



**Key Issues Concerning
the Treatment of Seasonal Products
to Calculate Inflation
*from the Point of View of Central Banks***

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- Central banks as the primary users of price indices
- Key concepts and issues
- A case study
- Conclusion and discussion of policy implications

- Statistical offices are the supplier of the price indices
- Central banks on the other hand, are the main users of the price indices as they design the monetary policy framework taking into account the inflation
- Central banks are obliged to monitor the level of inflation
- Equally important, they are also interested in inflation volatility
- In general, seasonal products are the major source of the volatility
- The course of inflation is therefore affected by the treatment of seasonal products to a large extent, through volatility channel

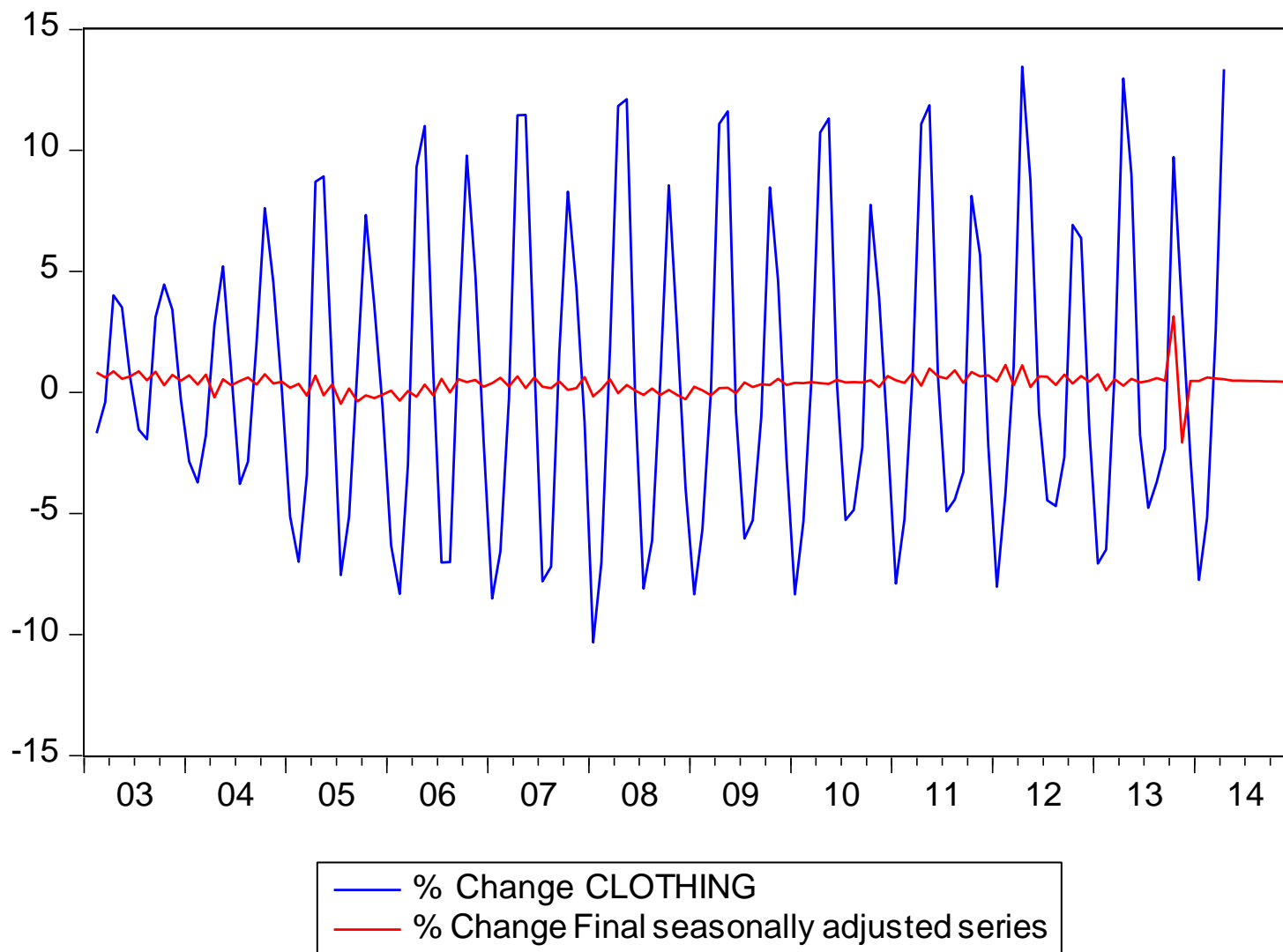
- *Hence, the reading of the situation by the central banks may provide insights to statistical offices in designing the optimal treatment strategy*

