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Statistical Measurement of Temporal Changes in House Prices for Italy

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Abstract To reduce the information gap regarding the change in house prices in Italy over time, the National Institute of Statistics with the assistance of the Cadastral and Land Registration Agency and the Revenue Agency, has developed a project to publish House Price Indices. The project evolved during an experimental phase using the fiscal agencies' administrative records. In addition to the experimental results, this paper presents the technical/methodological developments that led to the definition of a statistical procedure for the systematic production of house price indices for residential property using data deriving from deeds of sales.

INTRODUCTION

The need for reliable statistics, in terms of completeness, quality and timeliness, relating to changes over time in prices paid by families to purchase their homes, is widely recognized both nationally and internationally.

This paper illustrates the scenario in which this need arose and presents the research conducted by the National Institute of Statistics (Istat) for the construction of house price indices. This project made it possible to test the sources of available data for the measurement of price changes, to verify the use of different methodologies for the production of statistical indicators and to define the conditions for further improvement of both sources and methods.

Finally, the technical/methodological aspects of the systematic procedure for constructing house price indices are illustrated. This procedure reinforces the experimental project that will allow Istat to publish the first official house price index complying with the European Regulations, currently in the approvals phase, that regulate the production of statistics on house price changes by Member States.

THE NEED TO MEASURE THE DYNAMICS OF HOUSE PRICES

Included among the generating factors of the global economic downturn over the past decade are the crisis in the residential property sector along with the boom in housing prices and the burst of the housing bubble with the financial short-circuit caused by subprime mortgages. The analysis of what had happened during this period drove the major global financial institutions (IMF, World Bank, Bank for International Settlements), central banks and political decision-making centers (EU Commis-

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sion) to claim the need for greater knowledge of the phenomena and dynamics of the construction sector (from production to sales) and, as a consequence, the availability of detailed statistical information on phenomena that can lead to economic imbalances.

In particular, changes in house prices over time is a crucial variable and, in light of the recent crisis, it is also necessary for supplementing statistical and economic information useful for economic policy interventions. For this reason in Europe, the Institute of Statistics of the EU Commission (Eurostat) promoted the Owner Occupied Housing (OOH) project with the goal of producing price indices of owner-occupied dwellings.

The European system of harmonized consumer price indices does not include the dwelling in which families live among the goods and services purchased by households. Since the concept of household consumption states that the goods and services purchased by them must come from other operators, coverage of the consumer price index considers the purchase of homes from construction companies or organizations that sell their housing stock. In addition to the production of the price index for owner-occupied housing (OOH Index), the OOH project also involved a number of other price indices for goods and services relating to home purchase and ownership (legal fees, brokerage costs, home insurance, etc...) and a house price index which includes all purchases of residential properties including those that pass hands from family to family (House Price Index, HPI).

This project allowed EU member states to implement statistical information regarding house prices with a view to the harmonization of concepts, definitions, methods and classifications. Based on the results of the OOH project, Eurostat now issues a quarterly publication on the house price indices (HPI) for the European Union, the Euro area and for single countries (Eurostat 2012a). In parallel, the EU Commission, together with Member States, adopted a draft Regulation annexed with a brief handbook with which the Institutes of National Statistics must comply for the production of OOH statistics¹. From the date that this Regulation enters into force, currently scheduled for the beginning of September 2012, EU National Statistical Institutes must produce and publish the Price Indices (HPI). By 2014, they will have to produce and publish OOH indices as well as indices of other costs relating to residential property. Subsequently, once the quality and timeliness of the OOH indices have been analyzed, the EU Commission will decide whether or not to introduce them into the Harmonized Index of Consumer Prices (HICP). If control of inflation by central banks is exercised only in reference to consumer price indices (excluding home purchases), the situation preceding the housing bubble - when inflation net of house prices was low while house prices suffered great increases that required specific monetary policy - could repeat itself.

