Seminar 3. Real State mass appraisal systems and taxation

Real estate evaluation process regulations

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Real estate evaluation techniques and studies have traditionally been the field of two types of professionals, those working in the area of asset evaluation, including mortgage markets, and those employed in the Cadastre service. Until recently, these professionals were hindered by the lack of a good quality, ample bibliography, and also by the lack of forums where real estate evaluation could be considered as a discipline. A consequence of this situation was that the values handled were far from the reality of the real estate market, particularly in fiscal terms.

This situation has changed substantially in Spain in the last few years. Different evaluation methods have been thoroughly studied, and the methodology finally adopted is showing good results in practice.

Real estate evaluation methods

The principal methods of evaluation in use are the Method of Capitalization of Return, the Market Benchmark Method, and the Cost Method.

The Method of Capitalization of Return, based on converting net rent into capital, can use long and complex formulas, frequently taken from financial calculations, or formulas as simple as $V = R/i$ (1). Previously, this was the method most used.

However, in today's urban context, the Spanish rental market has shrunk considerably and for certain purposes, such as residential usage, it can no longer be considered a method that provides sufficiently reliable results.

The Market Benchmark Method consists of obtaining a sufficiently ample and representative number of market samples which are, after study and modelling, extended to all existing real estate. This is the method that will most reliably reflect the variations occurring in the urban market.

The Cost Method is based on obtaining the value as a sum of the cost of the different components that make up the real estate product, and can also give excellent results, especially if the situation of the real estate market is fairly balanced and free of tension from the viewpoint of offer and demand. Unfortunately, this situation is not very frequent.

This method, based on the following formula:

$$V_v = C + B + V_s + V_c = K (V_s + V_c) \,(2)$$

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(1) V=Value
     R=Rent
     i=capitalisation interest
(2) V=Sales Value   C=Costs   B=Benefits
     V_s=Value of land
     V_c=Value of construction

can be used, not so much to obtain the sales value of the finished real estate product, but rather to determine the construction cost by studying what it would take to «replace» the building from scratch; i.e. the method has been diverted to determine the building cost using the replacement method, and to obtain the value of land by using the residual method.

Methodology chosen in the spanish system

Regulations governing cadastral evaluation were very disperse as a consequence of unsystematic development over a long period of time. In 1982 the first attempt was made to consolidate the technical regulations for cadastral evaluation into a single figure (Ministerial Order), which was subjected in the following years to a succession of modifications, also via Ministerial Order, none of which were very signficant. During this period, the regulation did not directly confront the market, and the references to market value were always indirect. With the appearance of Law 39/1988, the technical regulation was re-addressed. With regard to evaluation, which is the subject of this Paper, the Law proposed that application begin in 1990.

This paved the way for the detailed development of the technical regulation, accomplished in 1989, and established a period during which to perfect a plan to update real estate values, described below, with the goal of adapting real estate evaluations in every municipality in a period of 8 years.

The selection of a methodology was determined by the legally established definition of cadastral value. Referring back to Law 39/1988, which regulates local taxation, we found two articles that would allow us to develop specific regulations to determine cadastral values. Firstly, Article 66.2 states that: «to determine the taxable base (of the Real Estate Tax) the value of the property will be considered to be its cadastral value, which will be established based on the market value of said property, and which in no case should exceed said market value»; followed by Article 67, which says:

1.   The cadastral value of urban real estate is composed of the value of the land and the value of the buildings.

2.   To calculate land value, all pertinent urbanistic circumstances will be taken into account.

3.   To estimate the value of a building, in addition to urbanistic and construction aspects, the calcuation will take into account its historical and artistic characteristics, its use or dedication, its quality and age, and any other relevant factor.

These two articles of the Law must be viewed with the necessary flexibility for practical application, keeping in mind that the cadastral value must comply with the following basic requisites: **it must be fair, objective, and directly related to the market.** But the cadastral value is also a universal and constant value, i.e. it affects **all** real estate, all of which must at any given time have a value corresponding to its situation; this is not the case in other fiscal evaluations in which the assignation and use of the value (e.g. in the transfer of ownership) is linked to a given time (i.e. the time of transfer). The cadastral value is permanent, and not assigned just to liquidate a tax; rather, based on the existence of the cadastral value certain taxes are liquidated.

From this perspective, these articles of Law 39/1988 can be understood in the following terms:

— The market value referred to in the Law is not a price, but rather a theoretical value, obtained from the average market values resulting from the analysis of a given number of samples.

