clothing
- 3. Weighting Procedure
- 4. Two types of link period
- 5. Trial Results

1. History of Japanese Chained CPI

- July 1946: Family Income and Expenditure Survey (source for weight)
- Aug. 1946: Monthly release of CPI (Fisher index for double standard price system)
- Aug. 1949: Base Revision to 1948 calendar year (Laspeyres index)
- Jun. 1950: Retail Price Survey (source for price)
- Dec. 1957: Base Revision to 1955 (Revision and chained every 5 years)

1. History of Japanese Chained CPI

- ❑ Mar. 1977: Yearly Release of yearly chained CPI (Reference series)
- ❑ Mar. 2007: Monthly Release of yearly chained CPI excluding fresh foods
- ❑ Summer in 2016: Monthly Release of yearly chained CPI including fresh foods
- ❑ We must develop chained CPI including fresh foods, free from undesired bias and price bouncing

Official series: chained every 5 years

Reference series: chained every year

2. Fresh Foods and Clothing

- Two types of seasonal items: fresh foods and clothing
- Price movements pattern and in/out of season period
 - Trace almost same pattern for items in clothing
 - Spring-Summer type various clothing:
Mar. (in) → July (sale) → Sep. (out)
 - Autumn-Winter type various clothing:
Sep. (in) → Jan. (sale) → Mar. (out)
 - Trace complicated pattern for items in fresh foods
 - Grapes: July (in) → Nov. (out)
 - Pears: Aug. (in) → Nov. (out)
 - Oranges: Sep. (in) → Apr. (out)
 - Apples: Nov. (in) → Aug. (out)
 - Strawberries: Dec. (in) → Jun. (out) etc...

3. Weighting Procedure

- Two types of weighting procedure: monthly weights / annual weights
- For clothing
 - Most countries adopt annual weights (including Japan)
- For fresh foods
 - Monthly weights --- Japan, France
 - Annual weights --- Most countries (small or 0 weights for seasonal fresh foods)

3. Weighting Procedure

□ in Japan

- 13 of 18 fresh fruit items have out of season periods
- The weights for fresh foods are large
4.0% weights for fresh fish, fresh vegetables and fresh fruits
cf. 1.1% for U.S., 1.6% for U.K., 2.0% for Canada, ...
- Not suitable for excluding seasonal fresh foods or imputing from other items price movements

3. Weighting Procedure

- We usually focus y/y change or seasonal adjusted m/m change
 - We don't need to focus on m/m change in not seasonal adjusted series about fresh foods indices
 - We could accept m/m weight change
- We adopt monthly weights for fresh foods
- Weighting source for monthly estimates
 - Monthly consumption quantities data from household survey (Family Income and Expenditure Survey)

4. Two types of link period

- ❑ Two types of link period: a month (December) or a year
- ❑ There are “undesirable index differences” by linking yearly average price method
- ❑ We need to think about price bouncing especially in a month price linking method

4. Two types of link period

- Undesirable index difference caused in yearly average linking method
 - Drastic fall for “Public High School Fees” on Apr. 2010

		Mar. 2010	Apr.-Dec. 2010	Jan. 2011
Public High School Fees (basic item)		382.2	5.9	5.9
Total School Fees	Aggregated by linking last Dec. price	114.3	95.2 → 95.2 Unchanged	95.2
	Aggregated by linking yearly average price	114.3	95.2 → 96.7 Undesired change	96.7

- Shrinking weight from 2009 to 2010
- (linking last Dec.) $\text{Jan.2011} / \text{Dec.2010} = 1$
- (linking yearly average) $\text{Jan.2011} / \text{Ave. 2010} = 0.059$

4. Two types of link period

- Price bouncing in a month price linking method
 - Fresh fish index is bouncing by seasonal price movements of basic item

		Ave. 2010	Dec. 2010	Jan. 2011	Ave. 2011
Cuttlefish (basic item)		100.0	89.8	90.2	99.2
Total Fresh Fish	Aggregated by linking last Dec. price	-	100.0	101.9 Boost upward change	-
	Aggregated by linking yearly average price	-	100.0	100.9	-

- Contribution of "Cuttlefish" is inverse proportion to
 - Dec. price of "Cuttlefish" ($90.2/89.8$) in linking last Dec. price
 - Ave. price of "Cuttlefish" ($90.2/100.0$) in linking yearly average price