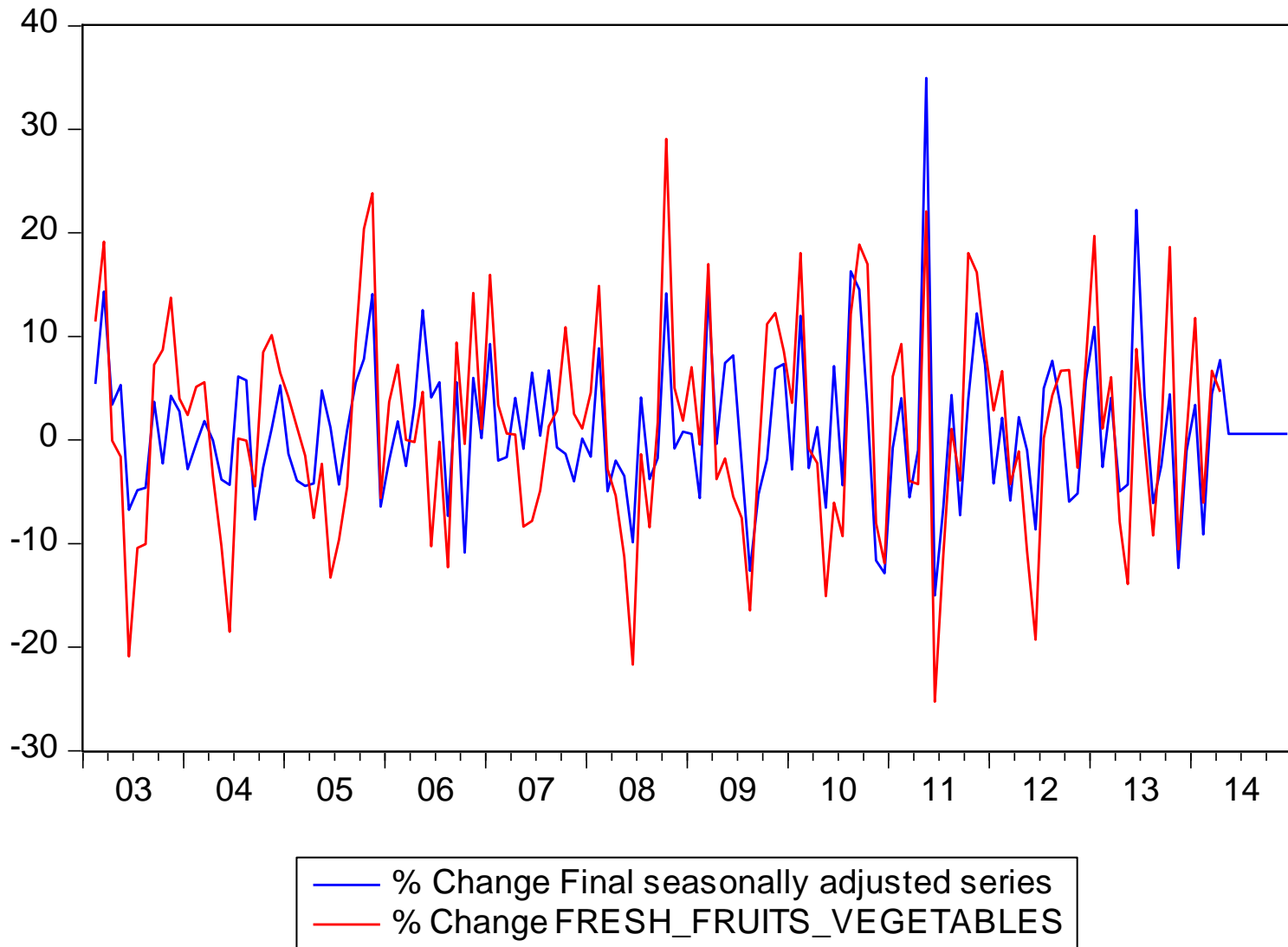
- Non-seasonal products are available in the market and consumed all year around
 - Bread, books, motor vehicles...
 - Easy to set representative goods and to follow prices
 - No big challenges for treatment

- Seasonal products are consumed at specific months only
 - University fees, cherries, t-shirts...
 - Difficult to set representative goods and assign weights
 - Treatment can be quite challenging

- Strongly seasonal products are only available in certain months of the year
- Major examples are ***fresh fruits and vegetables*** and ***clothing***
- Difficult to incorporate into price index
 - What representative goods to include at each month
 - How to choose the relative weights
- *Using fixed weights:*
 - Prices need to be imputed for the months where item is not available
 - Price of watermelon in January??
- *Using variable weights:*
 - The months of entry of items should be decided
 - Do plums come to market in April or May??