The growing importance of making better statistical information available regarding house prices has compelled the IMF, OECD, the UN and BIS, united under the aegis of the Inter-secretariat Working Group on Price Statistics, to commission Eurostat to draft the Residential Property Price Indices Handbook (Eurostat, 2011b) in order to promote the development - in any country in the world - of a system of house price indices that can supplement the set of statistical information already available to policy makers. In particular, the Handbook covers concepts, definitions, stratification methods, hedonic regression methods, breakdown of house prices into land costs and other components, data sources and provides useful recommendations for implementing a system of house price indices.

The development of more detailed and complete real estate statistics was also one of the 20 recommendations made by the G-20 Finance Ministers and Central Bank Governors who, as early as April 2009, mandated the International Monetary Fund to promote actions to implement such recommendations and thereby intensify efforts to achieve the stated goals (FSB, IMF 2009). The 20

¹ The short manual summarizes the methodological framework of reference for the compilation of the HPI and OOH indices. At the same time, a Technical Handbook addresses the same issues, but in more general terms.

recommendations aim at reducing the information gap constituting a major constraint in analyzing the financial interconnections between nations, the health of the financial sector and the financial stability of individual countries. In particular, the development of building price indices, both for the residential and commercial sectors, is moving toward the timely assessment of the vulnerability of national economies to shocks having national or international origins.

Always with a view to monitoring the economic situation in Europe, the EU Commission - together with the European Central Bank and the Member States through their respective Ministries of Finance, National Statistical Institutes and Central Banks - has developed a system of controls based on the use of indicators for the prevention and correction of macroeconomic imbalances (Macroeconomic Imbalance Scoreboard). This set of indicators also includes the house price index, whose values help provide early warnings enabling authorities responsible for economic policy in countries with imbalances to activate suitable procedures (Eurostat, 2012b).

Furthermore, the house price index is part of the PEEIs (Principal European Economic Indicators), which is the set of economic indicators that are the primary source of information for statistical analysis and monitoring of European economic conditions throughout the entire EU and the Euro Area. The PEEIs are used mainly by policy makers and analysts for the construction of macroeconomic models and for forecasting activities (Eurostat, 2012c).

THE CONSTRUCTION OF HOUSE PRICE INDICES FOR ITALY

Early Istat studies of the house price index began in 2005 when the institute decided to participate actively in the second phase of the OOH pilot project. Launched by Eurostat in 2001 and currently in its fourth and final phase, the project's goals have undergone modification during this time period. Practical difficulties that emerged during the feasibility study for most of the countries led, in fact, to the postponement of the publication of the OOH index and to the focus on defining a quarterly indicator of prices of all housing - the HPI. The OOH index, to be included in the HICP, will be implemented only later.²

More specifically, the OOH index is constructed according to a net acquisitions approach and only includes the sales prices of new homes purchased by households for residential purposes (the price of land must be excluded). It therefore concerns transactions that modify the housing stock owned by the household sector, in keeping with HICP's key mission which is to provide a measurement - harmonized among European countries - of inflation meant as a monetary phenomenon relating to transactions by households with other sectors. For the HPI, on the other hand, all residential sales, including those that occur within the household sector, regardless of whether the purchase is made for residential or for investment purposes, are taken into consideration. Furthermore, the price of land is included (Eurostat, 2011 a).

HPI is expressed by:

$$HPI_0^t = c_2w \cdot c_2I_0^t + c_3w \cdot c_3I_0^t + A_w \cdot A^t_0$$

1

where c_2w and $c_2I_0^t$ are the weight and index relating to the purchase prices of new homes; c_3w and $c_3I_0^t$ the weight and index relating to the purchase prices of new homes sold to households by other

² The original project mandated that the priority construction of OOH indices be included in the calculations of the Harmonised Index of Consumer Prices (HICP) consistent with the concepts, definitions and classifications upon which the latter is based.

sectors; w_A and I_0^A the weight and index of the purchase of existing homes already purchased by households.

In order to ensure comparability of the estimates produced in the different countries, Eurostat has drawn up guidelines in a separate technical handbook that define a common conceptual framework and calculation methodology that are, in any case, consistent with the standards used to produce the HICP. The house price Indices are calculated using the Laspeyres chain index with the basis for calculation fixed at the fourth quarter of the preceding year.

