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ESTIMATING SHRINKFLATION IN THE TRADITIONAL DATA COLLECTION AND BY USING SCANNER DATA

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CONSUMER EXPERIENCE OF SHRINKFLATION



SAME PRICE FOR THE OLD (+) AND THE NEW (-) PACKAGE



PRICE UP AND THE NEW PACKAGE DOWN BUT RE-BRANDED

Is it possible to correctly detect shrinkflation by using scanner data?

Or are we in paradox that better data source, degrading capability to detect this kind of pricing behavior of the companies?

OUTLINE

- What is shrinkflation
- Istat elaborations with prices and information coming from traditional data collections (2012 – 2021)
- Scanner data, relaunches and shrinkflation
- A case study with Italian data
- Concluding remarks

WHAT IS SHRINKFLATION

- Shrinkflation is a term used to describe the business practice of changing the physical weight of a product, while keeping its price constant.
- If products “shrink” in size while the price stays the same, the price has inflated, as consumers will pay the same amount of money for less.
- Shrinkflation is not new and is not limited to times of high inflation. However, when inflation is rising the practice increases as companies grapple with rising costs for ingredients, packaging, labor and transportation.
- Processed food and grocery products and other products including services are potentially affected by shrinkflation
- ONS study (2017) a starting point for the analysis of the Italian case

ISTAT ELABORATIONS - PRICES AND INFORMATION FROM TRADITIONAL DATA COLLECTION (2012 – 2021)

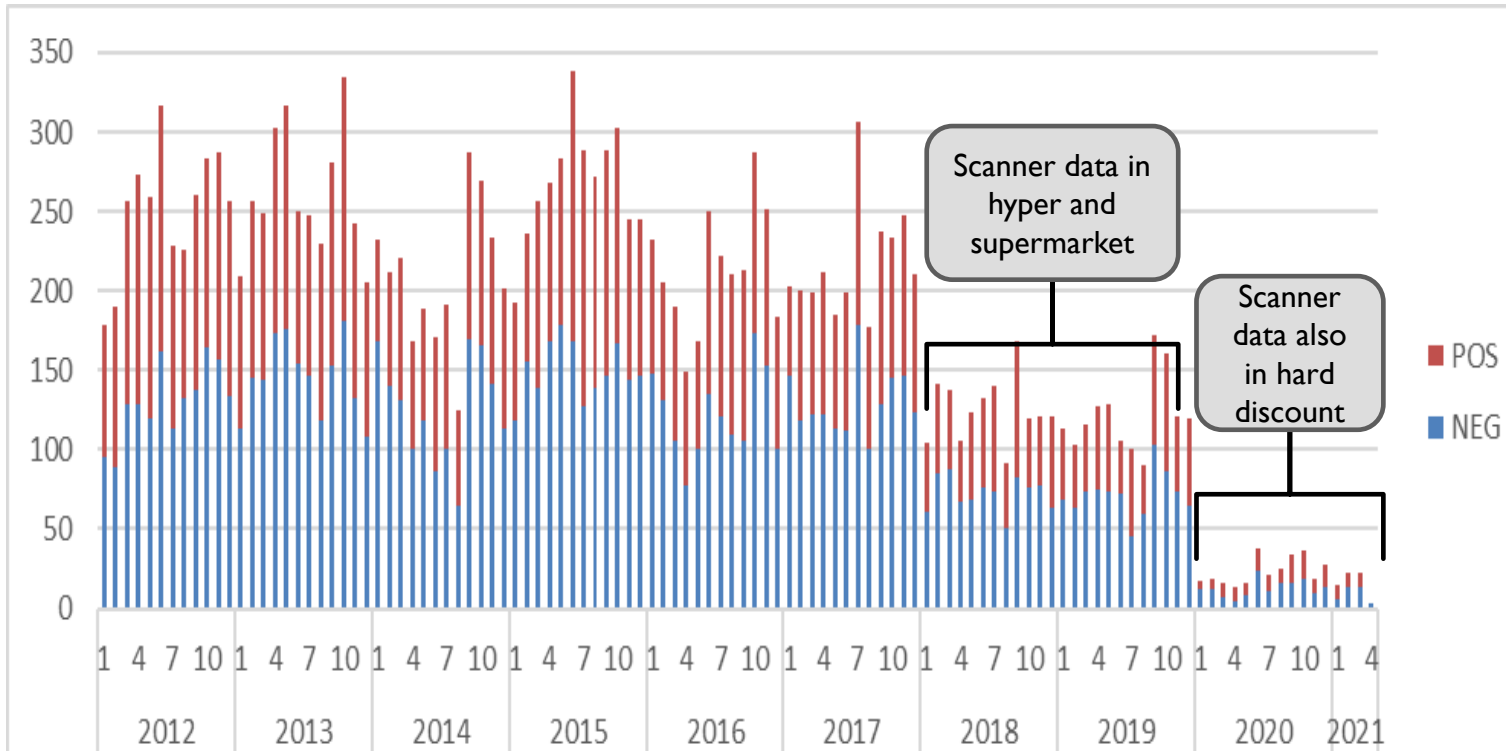
- In order to estimate the number of products that have shrunk and to measure the impact of shrinkflation on CPI, Istat analysed data referred to some processed food products between 2012 and 2021, with reference to the data coming from the traditional way to collect prices.
- The analysis has focused on some COICOP classes, where specific goods (product aggregates) could be affected by shrinkflation. Analysis focused on prices collected on a monthly basis by the Municipal Offices of Statistics (MOS) of the towns participating in the survey (source => local survey)



