

A Statistical Analysis of the present territorial net for data collection of Consumer Prices

Un'Analisi Statistica dell'Attuale Struttura della Rete Territoriale di
Rilevazione dei Prezzi al Consumo

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Riassunto: in considerazione della rilevanza del ruolo svolto dagli Uffici Comunali di Statistica nel processo di produzione degli indici dei prezzi al consumo, il documento propone alcune analisi e considerazioni effettuate sulla base dei risultati di una indagine conoscitiva condotta dall'Istat sulla struttura e l'organizzazione del lavoro della rete territoriale di rilevazione. In introduzione vengono brevemente descritti l'indagine sui prezzi al consumo insieme con gli obiettivi e i criteri metodologici adottati nella ricerca condotta sulla rete territoriale di rilevazione; il paragrafo 1 propone una lettura di alcune delle elaborazioni svolte mentre, in chiusura, vengono proposte alcune riflessioni conclusive.

Keywords: municipal net, data collection, monitoring, data production process, quality.

Introduction

In the Italian consumer price (CP) survey, data are collected in two different ways: 1) at central level, directly by Istat; 2) at territorial level, by Municipal Offices of Statistics (MOS) in the chief towns participating in the survey. Territorial data collection regards 80% of the basket of products. Prices of goods and services are collected monthly with the exception of some of durables and semi durables, rents (quarterly) and fresh fruits, vegetables, fresh fish and automotive fuels (twice a month). Prices of products are collected by questionnaires or palm PC and later on prices are registered and checked. Between 2004 and 2005, Istat has carried out a survey on Italian territorial net of price data collection. On December 2004 a questionnaire was sent to 91 MOS involved in the survey. Data on structure and management of human and technical resources, costs of activity, etc. have been collected through the questionnaires filled by 86 MOS (94.5%; 82 participating in the CPI calculation). For the time being only the data concerning the structure and management of technical and human resources have been elaborated. Partial non responses have been estimated by data coming from other sections of the

questionnaire, whereas total non responses have not been estimated. Therefore the results are referred to 86 MOS and allow to analyse the process of territorial data collection in order to evaluate and monitor some aspects of the quality of CPI statistics. Concerning the part of the questionnaire analysed, the results obtained fulfil the aims of the survey. In this document some preliminary elaborations are illustrated. The final report of the survey will be made available in the next months.

1. Analysis of the municipal net for consumer price data collection

The first result of the survey concerns the total amount of human resources involved in the CP data collection. A first evidence is that the almost 350 persons that carry out the data collection decrease, in terms of labour units, to less than 200. Table 1 and 2 show clearly that, with reference to all the chief towns where consumer prices are collected, only 50% of the hours worked is dedicated to data collection in the field; 27% is dedicated to data check and calculation and even 23% to other activities out of CP domain. Table 1 shows that big MOS have at their disposal the chance of a better division of labour; table 2 shows the North, where a bigger amount of small MOS is concentrated, with a high percentage (25%) of hours dedicated to other activities.

The second relevant evidence regards the relationship between the amount of labour units in charge of price data collection and the amount of monthly elementary prices collected. At the end of 2004, the total amount of elementary prices collected each month is more than 350,000; therefore each collector labour unit has to collect on average almost 2,000 elementary prices each month. The analysis by demographic width (table 1) shows that the burden in terms of average amount of monthly elementary prices collected is higher for the small chief town (2,136) and lower for the big ones (1,661). Linking this evidence with the information concerning the availability of palm PC for the data collection, a critical situation emerges in terms of resources, either human or technical ones, available for the small chief towns where few labour units have in charge a high amount of elementary prices to be collected with scarce technical resources: in fact 50% of the chief towns with more than 250,000 inhabitants has available palm PC whereas this percentage decreases to 15% for the small ones (to 50,000 inhabitants). The big number of small chief towns in the North is the reason why the amount of elementary prices per labour units is very high in this geographical area; moreover the percentage of chief towns that have available palm PC in the North is the highest one in comparison with the Centre (28%) and the South and Islands (14%).

The third issue is focused on the contractual relationship of the data collectors with the MOS. It is relevant the percentage of external resources (26.5 for the total). The peaks of this percentage, by demographical width, are showed by the small chief towns (41%); in terms of geographical area, in the Centre the resort to external resources is very strong (46.4%), whereas the South and Islands uses mainly municipal employees.

The fourth evidence regards the average age of the collectors. In general a high average age emerges (45.6), without relevant differences among the classes of demographical width. By geographical area more variability appears: in fact average age strongly increases in the South and Islands (50), whereas in Centre it does not reach 43; this result is coherent with the evidence concerning contractual relationships, because it is expected that the average age is lower where atypical contractual relationships prevail.