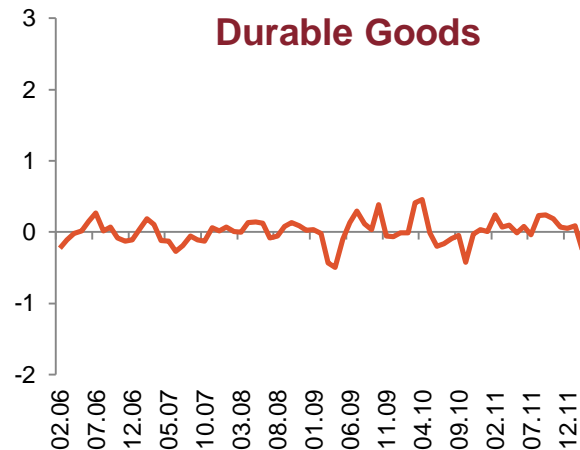
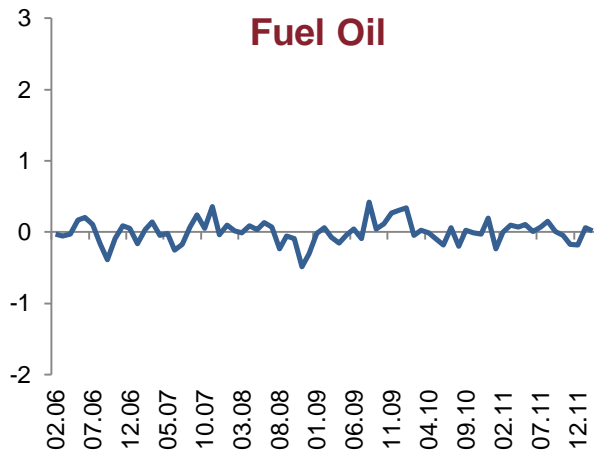
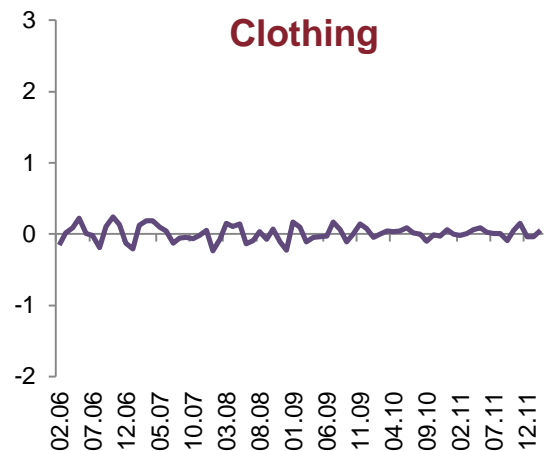
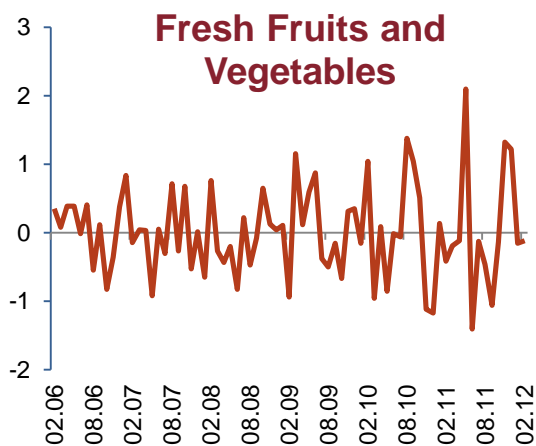
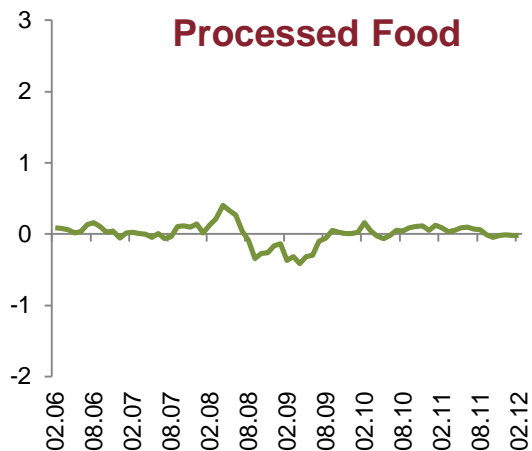
- The presence of seasonality is a major challenge for inflation analysis
- Seasonal patterns for strongly seasonal products are not homogeneous
- Some of them are very regular
 - Clothing
- Some of them are very irregular
 - Fresh fruits and vegetables
- Irregular seasonality is easy to detect
 - Check the seasonally adjusted figures