Code	Level	Denomination	Number of product aggregates in the basket
01.1.1	Class	Bread and cereals	13
01.1.2	Class	Meat	11
01.1.3	Class	Fish and seafood	9
01.1.4	Class	Milk, cheese and eggs	9
01.1.6	Class	Fruit	22
01.1.7	Class	Vegetables	37
01.1.9	Class	Food products n.e.c.	7
03.1.2	Class	Garments	31
06.1.2	Class	Other medical products,	2
12.1.3	Class	No-Electric appliances for personal care and other appliances, articles and products for personal care	9

ISTAT ELABORATIONS - PRICES AND INFORMATION FROM TRADITIONAL DATA COLLECTION (2012 – 2021)

TOTAL NUMBER OF MONTHLY REPLACEMENTS OF ELEMENTARY ITEMS FOR QUANTITY CHANGES BY INCREASING (POS) AND DECREASING (NEG) QUANTITY. From January 2012 to March 2021 (absolute values)

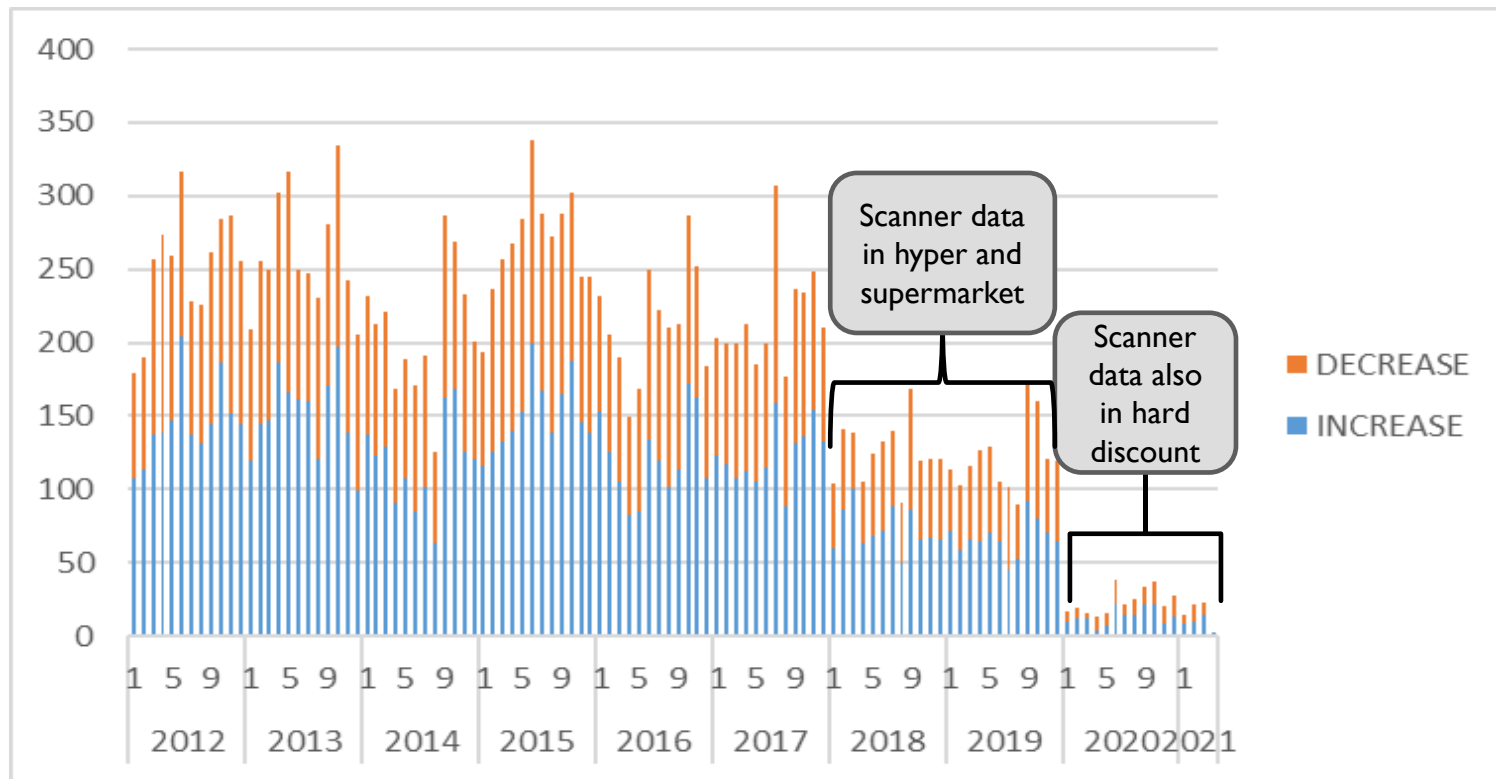


Replacements for changes in the quantity of the elementary item. Quantity changes

From January 2012 to March 2021, the graph shows the monthly number of quantity changes, in absolute value, carried out for the products recorded monthly by the MOS: changes that led to an increase in quantity are identified with the label POS (red) and those that led to a decrease are identified with the label NEG (blue)

ISTAT ELABORATIONS - PRICES AND INFORMATION FROM TRADITIONAL DATA COLLECTION (2012 – 2021)

TOTAL NUMBER OF MONTHLY REPLACEMENTS OF ELEMENTARY ITEMS FOR QUANTITY CHANGES BY DECREASE OR INCREASE IN THE PRICE INDEX. From January 2012 to March 2021 (absolute values)