The most appropriate data sources for producing new price indicators can derive from: data collected from real estate agents, financial institutions, construction companies, administrative sources or data collected through direct survey methods. The only constraint is that the data must refer to the real values of the transactions and not to bid prices. Among the archives available to the housing sector, the first to be studied was the Property Market Observatory (OMI) database managed by Agenzia del Territorio on the basis of which a series of trial house price Indices was produced. At the same time, study and analysis of other available databases led to considering purchase and sales deeds as a new set of information.

Initially, the OMI data experiment will be described along with the main results. Subsequently, the features of the new data source and the relative method of calculation will be discussed.

The OMI data trial: some results

Among the administrative archives examined for the production of the house price Indices, the OMI database was considered the most suited to the needs of the OOH project. In fact, it contains valuable data and information relating to the characteristics of real estate bought and sold nationwide, updated every six months. In particular, each municipality included in the sample is divided into homogeneous areas (OMI zones) on the basis of common characteristics (zoning, socio-economic, amenities and services, etc..) Using standardized forms for each area (on a sample basis), the average market values of buildings in different use groups (residential, commercial, tertiary production) and property type (low-income housing, villas and cottages, garages, offices, shops, etc..) are recorded (Land Agency, 2012). This data is processed by the Agenzia del Territorio to update the database of real estate values.

As part of a special agreement with the Agenzia del Territorio, ISTAT therefore initiated a fruitful collaboration for the use - for statistical purposes - of the databases created by the Agency for its institutional functions. In particular, the real estate value database and the volumes of real estate transactions were studied.

The richness of the OMI database is significant. For every registered property, very detailed information is available, ranging from location (zone and homogeneous area of the relative municipality, location within the zone, presence and proximity of public services, public transportation and essential commercial services) to housing type and dwelling size in terms of floor area. Completing the picture are some of the building's physical characteristics (maintenance status, year of construction/renovation, number of elevators) and of the housing unit (maintenance status, floor level/attic). With regard to price, information collected from real estate agents (bid price), assessments by the technicians from the Provincial Offices of the Agenzia del Territorio (market value) or derived from recorded documents (as per Paragraph 497 of the 2006 Financial Law) can be used. For the purpose of the trial, ISTAT used only transaction prices reported in deeds of sale.

The great detail of the data, however, does not always coincide with statistical requirements. The database lacks information on the type of buyer or seller that is required both to produce the HPI in keeping with the detail required by Eurostat and specified in formula (1), as well as to define the field of observation for the OOH index. The choice of applying the net acquisitions approach, in fact,

requires a focus on transactions that take place between households and other institutional sectors. Moreover, the frequency of publication of the OMI database contrasts the need for timely dissemination of the Indices. Their availability every six months, and two months after the end of this period, does not allow the production of the Indices as required by Eurostat which is quarterly and within 85 days of the end of the reference quarter.

Despite the imperfect correspondence of OMI data to the project's statistical purposes, the trial continued to focus on the production of the HPI. To take into account the very particular nature of the property to be monitored, quality adjustment methods were employed. Two methodological approaches were tested on OMI data, the first based on detailed stratification and the second on stratification combined with the hedonic re-pricing method. The interim set of HPIs was constructed on the basis of this second approach.

As for the strata, a total of 105 were identified by intersecting a geographic variable (the 5 Italian zones) with a demographic/territorial variable (7 categories, the result of the combination of demographics of the municipalities and their eventual tourism sector) and a size variable (housing unit floor area - 3 classes). The next stage of the process involved estimating the hedonic regression model. Among the explanatory variables were those identifying the property's location, the services in the area, the type of housing, floor area in square meters, the square of the floor area, age, the square of age, floor, the presence/absence of attic and elevator, the building's and housing unit's maintenance conditions, the presence/absence of ancillary appurtenances. More in detail, the dummies taken into consideration to introduce qualitative variables into the model were:

- 4 dummies for location (municipalities with fewer than 10,000 inhabitants, town center;
- municipalities with fewer than 10,000 inhabitants, suburbs, ..., municipalities with fewer than 10,000 inhabitants, with tourism; ...; metropolis, suburbs);
- one dummy for the level of services in the area (1 = Excellent, 0 = poor);
- one dummy for type of residence (1 if luxury, 0 if normal);
- 4 dummies for floor level (basement / ground, first floor, second to sixth floor, above the sixth floor);
- one dummy for the attic;
- one dummy for the elevator;
- one dummy for the maintenance conditions of the building;
- one dummy for the maintenance conditions of the housing unit;
- 6 dummies for the presence of ancillary appurtenances (basement/attic, balconies, terraces, carport, parking space, private area).