- Regular seasonality is not an issue in terms of inflation or inflation volatility
- However, the presence of irregular seasonality is a big challenge
 - This irregularity causes fluctuations
 - If the share of such items in CPI is high, then the headline index becomes quite volatile as well
- Irregular seasonality introduces unpredictable volatility
- As in the case of Turkey, items with irregular seasonality can affect the headline inflation as much as 2 percentage points in one month
 - a much higher contribution than other typical items with volatile prices

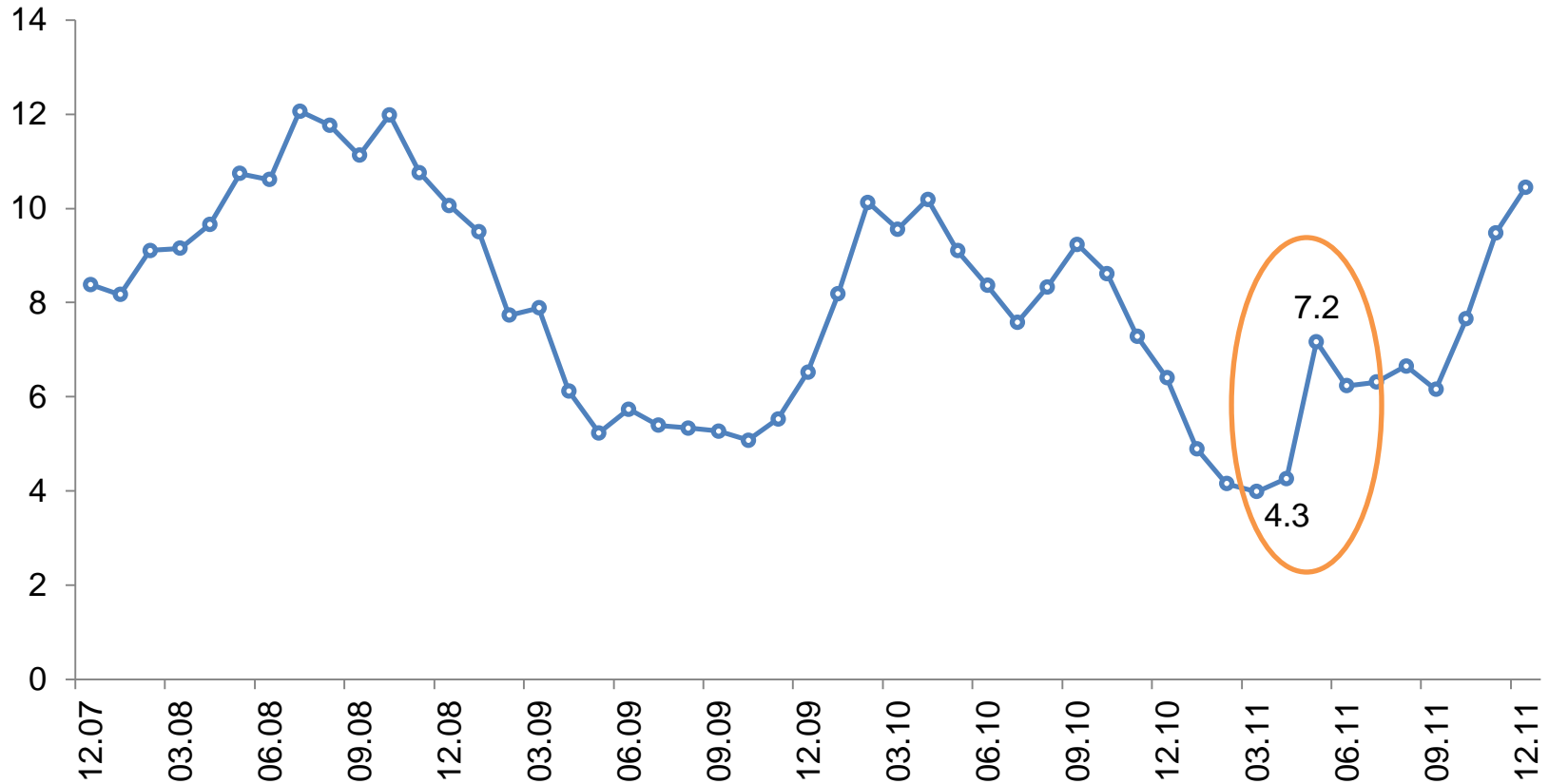
Monthly Net Contributions to Annual CPI Inflation (Percentage Points)