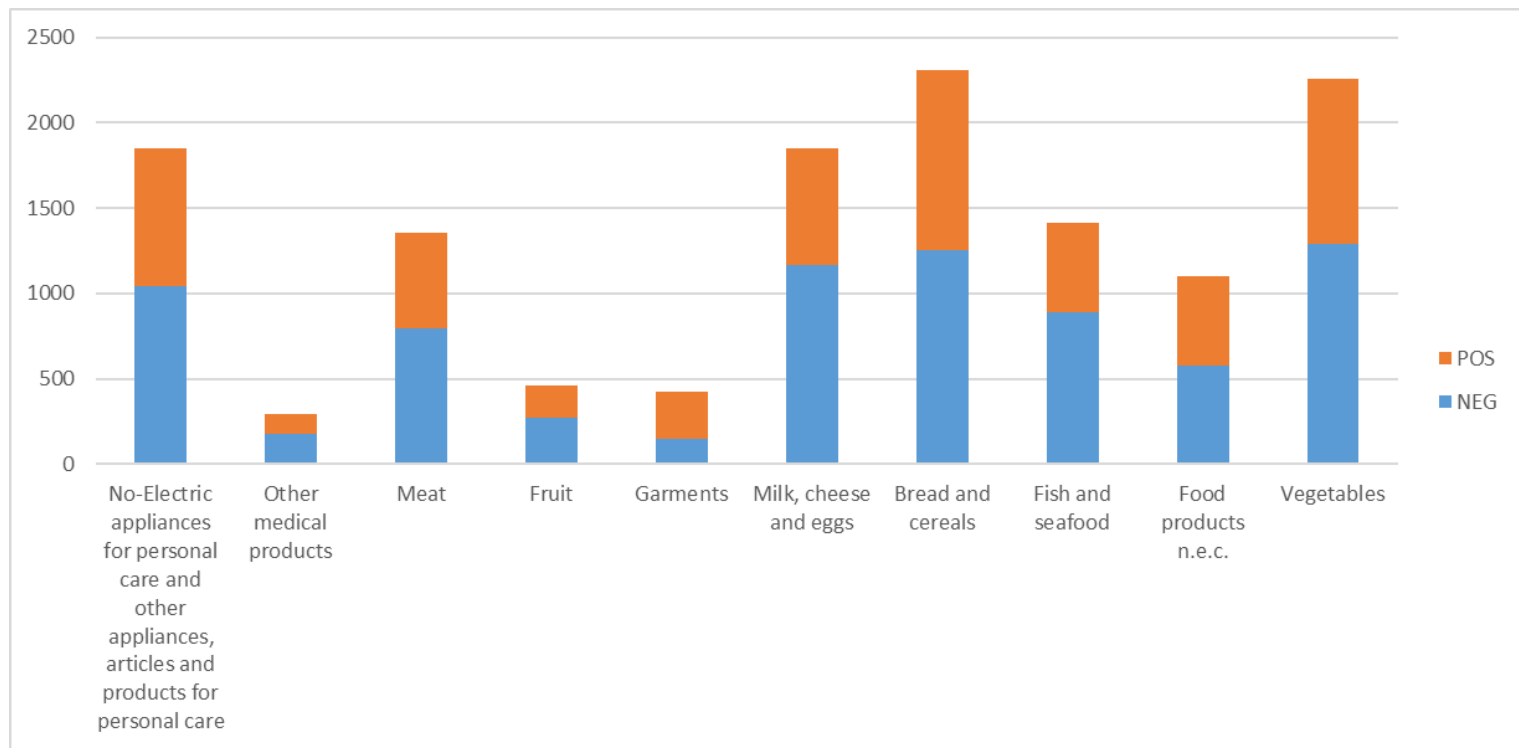


Replacements for changes in the quantity of the elementary item. Price changes

From January 2012 to March 2021, the graph shows the monthly distribution of the number of replacements in absolute value recorded for the products surveyed monthly in all the MOS, indicating with the label INCREASE (blue) the replacements that led to increase in the index (and therefore due to an “implicit” price increase) and with the label DECREASE (red) to a decrease in the index

ISTAT ELABORATIONS - PRICES AND INFORMATION FROM TRADITIONAL DATA COLLECTION 2012 – 2021)

TOTAL NUMBER OF REPLACEMENTS FOR QUANTITY CHANGE OF ELEMENTARY ITEMS BY DECREASE OR INCREASE IN THE PRICE INDEX. From January 2012 to March 2021 (absolute values)