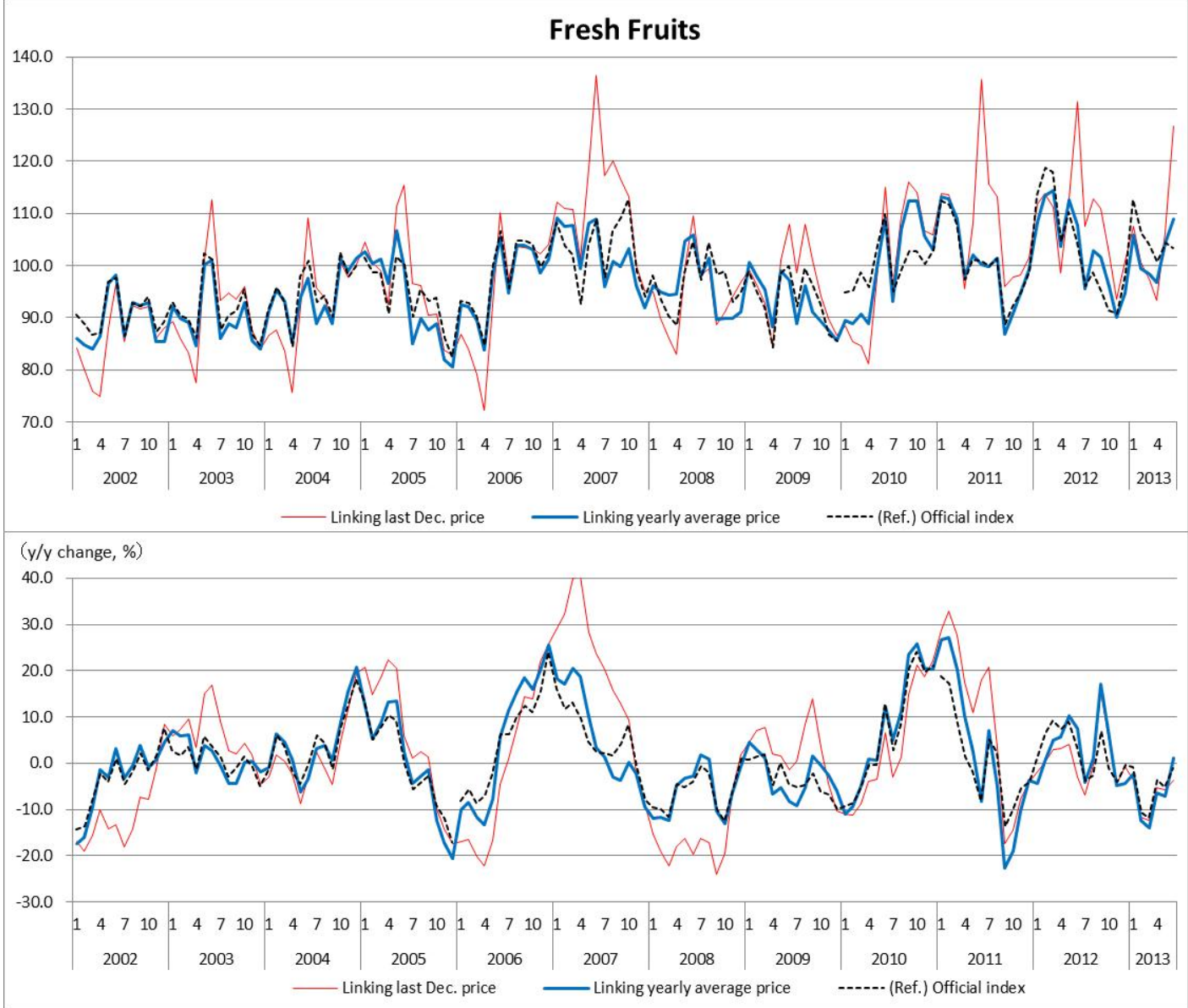
4. Two types of link period

- Fresh foods with monthly weights
 - Yearly average linking $>$ Δ Last Dec. linking
- Items whose price is stable with annual weights
 - Δ Yearly average linking $<$ ○ Last Dec. linking
- Most countries adopt Last Dec. linking for all items with annual weights
- But...