- As a general rule, supply and demand conditions determine the level of prices
- *Consider the clothing prices:*
 - Production takes place before the season starts
 - Firms already have available stocks in hand
 - Depending on the level of demand, they arrange the supply level by adjusting the stocks
 - No significant price movement

- *Consider the fresh fruits and vegetables prices:*
 - Supply conditions dominate the picture
 - Production highly depends on the weather conditions
 - If there is a supply shock prices can jump dramatically
 - May create a large impact on overall inflation

CPI (Annual Inflation, %)



- The headline inflation jumped from 4.3 to 7.2 in May 2011 in Turkey
 - A 2.9 points increase in the inflation, possibly a worrying outcome
 - About 2.6 of the jump supported by food prices
 - More importantly, about half of the total rise in inflation came from two items: cherry and plum
 - Check the historical prices of cherry:

	<i>Price of Cherry (in TL)</i>					
	April	May	June	July	August	September
2009	--	7.4	3.5	3.2	--	--
2010	--	5.4	2.9	2.7	--	--
2011	--	14.6	4.7	4.1	--	--
2012	--	--	4.0	4.2	4.9	--
2013	--	--	4.4	4.3	4.9	--

- Supply shocks combined with the treatment choice can bring about considerable inflationary effects

- From perspective of a central bank, there is certainly a need for special treatment of seasonal items on several grounds:

Economic Intuition:

Extremely high prices (or size fluctuations) continue only for a few weeks

>> Consumers adjust the quantity they demand

>> Usually they do not consume that item

>> But weights in the basket are not adjusted dynamically accordingly

>> Given that, even though no consumption takes place, inflationary effects are considerable!

- From perspective of a central bank, there is certainly a need for special treatment of seasonal items on several grounds:

Inflation Targeting Policy (Monetary policy in general):

- Seasonal irregularity may change headline inflation considerably (up to 2 percentage points in Turkey) month-on-month
- >> Introduces challenges for monetary policy communication
- >> Central banks are obliged to rely on core inflation indicators in their communications -usually entirely disregarding seasonal products
- >> May harm inflation expectations and contracts

- From perspective of a central bank, there is certainly a need for special treatment of seasonal items on several grounds:

Welfare implications:

The hike in inflation caused by seasonal products is usually reversed after some time

>> However, the higher inflation in the meantime adversely affects the expectaitons and pricing behaviour of the economic agents

>> Prices are indexed to headline inflation to some extent. Thus price increases occur at rates higher than what would have been in the presence of hike in headline inflation

- Treatment of seasonal products in CPI should consider the following issues:
 - Seasonal vs strongly seasonal items
 - Regular vs irregular seasonality
 - Sources of irregularity in seasonality
 - Predictable vs unpredictable volatility
 - Sources of unpredictable volatility
 - Effects of such volatility on headline inflation
 - Optimal weighting schemes
 - Consumption behaviour of consumers

- Treatment of seasonal products is also a country-specific issue:
 - Identify strongly seasonal products
 - Determine the nature of prices of such products
 - Periods of consumption, typical entry-exit prices, volatility of prices
 - Think about the main driver of the prices (demand vs supply)
 - Pay specific attention to products with relatively high share in basket and have unpredictable prices
 - Design a treatment strategy accordingly, in line with an objective

- ***Concentrating on inflation volatility -given the consumption pattern- may be a good objective to pursue***



Thank you.

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