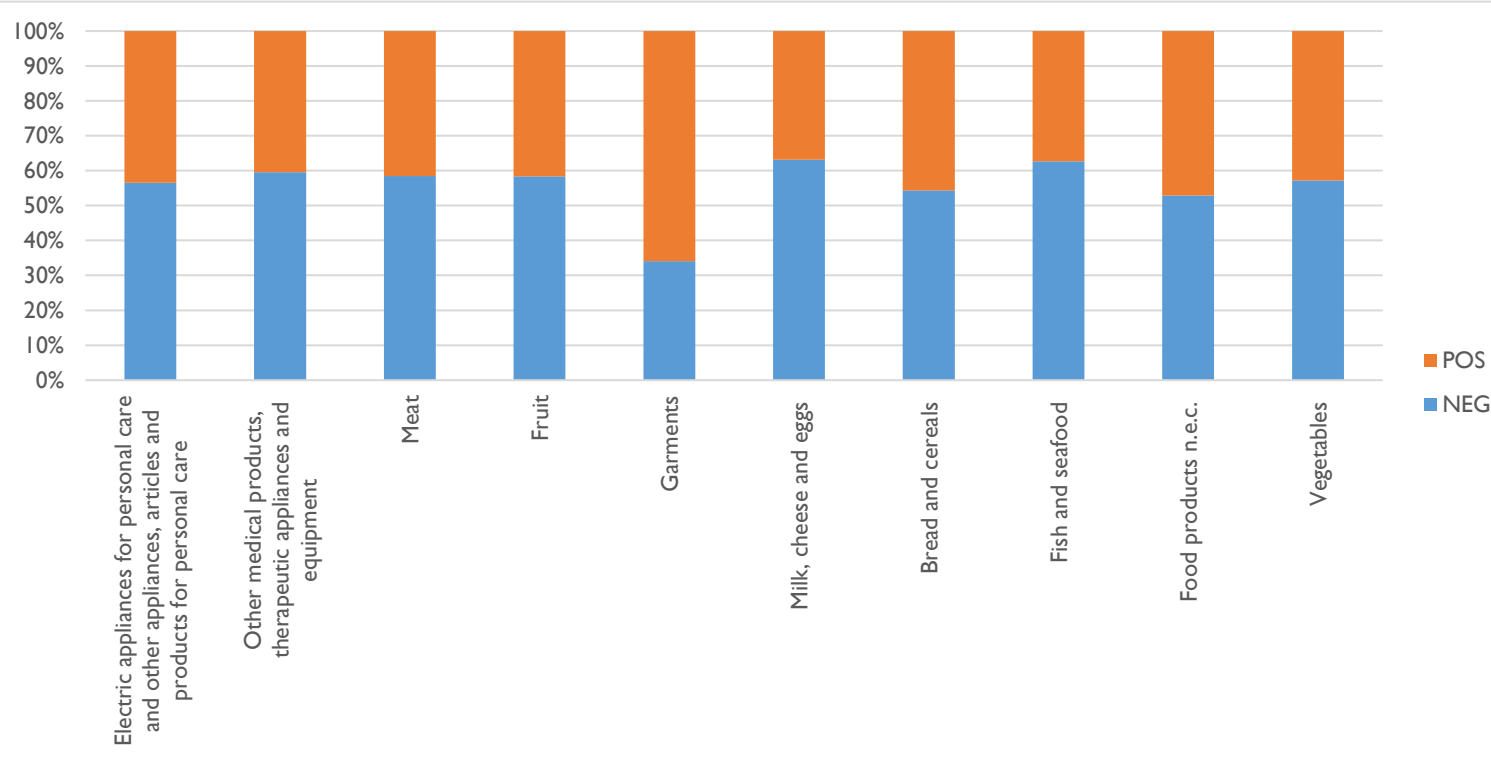


Focus on the classes with highest number of replacements for quantity and price changes

From January 2012 to March 2021, the graph shows the distribution of the absolute number of changes in quantity by COICOP classes that recorded number of changes greater than 250. The POS label identifies the exchange rates with an increase in quantity (in orange) and the NEG label identifies those with a decrease in quantity (in blue).

ISTAT ELABORATIONS - PRICES AND INFORMATION FROM TRADITIONAL DATA COLLECTION (2012 – 2021)

TOTAL NUMBER OF REPLACEMENTS FOR QUANTITY CHANGE BY PRODUCT CLASS AND BY QUANTITY INCREASE (POS) AND DECREASE (NEG). From January 2012 to March 2021 (percentage values)