The functional form chosen was log-linear - preferred insofar as the formula used to calculate the index is the Jevons price index (ratio of the geometric mean of prices). A model was estimated for each geographic area using the method of ordinary least squares (OLS) and applying the rule of standardized residuals to eliminate outliers. The heteroskedasticity present in the data was treated by applying the estimator proposed by Davidson and MacKinnon (1993) which can obtain OLS estimates with consistent standard errors even in the presence of heteroskedasticity.

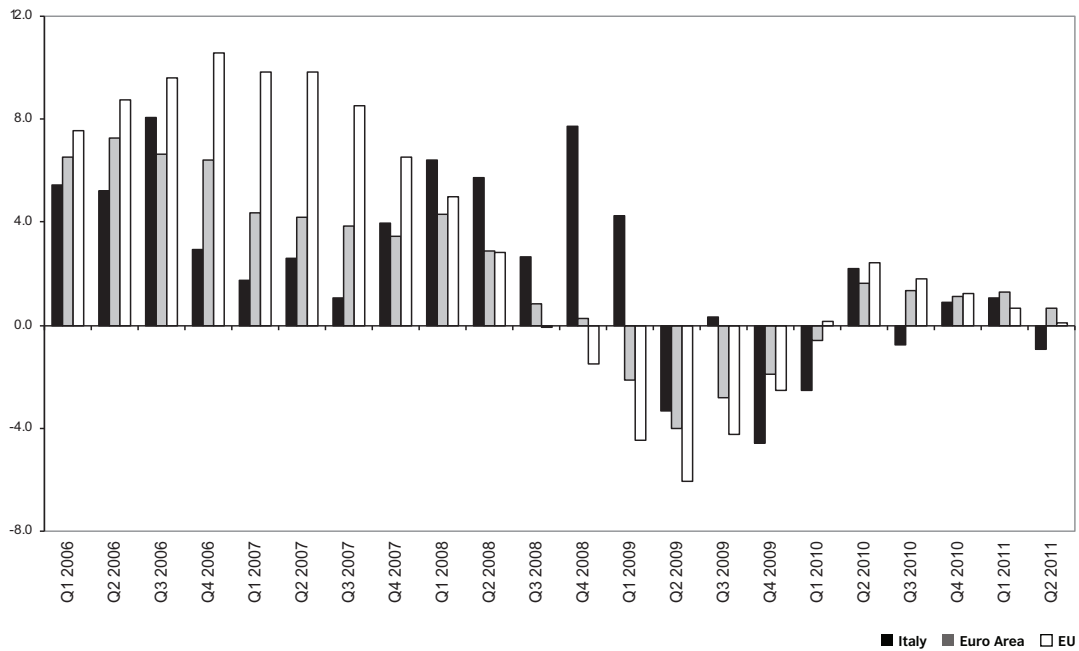
Once the elementary Indices of the strata were calculated, the aggregate index was obtained by averaging the elementary Indices of the stratum, weighted proportionally to the expenditure on house purchases in the base year stratum. This expenditure was estimated using the sample data from the OMI survey and information on the total number of transactions made during the period. The system of weights is updated for each year. The basis for calculating the Indices is the fourth quarter of the preceding year while the base reference is 2006 = 100.

The time series of quarterly estimates of the HPI Indices thus produced (first quarter 2006 - sec-

ond quarter 2011) was provided to Eurostat, which processes the data for the single countries and publishes experimental and temporary synthetic Indices for the euro area and the EU (Eurostat, the 2012a). The data concerning Italy, used to calculate European totals, are not published insofar as they are the result of a trial project and will certainly be subject to revision once the project will have been fully implemented.

In any case, Chart 1 shows a comparison between the trends of trial HPI Indices for Italy and Europe³.

