

The Effects of Inflation on Households with Different Consumption Structure ⁽¹⁾

Gli Effetti dell'Inflazione su Famiglie con Diversa Struttura dei Consumi

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Riassunto: Ci si propone di verificare se nel biennio 2001-2002 l'inflazione ha colpito in maniera diversa famiglie con differenti strutture della spesa per consumi. A questo scopo si costruiscono indici dei prezzi al consumo specifici per tipologie familiari, utilizzando dati tratti dalla rilevazione mensile dei prezzi e dall'indagine sui consumi delle famiglie – al massimo livello di disaggregazione consentito dall'uso combinato delle due fonti. Le tipologie familiari sono definite sulla base dei livelli di spesa *pro-capite* equivalente per consumi, secondo due distinte categorizzazioni: per decili e con riferimento a linee di povertà. L'evidenza più significativa che emerge è duplice: nel 2001 hanno risentito maggiormente dell'inflazione le famiglie con bassa spesa per consumi; all'opposto, nel 2002 le famiglie più colpite dall'inflazione sono state quelle con spesa per consumi elevata.

Keywords: Consumer price index, Consumption structure.

1. Introduction

Recently the measurement of inflation in Italy has been at the centre of a lively debate, regarding both its size and its distributive effects over households with different levels of consumption (Trivellato, 2003; Baldini, 2002). Inflation raised starting from mid-2002 up to mid-2003, and stayed consistently higher than the European Union average. One important issue is about the effects that inflation might have on households' standard of living. If inflation hits low-consumption households more severely, this can generate an increase in inequality. The aim of this note is to provide empirical evidence on the effects that inflation had on Italian households with different consumption structure, depending chiefly on their level of *per capita* equivalent consumption expenditure, over the period 2000-2002.

In the face of variability in price increase – by products, locations and stores, inflation as commonly measured by a Laspeyres-type Consumer Price Index (CPI) (Astin, 1999; Istat, 2003b) might have different effects on households with different consumption structure for two main reasons.

- First, there are differences in the basket of goods and services consumed. In turn, those differences may consist of (i) a different composition of consumption at a certain level of classification (*e.g.*, 12 broad classes or 558 detailed products, for the Italian CPI), and of (ii) different specific items bought by various types of households within any given category. To exemplify, households in the upper tail of the *per capita* equivalent

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consumption expenditure distribution will devote a lower fraction of their expenses to basic goods – such as food – with respect to households in the lower tail of the distribution. Moreover, the specific goods and services bought by high-consumption households within a certain, even highly detailed, category would generally differ from the ones bought by low-consumption households.

- Second, the prices at which various types households buy the very same products may differ, largely as the consequence of the different stores where purchases take place.

The identification and estimation of the impact of all these factors on the dynamics of a fixed-basket expenditure of households with different consumption structure is, patently, problematic. It would require fresh data collected by means of *ad hoc* surveys.

The purpose of our exercise is to estimate, with reasonable approximation, the differential effects of inflation on households with different consumption structure by using two current surveys conducted by Istat: the Consumer Prices Survey (CPS) and Family Expenditure Survey (FES). We will exploit them at the best, *i.e.*, at the most detailed level of classification allowed by their combined utilization. Our analysis will detect the effect of different consumption patterns of the kind (i) above, while it forcedly neglects the role of the other potential factors just mentioned. Otherwise stated, we will assume that, within a given category of products, all types of households buy the same goods and services at the very same prices. It is worth pointing out that *a priori* it is unclear whether this simplifying assumption would lessen or increase the ‘true’, unobserved differential impact of inflation. (For instance, the propensity of low-consumption households to buy low-quality goods with lower price increase might be contrasted by their lower geographical mobility, as for the case of old people.)

The estimate of differential effects is made operational by constructing a set of *ad hoc* consumer price indices specific to various types of households with different consumption structure, for the period 2000-2002. To that purpose, we need to use a basket of goods and services matching the groups of products surveyed by the FES (partly different from the basket of the official CPI). We will refer to our indices as Family Expenditure Survey based Consumer Price Indices (FESCPI).

2. Construction of FESCPIs

Preliminarily, some harmonization within and between the two sets of data has to be done. Consider the CPS and CPIs first. The price indices for the various years have December of year $t-1$ as base-month and use different baskets of goods and services. (Istat uses a chained index and updates the basket each year). So the initial step has been harmonizing the products over the three years and concatenating the CPIs. The result is price indices for 558 products, homogenous over the three years, with December 1999 as base period.

The second step started with the matching of the products of FES and CPS. The former has a classification of 276 products whereas the latter (after our harmonization) of 558. A connection table provided by Istat allows one to match the data from the two surveys at a level of 189 “common” products. Then, we obtained the price indices for the 189 products (as weighted means of the relevant subsets of the 558 price indices from the CPS) and the appropriate weights – mean expenses for each of same 189 products – conditional on some characteristics of the households. The grouping of households is done by considering, alternatively: (a) the deciles of the *per capita* equivalent consumption expenditure distribution; (b) three poverty lines, which identify four groups of households: those below

-20% of the standard poverty line (SPL); households between -20% of the SPL and the SPL itself; households between the SPL and +20% of it; households above +20% of the SPL. (For details on the equivalence scale and the standard line of poverty, see Istat, 2002, 2003a.)