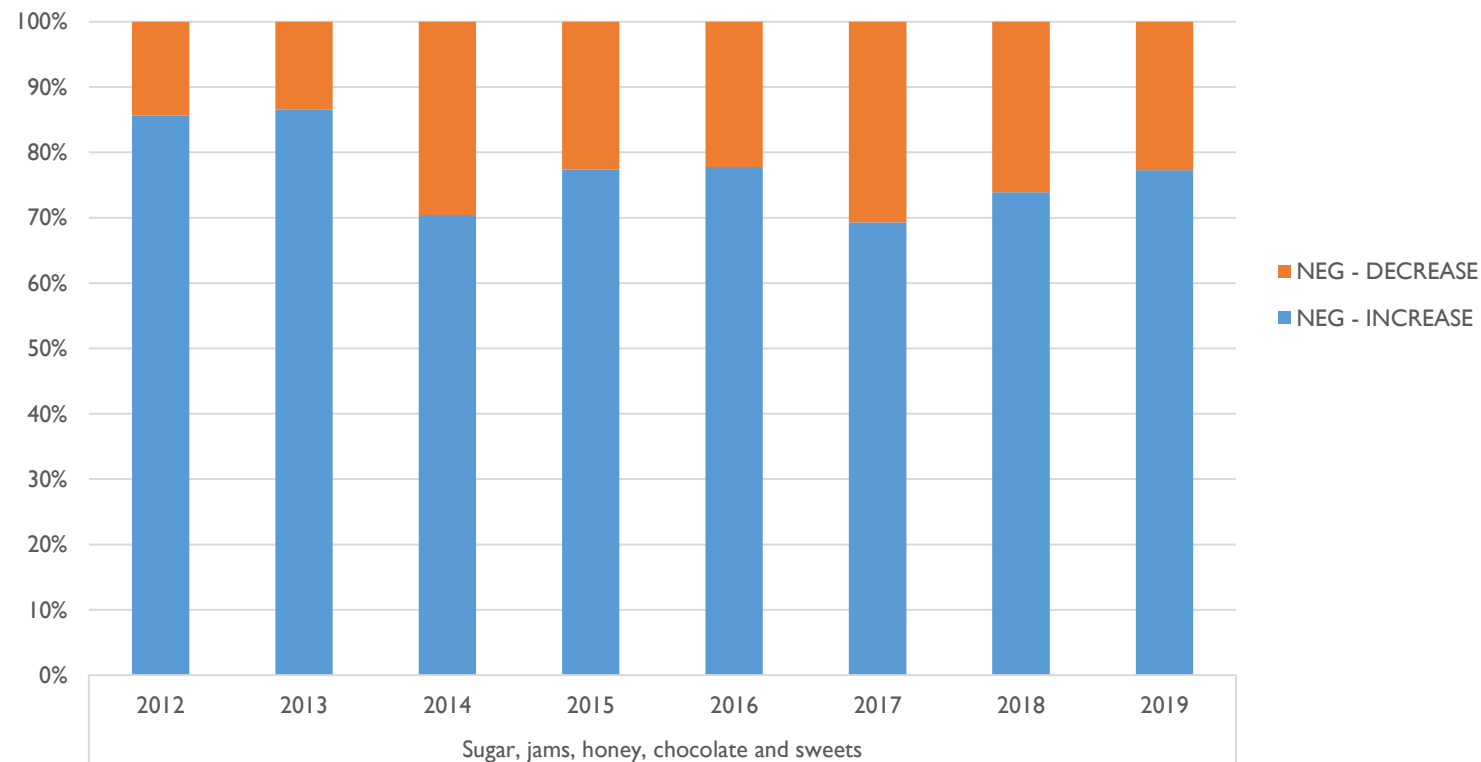
63% Milk, cheese and eggs and Fish and seafood

60% Other medical products...

The changes in quantity observed from January 2012 to March 2021 (percent value data), for the 10 product classes with more than 500 changes, are predominantly changes involving a decrease in quantity rather than an increase

ISTAT ELABORATIONS - PRICES AND INFORMATION FROM TRADITIONAL DATA COLLECTION 2012 – 2021)

TOTAL NUMBER OF REPLACEMENTS FOR QUANTITY DECREASE IN THE CLASS OF SUGAR, JAMS, HONEY, CHOCOLATE AND SWEETS BY DECREASE OR INCREASE OF PRICES From January 2012 to March 2021 (percentage values)