Chart 1: HPI index, percentage change (1 st quarter 2006 - 2nd quarter 2011)



The systematic production of the HPI index based on transaction deeds

Among the Agenzia del Territorio's administrative data, the figures resulting from real estate transactions has acquired, more recently, statistical significance for the calculation of house price Indices due to the effects of two important new laws: the provisions contained in Paragraph 497, Finance Law, 2006 and the introduction of the Telematic Single Report.

The reason that this source was not considered viable at the outset of the OOH project in 2005 was the lack of certainty regarding the reliability of the prices, insofar as it was very likely that buyers declared a lower price than the real one paid at the time of the deed in order to reduce their tax outlay. Through the application of Paragraph 497 and subsequent amendments and supplements, this practice, today, should no longer exist. In fact, taxes are tied to the property's cadastral value rather than the price stated in the deed, provided that the deed represents the agreed-upon amount; this should ensure that the declared price is what was actually paid (the so-called discipline of price-value applies to sales of property for residential purposes and related appurtenances). In this way,

³ The calculations of the 2006/2005 trends for Italy are based on Eurostat-estimated 2005 indices.

the limit of the unreliability of price data recorded before 2007 in real estate transactions can be considered outdated and currently deeds are the main basis of information that ISTAT has decided to use in the construction of house price indices.

On the other hand, the possibility for notaries to perform the different operations relating to the same real estate transaction with the on-line transmission of the Modello Unico Informatico (Unified Electronic Model - MUI) within thirty days of the transaction allows the creation of a promptly updated and reliable database⁴.

In keeping with these considerations, a new flow of information was thus activated which, in addition to the Agenzia del Territorio, required the involvement of the Agenzia delle Entrate (Revenue Agency) as proprietor of the additional data needed to achieve the project's statistical goals⁵. In particular, the new information base uses the registry database under the aegis of the Revenue Agency as the primary source for determining buyers and sellers and relative properties. This information is integrated with data obtained from the Land Registry (dwelling unit location, category, class, and floor area) and the OMI database (zone), both managed by the Agenzia del Territorio. The information system is completed with the price determined by the application of Paragraph 497, if present, the taxable value, the code for preferential tax treatment indicating as to whether the act is subject to VAT and floor level. The provision covers housing unit transactions counted as dwellings (cadastral categories ranging from A1 to A11, excluding A10) or appurtenances (category C2, C6, C7 - garage, parking spaces and basements)⁶. The database's release to ISTAT, when fully implemented, will be on a quarterly basis within 75 days of the end of the reference quarter.

The advantages of the new information base lies in the possibility of identifying the buyer or seller and allowing the definition of the precise field of observation of the two indices, OOH and HPI, and the calculation of the HPI according to the detail specified in formula (1). The timing of the release of the data is adequate for calculating the indices within the time period required by Eurostat. Also important is the ability to identify the acts subject to VAT and then calculate the tax, having available the "full" price paid by households as called for in the Technical Manual on Owner-Occupied Housing for Harmonised Index of Consumer Prices (Eurostat, 2011a). The availability of the effective prices paid and reported in the legal acts only partially meets the requirements of Eurostat, which is interested in evaluating the evolution of the prices established at the time of the first binding contract. However, this is still an acceptable solution despite the fact that some amount of time usually elapses between the pricing of the property and the stipulation of the contract. Instead, the price recorded in the act fully satisfies the definition of the Harmonised Index of Consumer Prices (HICP) which requires the recording of the price of the property when it officially passes hands, in this case at the time of the stipulation of the deed of sale. From a territorial point of view, the coverage of the Indices is almost total, equal to 98.3% of the population residing in Italy on 1/1/2012, excluding the

⁴ Legislative Decree 463 dated December 18, 1997 establishes the possibility to report electronically, using a single form, different aspects of a real estate transaction even if under the jurisdiction of numerous administrations which cooperate with each other by sharing information. In the past, it was necessary to prepare three copies of a document, fill out three different forms, make three separate payments, and visit the three competent offices. Since 2003, the service must be used by all notaries for transactions and voluntarily for other types of real estate acts. Since May 2007, all notaries use only the electronic system for recording the acts prepared or certified by them, as well as for possible transcriptions and transfers.

