

## **A Local Price Observatory – Price minimarket: innovations and additional knowledge about prices - The experience of Umbria**

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**Abstract** Since 2003 the regional office of Istat in Umbria has been involved in an experimental project named ‘Regional Price Observatory’. The project was initiated and conducted by a number of actors besides Istat: the Regional Administration of Umbria, the Department of Economics, Finance and Statistics of the University of Perugia, the consumers’ association and some Umbrian Municipalities. The project adopts an innovative methodology suited to monitor prices’ level and purchase behaviour at regional level, with the aim of developing consumers’ awareness.

### **1 Overview**

The Project is based on a protocol agreement stipulated among the Umbria Region, the Economics, Finance and Statistics Department of the University of Perugia, the Istat – Main Office of Umbria, the Consumers’ Associations and the Municipalities of Perugia, Terni, Città di Castello, Foligno, Orvieto, Narni, Spoleto e Todi. This activity is carried out in close collaboration with Istat – General Direction of the Price Statistics and the Foreign Trade, responsible for the National Consumer Price Index (CPI), from which this Project has taken many conceptual aspects and definitions. The project aim was twofold: from one side the classical methodology aimed at calculating the CPI was tested also in six municipalities of smaller dimensions in order to strengthen the results

of the CPI sample survey which is carried out only on larger municipalities (Perugia and Terni). The second one, carried out at the same time, refers to an alternative price data collection, which highlights minimum, maximum, and average prices of a set of most used goods. This analysis allows to acquire information on consumer behaviour.

This paper is focused on this second aspect which represent the innovative contents of the Local Price Project, i.e. an innovative methodology suited to monitor prices' level and purchase behaviour, with the aim of developing consumers' awareness. The paper is organized as follows: section 2 explains the methodology applied and the innovative aspects, section 3 deals with the price data processing, quality control and results dissemination, section 4 presents the results of the research, discuss limits and constrains, and suggests possible future developments.

## 2 Methodology

In recent years the Umbrian regional government has been even more involved (aware) with the needs collected and reported by the Consumer Associations, of consumer's increasing purchasing consciousness (see e.g. Foxall, 2005 and Solomon, 1999).

This instances implied the need for the consumer to be informed with additional facts on local prices as compared to those offered by the National, Regional and Municipality Consumer Price Index (CPI). This paper reports the main steps of the innovative project to fill in this informative gap.

As well known, the CPI provides details on inflation, by analysing the monthly price shifts (of the most sold *reference*, see further) of 319 consumption segments (see ISTAT 2011b). The information monthly collected by the Project, instead, concern the highest, average, and lowest value of each product comprised in a selected subset ("*mini-basket*"<sup>2</sup>) of consumer goods. These values allow supervising both the displayed prices and the *consumer purchase behaviour*. By correlating the various price types it is possible to identify which products are chosen by the consumer, being influenced or not by the opportunity of a lower or higher *spending*.

The project refers as starting point and as far as possible to the national methodology set up for the CPI calculation (see ISTAT 2011b). The sampling plan takes into consideration the following features: municipality demographic size, population territorial distribution, and stores territorial distribution. Such plan is yearly revised. It is worth mentioning, however, that the sample of the monthly Price Observatory has to cope with the willingness to answer of the interviewed stores being the survey not mandatory<sup>3</sup>. This occurrence lead to select alternative stores in case of refusal to collaborate. Even if the substitution are made with similar units, biases may arise.

The subject of investigation are the price levels of products included in the consumer *mini-basket*. For each product, the survey identifies price, brand, type, quantity, possible applied discount and its duration time; the parameters concerning brand, type and quantity, as product identification, detect the *reference*<sup>4</sup>. Per each

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<sup>2</sup> The 77 products included in the *Mini-basket*, as identified by the Local Governance Board "*Consulta regionale per l'utenza e il consumo*", are reported in Angiona *et al.* 2012.

<sup>3</sup> Instead, the CPI survey is mandatory, that is stores refusing to answer are fined.

<sup>4</sup> This definition is similar to that adopted by ISTAT at national level.

product, whenever possible, five price levels are recorded, such as: most sold reference price, most expensive reference price, cheapest reference price, second most expensive reference price, second cheapest reference price. In order to ensure a reliable information per product and per municipalities, the survey requests the price data collection in, at least, seven stores with, at least, seven quotations per each type of price, keeping into consideration that some products are recorded monthly and others bi-monthly (bi-monthly products, like vegetables).

The price data collection of the products included in the consumer mini-basket is regularly carried out both among large stores, typical of the modern distribution, and traditional shops. The identification of the most sold reference price level is detected for each product by interviewing the store manager who states the monthly most requested reference by the consumer, in terms of sales quantity. The identification of the most expensive, the less expensive, the second most expensive and the second less expensive one is ensured by the direct observation of the prices of the products displayed on the shelves in the store and excluding among them those references already identified as the most sold.

### **3 Data processing, quality controls, and results dissemination**

A dedicated procedure set up in Oracle SW allows to handle in a quick and reliable way the great amount of information collected every month according to the Project. For each product and each Municipality the procedure calculates the lowest price value recorded; the highest price value recorded; the overall average price, calculated by geometric average of all the price values recorded in all the stores; the average price of the most sold reference calculated by geometric average of all the reference price values recorded in all the stores.

A first coherency control is carried out on the data, during the data entry phase, due to the fact that the EDP procedure provides a controlled acquisition of the data. Further quality controls concern the number of recorded values (control of the number of values per product and per store with regard to the typology of the most sold reference price; control of the number of values per product for all the types of price and the overall values) which must agree with the chosen methodology; also anomalous price changes over the time and space, including null changes.

The procedure also records frequency and duration of the available discounts.

The monthly data published and expressed in absolute value comprise:

- the price levels per product groups (the results are presented by grouping the products by eight consumption and use typology. The lowest and the highest prices represent the two extremes of the interval within which the consumer's spending opportunity are included, that is to say the values within which the price of a given good, in a given month at the sampled stores in a specific area. The overall average price, as average of all the gathered quotations is an average value of this interval. The most sold reference average price provides, instead, details on the consumer's purchase behaviour);
- the price variations (it's not a price comparison in terms of time, but a comparison of spending opportunity and purchase behaviour);
- frequency and duration of the monthly discounted products;

- the spending opportunity per some grouping<sup>5</sup> (for each group, the overall levels of the lowest and the highest price are analysed in order to quantify the spending opportunity to buy that trolley of products no matter what brand or variety. Moreover, the sum of the most sold reference price levels gives us details on the consumer's purchase behaviour that is to say on the average spending to buy that specific combination of products);
- the purchase behaviour of some grouping – Municipalities in comparison (as the comparison in terms of time, also for the territorial one, more than the comparison among prices, the various types of consumer's purchase behaviour has been analysed at territorial level).

## 4 Conclusions

The Local Price Observatory is now able to provide consumer with a wide variety of information with the aim of supporting a more conscious purchase. Nevertheless the Project relies on the consolidated CPI Survey methodology, it needs, however, to be implemented with further statistical analysis aimed at strengthening the precision of the estimates, mainly focusing on the recorded kind of prices and on the selected grouping. A further topic of investigation is represented by the analysis of the underlying motivation that drive consumer purchasing decisions, as they emerge from the collected information.

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<sup>5</sup> The groups (*trolley*) are composed of about xx products depending whether they refer to a typical breakfast/lunch/dinner purchase or home cleanings or children products. For details of composition of considered trolleys Angiona 2012