Last interesting issue is related to the level of education. The most part of the price data collectors owns a certificate. This percentage decreases for the chief towns between 50,000 and 100,000 inhabitants whereas the percentage of data collectors with a degree increases in the Centre (28%).

Table 1: *Consumer price data collection municipal net by demographic width of the chief towns (average and percentage values)*

	Demographic width (inhabitants December 2003)				Total
	to 50,000 (13)	from 50,000 to 100,000 (36)	from 100,000 to 250,000 (25)	more than 250,000 (12)	
<i>Hours worked by persons involved in data collection by kind of activity</i>					
Data collection	52%	45%	46%	58%	50%
Data check and calculation	24%	28%	26%	28%	27%
Other activities	24%	27%	28%	14%	23%
Total	100%	100%	100%	100%	100%
<i>Monthly elementary prices for labour unit</i>					
	2136	1905	1948	1661	1840
<i>Data collectors by contractual relationship with MOS</i>					
Municipal employees	59.0%	76.5%	70.9%	78.1%	73.5%
External resources	41.0%	23.5%	29.1%	21.9%	26.5%
<i>Average age of consumer price collectors</i>					
Female	40.5	42.4	41.3	44.8	42.6
Male	44.4	47.6	46.3	49.8	47.6
Total	42.3	45.7	44.3	47.8	45.6
<i>Education</i>					
Degree	15%	20%	15%	11%	16%
Certificate	72%	53%	71%	74%	64%
Secondary school	13%	27%	14%	10%	19%
Primary school	0%	0%	0%	5%	1%
Total	100%	100%	100%	100%	100%
<i>Palm PC</i>					
MOS with Palm PC (% in the class)	15%	22%	28%	50%	27%
Palm PC	4%	22%	24%	50%	100%

2. Conclusive remarks

The conclusive remarks are very preliminary. The first one concerns the relevance of the survey carried out by Istat on the MOS and the availability of quantitative elements to sketch the profile of the CP data collection in Italy at territorial level. The second remark regards the shortage of resources available (either human or technical) for the price data collection, that is concentrated in specific areas. The third one is that the human resources available are not dedicated exclusively to the data collection in the field, neither to the CP domain. This issue is strongly related to the reduction of about 350 persons involved in the data collection to less than 200 labour units. The fourth conclusive remark is the relevant resort to external resources that shows the growing difficulty by MOS in finding internal resources adequate to the tasks required. Last remark is that a very important next aim is enhancing the tools to monitoring the data production process, building indicators in order to better plan the intervention to improve the quality of the data collection in the field and consequently of the aggregate

data disseminated to the users. A set of indicators can be built to measure the adequacy of the territorial infrastructure to the tasks arising from CP survey, starting from a constantly updated Archive of Municipal Collectors (AMC).

The implementation of these indicators should be a module (production process quality side) of a more general project to implement the monitoring of quality of the CP survey. The second module (micro data quality side) should be aimed at implementing indicators on the accuracy of micro data with particular reference to the temporary non responses, the amount and the treatment of the substitutions (quality adjustment issues). A preliminary analysis of 2004 archives, shows that the percentages of substitutions and partial non responses are significant but no so relevant (respectively 2.8 and 2.3 per cent on a total amount of about 3 millions of monthly elementary prices collected in 2004). Deepening the possible relationships between indicators on the production process and indicators on the micro data quality is a crucial step of the future analysis.

Table 2: *Consumer price data collection municipal net by geographical area (average and percentage values)*

	Geographical area			Italy (86)
	North (46)	Centre (18)	South and Islands (22)	
<i>Hours worked by persons involved in data collection by kind of activity</i>				
Data collection	47%	54%	53%	50%
Data check and calculation	28%	28%	25%	27%
Other activities	25%	18%	22%	23%
Total	100%	100%	100	100%
<i>Monthly elementary prices for labour unit</i>				
	2234	1848	1270	1840
<i>Data collectors by contractual relationship with MOS</i>				
Municipal employees	71.3%	53.6%	92.5%	73.5%
External resources	28.7%	46.4%	7.5%	26.5%
<i>Average age of consumer price collectors</i>				
Female	42,5	40,1	48,8	42,6
Male	46,3	45,3	50,2	47,6
Total	44,3	42,9	50,0	45,6
<i>Education</i>				
Degree	16%	28%	7%	16%
Certificate	69%	54%	63%	64%
Secondary school	15%	17%	28%	19%
Primary school	0%	1%	2%	1%
Total	100%	100%	100%	100%
<i>Palm PC</i>				
MOS with Palm PC (% in the class)	33%	28%	14%	27%
Palm PC	70%	19%	11%	100%

References

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