— Given the universal character of cadastral evaluation, it cannot and should not be understood that it is impossible to establish the cadastral value of a property that is not on the market. This would lead to determine values only for active properties, i.e. only those carrying a «For Sale» sign. Clearly, what the law intends to reflect is the potentiality of a property becoming active in the market, thus crediting it with a given value.

— Furthermore, article 67 of the law also addresses how the formulation of the cadastral value should be understood: as the sum of its components (land and building), but linked to its market value, when this exists, through the use of market co-effiicients.

We will now proceed to explain the general characteristics of the system used in Spain:

1.   Of the three basic methods of evaluation described previously, the one chosen is the Market Benchmark which, when reliable and recent sales data exists, is the most objective of the three.

2.   To guarantee the necessary coordination of values country-wide and to ensure the **objectivity** of the evaluation, the following steps are necessary:

2.1.   Establish a basic value module, M, reflecting the sales value of a collective residential real estate product, in an average building category in an average town, i.e. with a relaxed real estate market.

This Module should be established whenever modifications in the real estate market are detected. Previously, the module was reviewed annually. The current value is 135,000 ptas./sq.m. (Ministerial Order dated 18 December 2000).

2.2.   The next step is to define Unified Economic Zones of Land and Buildings, to which a basic module of land repercussion (MLR), co-efficients for each type of use, and a basic construction module (MBC) will be applied. In terms of both land and construction, these Zones define geographic areas where the real estate market is similar, which allows behaviour modulations. These zones are generally equivalent to the concept of municipal area although, in locations with very different average market values, several zones may be defined within a single municipal area).

2.3.   Following approval of the proposed MLR AND MBC assignation by the High Commission for Coordination of Urban Real Estate, preparation of the Evaluation Proposal in a given municipality begins with the performance of a market study that should contain the following:

1.   Analysis of territorial structure.

1.1.   Analysis of the physical and urban context, current and future situation.

2.   Analysis of urban planning.

2.1.   General description and objectives.

3.   Social and economic situation.

3.1.   Population growth since the last review at the municipal level.

3.2.   Rhythm of real estate construction.

3.3.   Employment level.

3.4.   Income level.

4.   Field information.

4.1.   Sample design.

4.2.   Sales market for new property.

4.3.   Sales market for used property.

4.4.   Market of building plot, by usage.

4.5.   Market for rental property.

4.6.   Analysis of building promotions indicating costs and benefits of the builder and costs and benefits of the promoter. Cost of land and construction.

5.   Dynamic of the real estate market.

5.1.   Detection of existing buying market and its behaviour.

5.2.   Detection of existing selling market and its behaviour.

5.3.   Building activity in new construction and rehabilitation.

5.4.   Construction of subsidised housing.

6.   Conclusions.

6.1.   A brief diagnosis of the current situation of the market under study (recessive, stable, growing) itemised for each of the zones defined in the study itself.

6.2.   Description of the most characteristic types.

6.3.   Average market values for each use and each type, distinguishing **a)** value of the real estate product (land and buidling), both new and used; **b)** value of unconstructed land [repercussion (VR) and unitary (VU)]; **c)** construction value (VC); **d)** rental value, in pesetas/sq.m/month.

7.   Cartography.

7.1.   General outline of urban planning. zoning ordinance.

7.2.   General outline of urban planning. Classification.

7.3.   Distribution of repercussion values.

7.4.   Distribution of unitary values.

7.5.   Location of sample units in the field information (sales prices)

7.6.   Value interval of value in each of the unified zones.

It is obvious that despite the extensive content and documentation that should form part of theMarket Study, in certain towns the available number of samples of a specific real estate product may be insufficien. It is therefore necessary to explain the process followed for the use of the benchmark method, with the following steps:

1.   Obtain field information, as representative as possible, of the real estateto be evaluated (in our case, of the entire real estate pool).

2.   Filter the field information until only truly reliable information is left regarding the description and representation of the urban market and its distribution.

3.   Stratify the samples, i.e. establish standard critieria for types of real estate in order to identify the most outstanding or relevant charcteristics. This consists of establishing, in principle, characteristics of the property that can be compared (area, building category, location, age, state of repair, etc.).

4.   Estimate the differences given by the market for each of the mentioned characteristics, which shows what stand out in each type of property, and what factors have more or less impact on price.

5.   Balance the corrected values of comparable properties, assigning a value as close as possible to the market value.

6.   Design a mathematical model which, using statistical techniques, allows for the estimation of unknown data based on known and available data, employing multiple regression analysis to estimate probable sales values from representatives samples .