Table 1 documents the effects of these operations at the aggregate level. The yearly rate of inflation rate is presented for three indices. The first one is the official CPI. The second is a variant of that index, based on the classification of 189 products just outlined, thus compatible with FES: we call it the Expenditure Compatible CPI (ECCPI). The third index is the aggregate FESCPI, which uses as weights the percentages of overall *per capita* equivalent consumption expenditure for each of the 189 products, taken from FES. Clearly, we cannot properly compare CPI and FESCPI, because the two indices differ both in product classification and weighting system. Sensible comparisons can be made, instead, between ECCPI and CPI (they use different product classifications, but their weighting systems are quite close) and between ECCPI and FESCPI (they share the same product classification, while they differ in the weighting system). The main evidence is that FESCPI is systematically and appreciably higher than the two other indices. Table 2 gives the weighting systems involved in the three indices, and helps clarifying the point. The FESCPI has a fairly distinct weighting system. Its peculiarities can be appreciated by looking, for instance, at the weights for the class of products “Food and non-alcoholic beverages”: for FESCPI the weight reaches 21%, while for ECCPI and CPI it is around 16%.

Table 1: *Rate of inflation (%) according to the three consumer price indices*

	Indices			Relative variation (%)		
	CPI	ECCPI	FESCPI	ECCPI/CPI	FESCPI/CPI	FESCPI/ECCPI
2001/2000	2,856	2,855	2,929	-0,037	2,561	2,599
2002/2001	2,487	2,485	2,690	-0,105	8,137	8,250

Table 2: *Weighting systems for the three indices (year 2001)*

Classes of products	CPI	ECCPI	FESCPI
Food and non-alcoholic beverages	16,28	16,41	21,08
Alcoholic beverages, tobacco	2,63	2,65	1,99
Clothing and footwear	9,97	9,84	7,87
Housing, water, electricity, gas and other fuels	9,31	9,59	13,35
Furnishing, household equipment, routine maintenance of the house	10,60	11,28	8,76
Health	7,10	7,45	4,68
Transport	13,42	14,39	18,19
Communication	3,27	2,97	2,72
Recreation and culture	8,70	7,84	6,30
Education	1,05	1,27	1,55
Restaurants and hotels	10,38	9,89	5,51
Miscellaneous goods and services	7,27	6,41	7,10
	100,00	100,00	100,00

3. Main results

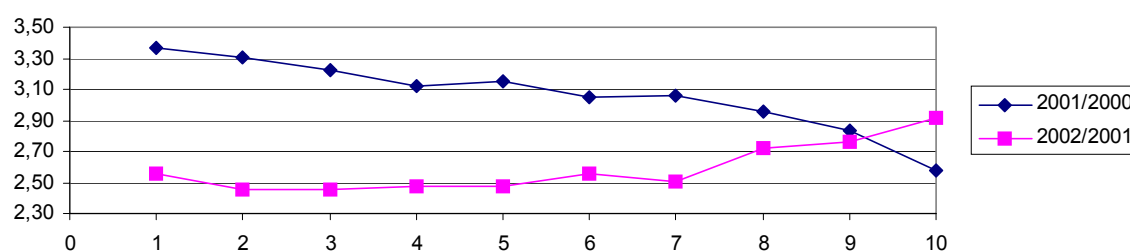
Table 3 presents some results for deciles of *per capita* equivalent household consumption expenditure and for poverty regions. The indices are calculated for 189 products and for 12 classes. The last two columns show the loss in precision of the indices when passing from

189 products to 12 classes. The advantage of working with a detailed breakdown of products is clear also on empirical grounds, as the index documents higher differential effects of inflation in 2001. The main finding of Table 3 is visualized in Figure 1 for the distribution by deciles. Inflation from 2000 to 2001 has been higher for low-consumption households, while for the period 2001-2002 inflation has been higher for households with high consumption expenditure. A similar pattern is found also for poverty regions.

Table 3: *Rate of inflation for households with different characteristics*

Deciles	189 products		12 classes		% differences 189-12	
	2001/2000	2002/2001	2001/2000	2002/2001	2001/2000	2002/2001
1	3,37	2,55	3,09	2,37	9,20	7,77
2	3,31	2,45	3,03	2,43	9,09	1,12
3	3,23	2,46	2,96	2,47	8,85	-0,78
4	3,13	2,47	2,97	2,45	5,08	0,83
5	3,15	2,48	2,98	2,46	5,72	0,59
6	3,05	2,56	2,94	2,51	3,75	2,04
7	3,05	2,50	2,91	2,49	4,84	0,29
8	2,95	2,72	2,91	2,51	1,63	8,42
9	2,83	2,76	2,84	2,51	-0,18	9,63
10	2,58	2,92	2,62	2,40	-1,58	21,78
Poverty regions						
1 (<-20% SPL)	3,41	2,61	3,14	2,30	8,62	13,49
2 (-20% – SPL)	3,35	2,50	3,07	2,36	9,21	5,88
3 (SPL – +20%)	3,31	2,47	3,04	2,37	8,87	4,14
4 (> +20% SPL)	2,89	2,71	2,88	2,44	0,39	11,15
FESCPI	2,93	2,69	2,90	2,43	1,09	10,76

Figure 1: *Price indices for 189 products by equivalent expense deciles in the two years*



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