⁵ Data flow is governed by the Memorandum of Understanding for the management and development of the system for the exchange of statistical information between the Ministry of Economy and Finance, fiscal agencies and Istat.

⁶ Initially, the main source was the database of the Real Estate Registries that identified subjects and properties and the relationships between them (bought or sold property, buyer, seller). The information was supplemented with information from the Cadastre (category, class and floor area, floor level of the housing unit) and the OMI database (zone). The fact that the coverage of the transactions was partial (all sales related to the domestic sector, and only a fraction of those between families and other institutional sectors while the transactions subject to VAT were not included) resulted in the need to integrate data, resulting in new procedures.

provinces of Trento and Bolzano.

Not least, the new archive contains specific information on the characteristics of the housing units traded. In particular, it provides basic information for each unit (province, municipality, plot, which uniquely identifies the property, with subordinate coordinates that specify the single units within a building), OMI zone, type (cadastral category and class), floor level and specification of any existing appurtenances. Quantitative information is also known; in particular, the effective transaction price, cadastral income and the size of the property in terms of floor area and/or number of rooms⁷.

The production of the HPI is developed, then, based on this new and more complete information. However, since it is different from the OMI database and while the procedure previously tested had proven useful, it is not immediately transferable to the new archive but requires appropriate adjustments⁸. The procedure followed, however, is compatible with the provisions in the technical manual. Before proceeding with processing, the data is subject to control and correction procedures. The identification of outliers is based on graphic analysis and robust regression methods and, when possible, missing data is supplied.

The resolution of the problem of adjustments for changes in quality is important. In fact, the housing unit is a single asset whose price can be observed only at the time of transaction; the heterogeneity of bought and sold housing is very high and geographic location contributes greatly to the formation of market prices. Thus, problems of comparability over time arise, since one of the fundamental assumptions for the calculation of consumer prices Indices is disproven – that is the need to follow the prices of assets with similar characteristics. Adjustments for quality changes serve to eliminate the influence of quality variations of the asset so that we can measure "pure" price movements (Triplett, 2006).

There are several quality adjustment methods. The most immediate is the application of detailed stratification in order to identify the most homogeneous possible strata; other approaches call for classification combined with hedonic methods and the application of techniques that extend matched model concept to the housing context (repeat sales method, SPAR - Sales Price Appraisal Ratio - method).

The solution adopted on the basis of the trials is the combination of stratification - hedonic methods as they were deemed to be the most appropriate for facing problems of quality adjustment in the Eurostat (class method A) evaluation system⁹. In general, the hedonic method consists in the specification and estimation of a regression model which expresses the observed price of the dwelling, over a period t , depending on the characteristics of the dwelling itself and a random component. The hedonic price index is then constructed based on the estimated function; and the regression coefficients are interpretable as the implicit prices of each characteristic.

There are several variants of hedonic methods including the time dummy method, the characteristic method and the re-pricing model. The last model involves the use of a hedonic function in order to normalize all the prices at the same quality level and was chosen as the method for defining the new indices because of the robustness and accuracy of its estimates. It also allows practical advantages since it does not require the estimate of a regression equation for each period (as in the case of the characteristic method) and is not a source of particular constraints on the choice of the dataset with which to perform the regression, since data collected in several periods can be used, increasing the

⁷ Some information in the OMI database is missing, such as the age of the building in which the unit is located (or year of renovation), the presence of an elevator and the maintenance conditions of the building and housing unit.

⁸ In terms of OMI data, it was initially necessary to create ad hoc procedures to ensure that the administrative units of analysis (the transaction or the association between properties and sellers and buyers aimed at determining taxes due) could become units for statistical analysis (the housing unit object of sale).

⁹ Eurostat assesses the system of harmonized indices of consumer prices based on the A/B/C classification; A methods are deemed most appropriate; B methods can be used if A methods are not applicable (methods acceptable); C methods are not to be applied.

accuracy of the estimates. The selected procedure calls for the estimation of the regression coefficients at the beginning of the year using data from the previous year maintaining them constant throughout the year. The analysis of the results of the regression follows in terms of: verification of the signs of the parameters and their significance; verification of the validity of the assumption of normality, heteroscedasticity and multicollinearity.