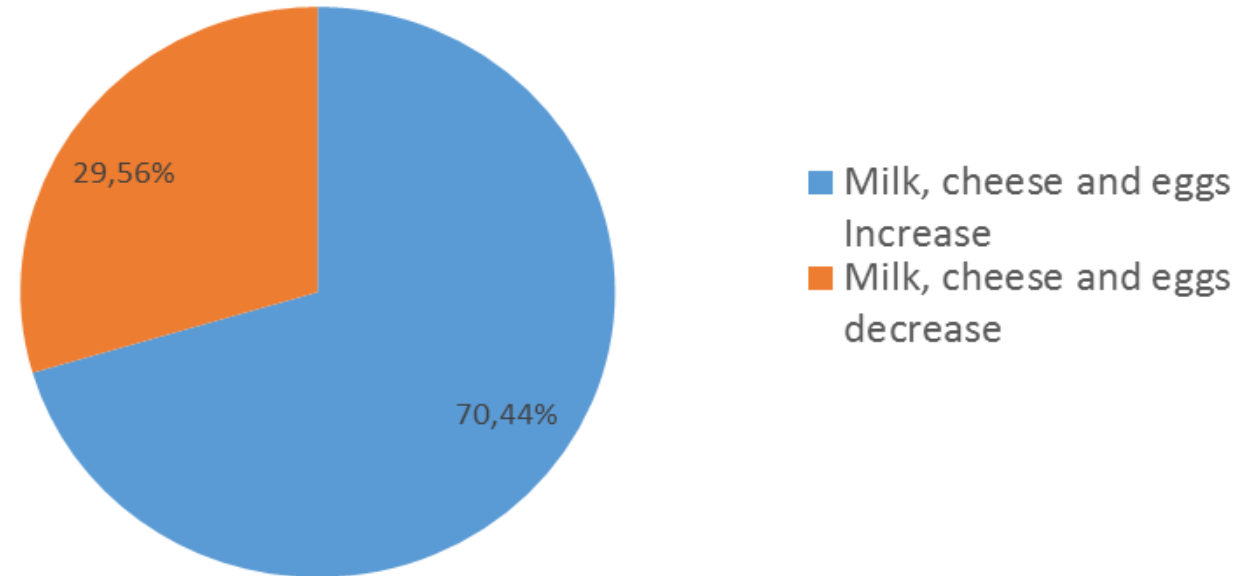


- Similarly to what was analyzed in the study by the ONS researcher mentioned above, one of the product classes that appears most affected by shrinkflation is that of Sugars, jams, honey, chocolate and sweets.
- In any case we are speaking of a limited number of events

ISTAT ELABORATIONS - PRICES AND INFORMATION FROM TRADITIONAL DATA COLLECTION (2012 – 2021)

- For the class of Milk, cheese and eggs changes with decreases in packaging and quantities correspond mainly to price index increases.
- In 2012-2021 only in 29.56% of the cases the quantity decrease was accompanied by a decrease in relative price (i.e. for the same given quantity), while in the remaining 70.44% the price increased.

NUMBER OF REPLACEMENTS WITH DECREASES IN QUANTITY IN THE CLASS MILK, CHEESE AND EGGS BY PRICE INDEX INCREASE OR DECREASE. From January 2012 to March 2021 (percentage values)



ISTAT ELABORATIONS - PRICES AND INFORMATION FROM TRADITIONAL DATA COLLECTION 2012 – 2021)

- Shrinkflation appears to have a negligible impact on the estimate of general inflation but a significant one for some product classes;
- Similarly to what was analyzed in the study by the ONS researcher mentioned above, one of the product classes that appears most affected by shrinkflation is that of Sugars, jams, honey, chocolate and sweets;
- With reference to this last class of products and restricting the analysis to only cases in which the quantity has decreased, in the majority of cases (over 80%) an increase in the price of the product considered was recorded;
- In the absence, therefore, of specific tools for dealing with such events, albeit limited to some classes of products, the practice of reducing the packaging of products sold at retail without a proportional reduction in price by manufacturing or distributing companies could produce effects of underestimation of inflation, the extent of which appears limited also for the opposite events are in place

SCANNER DATA, RELAUNCHES AND SHRINKFLATION

- The new scenario for the analysis of the shrinkflation derived from the introduction of scanner data (more difficult the analysis although the availability of big amount of data; information about the quantity, meant as packaging, with others within the GTIN code description; new GTIN when the quantity change and difficulties in linking old with new GTIN)
- Shrinkflation may be related to product relaunches in certain business strategies especially when companies are making changes to products to manage costs or improve competitiveness.
- For example, if a company is implementing shrinkflation as part of a cost-cutting measure, a relaunch can be an opportunity to rebrand the product and communicate changes to consumers more positively. In this case, the relaunch might highlight improvements or innovations, helping to mitigate potential negative perceptions related to size reductions.