Following completion of the Market Study, with the base of sales values, we will proceed to establish the component values of the property, i.e. land and building.

Land

Calculation of land value will take into account the impact of relevant urban circumstances, requiring detailed knowledge of the **town planning** under study.

1.   In general terms, the value of land when its development is a decisive factor in its price (i.e. sq.m. of built roof) will be calculated using the **residual method,** thus obtaining a **repercussion value** defined in pesetas per sq.m. of real or potential construction.

The basic formula is the following:

$$V_s = 1.40 \ (V_s + V_c) \ F_i$$

Legend:

V_s = Sales value in pta/m2 built.

V_i = Land value in pta/m2 of real or potential construction..

V_c = Construction value in pta/m2 constructed.

F_i = Location factor, evaluating the difference in the value of similar real estate property due to location, construction charactertistics and local social and economic circumstances that affect real estate production.

Based on studies of different building promotions, a factor of 1.40 factor covers the estimate of costs and benefits of the promotion.

2.   There are cases in which the construction ceiling is just one more factor in the price make up, but not the determining factor. In the cases mentioned below this can be evaluated by unitary value, defined in pta/ m^2 of land:

— When the small size of the town under study reflects the inexistence or scarce activity of real estate promotions.

— When it is a case of land on residential estates, open buildings, detached housing, or land used for sports activities, health services, relgious activity, general utilities, etc....

— For industrial land where edification is the consequence of the size of plots or the volume of buildings.

3.   Unconstructed plots, depending on the type of land per 1 and 2, will be evaluated by the repercussion applied to sq.m. of potential construction, or by unit applied to sq.m. of land area, both adjusted as necessary through application of co-efficients to correct land value.

4.   Under-constructed plots can be evaluated by repercussion applied to sq.m. of potential construction, or to sq.m. of construction already built. In the latter case, the result obtained can be increased to include the **evaluation of the right to overhang**, whenever this overhang or construction, unbuilt but possible to build within the limits established by the town planning, is unhindered by physical or building impediments.

5.   For over-built plots, i.e. those whose constructed area exceeds that established in the plan, the value of repercussion can be applied to the real constructed area.

Construction

The **replacement method** is used to calculate the value of buildings, and consists of evaluating their current cost, taking into account use, quality and historical and artistic characteristics, and making the necessary allowances for age and state of repair.

The co-efficient used to weight a building's age is calculated taking into account the principal use of the building and its quality, using a table with the following mathematical basis:

Age weighting of buildings

$$H = \left[1 - 1.5 \ \frac{d}{u.q.100} \right]^t$$

where:

H = age co-efficient

u = predominant use of the building

q = construction quality in accordance with established categories

t = full years since construction, reconstruction or total rehabilitation.

$$d = 1\frac{t - 35}{350}$$

The results are given in the following chart:

Chart 1
Age weighting of buildings

t	H								
	Use 1			Use 2			Use 3		
Full years	Categories 3-4			Categories 3-4			Categories 3-4		
	1-2	5-6	7-8-9	1-2	5-6	7-8-9	1-2	5-6	7-8-9
0-4	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
5-9	0,93	0,92	0,90	0,93	0,91	0,89	0,92	0,90	0,88
10-14	0,87	0,85	0,82	0,86	0,84	0,80	0,84	0,82	0,78
15-19	0,82	0,79	0,74	0,80	0,77	0,72	0,78	0,74	0,69
20-24	0,77	0,73	0,67	0,75	0,70	0,64	0,72	0,67	0,61
25-29	0,72	0,68	0,61	0,70	0,65	0,58	0,67	0,61	0,54
30-34	0,68	0,63	0,56	0,65	0,60	0,53	0,62	0,56	0,49
35-39	0,64	0,59	0,51	0,61	0,56	0,48	0,58	0,51	0,44
40-44	0,61	0,55	0,47	0,57	0,52	0,44	0,54	0,47	0,39
45-49	0,58	0,52	0,43	0,54	0,48	0,40	0,50	0,43	0,35
50-54	0,55	0,49	0,40	0,51	0,45	0,37	0,47	0,40	0,32
55-59	0,52	0,46	0,37	0,48	0,42	0,34	0,44	0,37	0,29
60-64	0,49	0,43	0,34	0,45	0,39	0,31	0,41	0,34	0,26
65-69	0,47	0,41	0,32	0,43	0,37	0,29	0,39	0,32	0,24
70-74	0,45	0,39	0,30	0,41	0,35	0,27	0,37	0,30	0,22
75-79	0,43	0,37	0,28	0,39	0,33	0,25	0,35	0,28	0,20
80-84	0,41	0,35	0,26	0,37	0,31	0,23	0,33	0,26	0,19
85-89	0,40	0,33	0,25	0,36	0,29	0,21	0,31	0,25	0,18
90-más	0,39	0,32	0,24	0,35	0,28	0,20	0,30	0,24	0,17

The date of a building's construction can be altered in the event that reform work has been done to achieve a better state of repair than the building would have if the reform had not been carried out. This requires a single framework to define potential reforms, as well as a single method of adjustment to guarantee standard treatment throughout the country.