Regarding stratification, to increase the level of detail, OMI zones were considered, differentiating between metropolises and non-metropolises (central, semi-central, peripheral, suburban and rural, in the case of the metropolis, town center and outskirts in the case of non-metropolitan) while respecting the maintenance of the minimum number of observations per cell. The selected stratification was thus more detailed than the one adopted in the trial using OMI data.

For determining the HPI, the calculation formula is a chain Laspeyres index. The aggregated index is obtained by averaging the elementary Indices of the stratum, weighted proportionally to expenditure on the purchase of homes in the same stratum in the base year, calculated on the basis of the same transaction data. The system of weights is updated for each year.

In particular, the formula for calculating the elementary price Indices for each stratum, corrected for quality changes, using the re-pricing method is the following:

$$I_c^q = \frac{I_c^{\text{unadjusted}}}{I_c^{\text{EQI}}} = \frac{n_q \sqrt{\prod_{i=1}^{n_q} p_{i,c}^q}}{n_0 \sqrt{\prod_{i=1}^{n_0} p_{i,c}^0}} \cdot \frac{\exp\left(\sum_{j=1}^k \bar{X}_{j,c}^q \cdot \hat{\beta}_{j,c}^{\text{ref}}\right)}{\exp\left(\sum_{j=1}^k \bar{X}_{j,c}^0 \cdot \hat{\beta}_{j,c}^{\text{ref}}\right)}$$

2

Where $I_c^{\text{unadjusted}}$ is the uncorrected index for quality changes; I_c^{EQI} the explicit index of quality change¹⁰; 0 the base period (fourth quarter of the preceding year), q the reference quarter; c the stratum, n_q the number of units observed in quarter q, n_0 the number of units observed in quarter 0, $p_{i,c}^0$ the price of the units belonging to the c-stratum in the base period, $p_{i,c}^q$ the price of the unit belonging to stratum c in the reference period, $\bar{X}_{j,c}^0$ the average of k characteristics in stratum c in base period, $\bar{X}_{j,c}^q$ the average of k characteristics in stratum c in the reference period, $\hat{\beta}_{j,c}^{\text{ref}}$ the benchmarks of the features in the layer k c. The use of this formula assumes that the hedonic function is log-linear and that the elementary price Indices are obtained as ratios of geometric means. The new data set to be supplied by tax agencies is nearing completion. Once this phase is implemented, ISTAT will perform the calculations described and produce a series of house price Indices (HPI) from the first quarter of 2008 to the second quarter of 2012, thus allowing Italy to comply with the requirements of the new OOH regulation that presumably will enter into force beginning on September 1, 2012. Subsequently, the HPI will be published every three months and within 85 days of the end of the reference quarter.

¹⁰ To calculate quality adjusted price indices according to the hedonic approach, it is necessary to break down the unadjusted indices into two components: a quality index that explicitly assumes constancy over time of the implicit prices of dwelling characteristics, and which measures the variation in prices explained by variations in dwelling characteristics and a price index corrected for quality changes that maintain constant the characteristics of property and measures price change due to changes in the implicit prices of dwelling characteristics. In the case of re-pricing, the quality adjusted index is the ratio between the unadjusted index and the explicit index (Ramalho, EA, Ramalho, JJS, 2010).

CONCLUSIONS

Processes of global economic development and the cyclical crisis from which it suffers require increased statistical information for policy makers. The time changes of house prices is a crucial indicator for economic analysis. To fill this information gap, ISTAT has carried out research which, through a complex series of trials, has led to the definition of a procedure to issue quarterly house price Indices by the end of 2012. This official information is the fruit of the close collaboration between ISTAT, Agenzia del Territorio and the Revenue Agency. The use of administrative records for statistical purposes is now moving in the hoped-for direction of producing complete economic information without increasing the statistical burden on data providers.

The HPI is only the first element in the complex system of OOH Indices. In fact, ISTAT is already engaged in work to create an index of home insurance prices.

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