SCANNER DATA, RELAUNCHES AND SHRINKFLATION

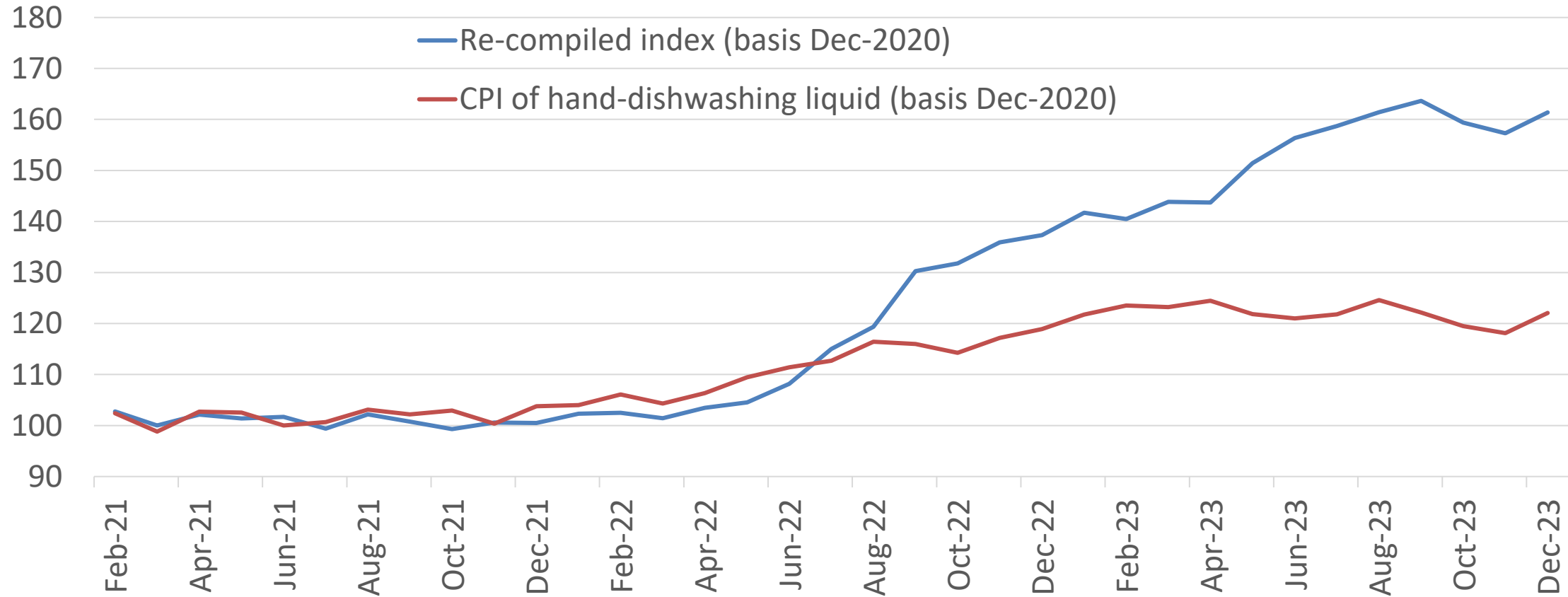
- Companies may use a relaunch to reposition a product in the market. If they are making changes to the product size, they might rebrand it as a "new and improved" version without explicitly highlighting the reduction in size. The messaging around the relaunch can influence consumer perceptions.
- The traditional technique of dynamic sampling but also multilateral indices without considering quality adjustment issues could fail in detecting case of shrinkflation
- The adoption of homogeneous groups of products, compiling price by quantity unit could represent a way to test to detect shrinkflation attitude
- A preliminary experiment conducted on some groups of food products as pasta and coffee by analyzing Italian data has produced controversial results
- Similar experiment on dishwashing liquid has brought to detect relevant impact of shrinkflation that the dynamic sample approach was not able to capture

A CASE STUDY WITH ITALIAN DATA – DISHWASHING LIQUID

- Rome data from January 2021 to December 2023
- Homogeneous stratum/group given by packaging within a range of ± 100 Milliliters around 1000
- Calculated a price per 1000 milliliters considering all the packages available within the stratum in each outlet (average monthly price by GTIN within the quantity range, and then unweighted GEOMEN within the outlet; afterwards, aggregation via weighted arithmetic mean considering the sampling weights of the outlets)
- The results (to be further assessed) highlight a relevant phenomenon of shrinkflation
- Sharp increase of the gap of the re-compiled index starting from Mid 2022 during the inflation crisis

A CASE STUDY WITH ITALIAN DATA - DISHWASHING LIQUID

ROME CONSUMER PRICE INDICES BY DYNAMIC SAMPLING APPROACH AND BY QUANTITY UNIT PRICES. January 2021 to December 2023 (Dec 2020=100)



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CONCLUDING REMARKS AND WAY FORWARD

- Impact of shrinkflation to be analyzed in the “scanner data and alternative data sources age” considering several products and different approaches (not only quantities going down and price indices increasing, but also the opposite)
- A quality improvement in the inflation estimation (scanner data, adoption of alternative data sources) should allow (and not neglect) a better analysis of such a kind of economic attitude of companies in the policies of pricing that tend to hide inflation
- For processed food and grocery thinking about the use of dynamic sampling approach
- Highly probable the limited impact on aggregate figures but potentially relevant for specific markets
- Investigating shrinkflation more in-depth during the recent sharp increase of inflation

THANK YOU SO MUCH FOR YOUR ATTENTION