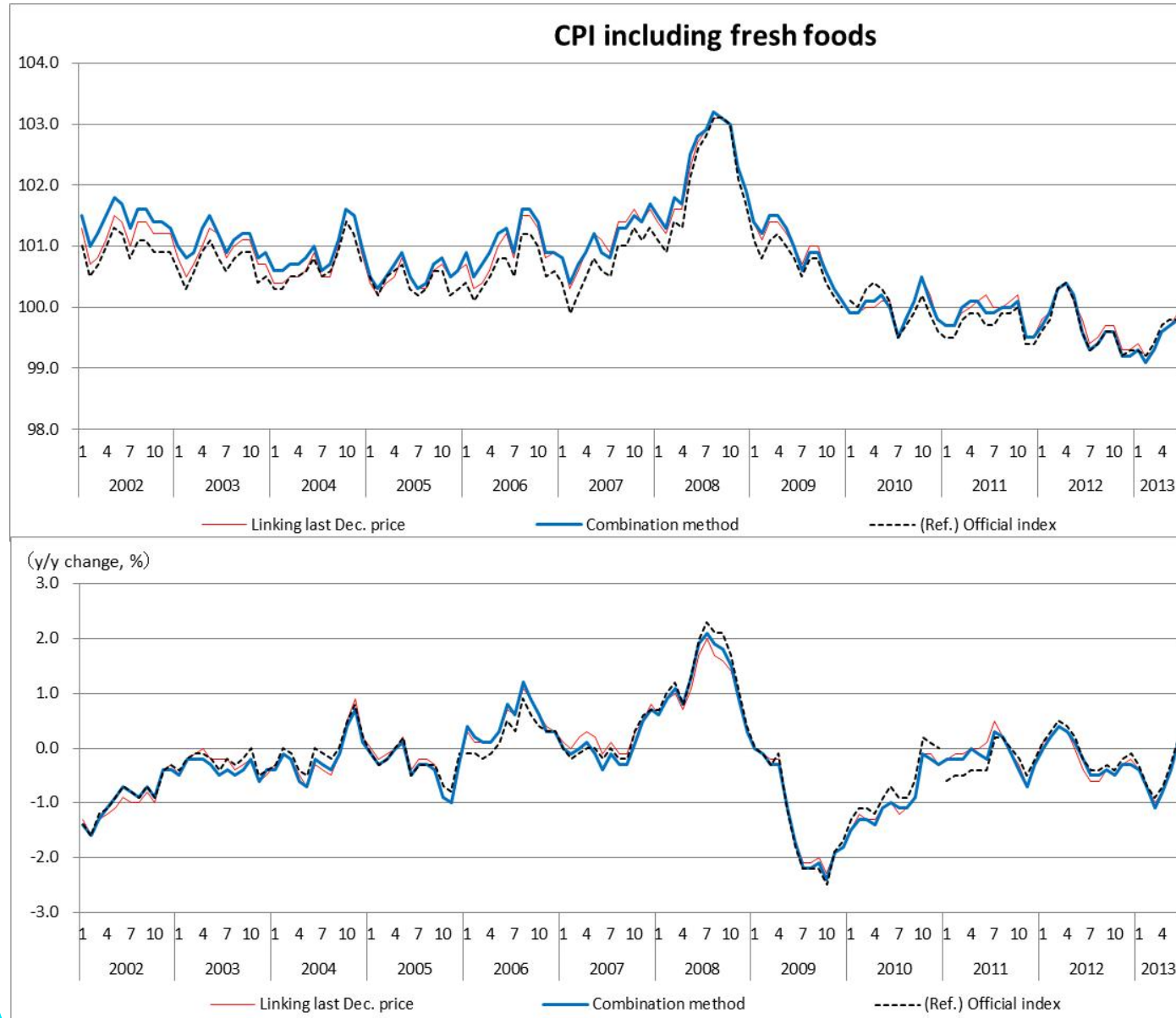
4. Two types of link period

- In France and Germany --- Combination of both methods
 - Yearly average linking for fresh foods (with monthly weights in France)
 - Last Dec. linking for non-fresh foods
- We have monthly weights for fresh foods
- We may adopt the combination method
 - This combination may lead to chained CPI free from undesired bias and price bouncing under high weights on fresh foods

5. Trial Results



5. Trial Results



Summary

- We decided to adopt
 - Monthly weights and yearly average price linking for fresh foods
 - Annual weights and last Dec. price linking, for non-fresh foods
- This combination leads to chained CPI that is free from undesired bias and price bouncing
- We can release chained CPI based on the actual latest weights by the Family Income Expenditure Survey