The following cases can be distinguished:

Total rehabilitation – when the reform work complies with town planning or ordinance stipulations and if these do not exist, when the economic cost of the work is 75% of the amount it would cost to reconstruct the building, and whose building characteristics allow the assumption that in use, function and construction conditions the building has reached a condition equivalent to a new building.

Total reform – when reform work affects basic construction elements and represents more than 50% and less than 75% of reconstruction costs.

Medium reform – when reform work affects the facade or an element that alters construction characteristics and represents more than 25% and less than 50% of what it would cost to rebuild.

Minor reform – When reform work affects non-basic construction elements and represents less than 25% of what it would cost to rebuild.

Age will be established using the following formula:

$$D_a = D_c + (D_r - D_c)\, i$$

siendo:

D_a = Date of age for the purposes of applying the co-efficient in table H

F_c = True date of construction of the building

F_r = Date the reform is carried out

i = Co-efficient linked to the type of reform, with the following values:

i = 0,25 for minor reform

i = 0,50 for medium reform

i = 0,75 for total reform

i = 1,00 for total rehabilitation

Real estate product

There are certain characteristics of real estate property that affect, not the land value or the construction value, but the finished real estate product. Adjustment co-efficients must therefore be established to address these intrinsic and extrinsic characteristics of property.

The following are situations that can be foreseen:

— Functional depreciation or inadequacy due to inade-quate design, use or installations.

— Houses and premises considered inferior because their windows give on to closed facades.

— Properties impacted by unusual burdens or special external situations, such as those included in special plans for structural safety or affected by future roadworks, expropriation, etc.

— Real estate affected by a situation of appreciation or depreciation, i.e. when overpricing is detected on the real estate product, for proven reasons of excess market demand or the inexistence of similar products because of extraordinary building quality, or on the contrary, property for which a low price mut be established due to lack of market or obsolescence.

Evaluation of singular buildings

The foregoing paragraphs have outlined the methods used to estbabish the theoretical sales value of a property. However

there is an important collection of real estate which because of their characteristics, given below, never enter the market, and for which no offer or demand exists.

This collection ofo properties can be split into two groups:

— Real estate whose original land and building value is or can be known, and whose current value can be obtained using investment actualization procedures.

— Real estate whose original land value is unknown and for which the application of a replacement value to establish the building cost is unreliable, due to the disappearance of the building techniques or artisan skills used at the time.

In the first group we find real estate such as motorways, nuclear plants, oil refineries, thermal plants, airport installations, camping sites, golf courses, etc. The Cadastre's central technical services perform a detailed study of costs on a sufficiently representative number of cases and transfer the appropriate instructions to the peripheral services in order to obtain standard results in the evaluation of these properties.

The second group includes singular buildings such as the Mezquita in Cordoba, the Alhambra of Granada, cathedrals, etc. In this case any value that we establish will only ever be symbolic, never representative.

Cadastral value

Although the Cadastre, as an inventory of real estate, has multiple purposes and uses, the cadastral value is mainly used as a fiscal instrument, and certain precautions must be adopted in determining cadastral value so that the variations that occur in the real estate market do not make modification necessary unless these variations are substantial.

To establish cadastral value, the theortetical market value, obtained using the procedures described previously, is multiplied by a market reference co-efficient, currently set at 0.50. Therefore, **cadastral values** obtained by application of established regulations and co-efficients are approximately 50% of the detected market values.

This 50% «padding» allows cadastral values a certain stability over time, but is is not advisable to maintain the same value for more than 8 years, even when during this period the values are adjusted to reflect inflation. Studies show that, independently of the economic situation, market changes produce modifications that make it necessary to establish new cadastral values to adjust them to the new situation of market values. ■

Land appraisal new trends

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Although there are records of cadastral data dating back to the Roman Empire, today's Cadastre originated in the city-states of northern Italy in the Renaissance period, eminently for fiscal purposes but later stretching to include sectorial, spatial and functional objectives.