Assessment Approaches for Rent and Sales Price Control in Social Housing

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Abstract. The lack in the direct participation of the public sector (including Local Authorities) in the implementation of new initiatives of Social Housing that has been recorded since the 1990s has been countered by an increasing involvement of the private sector also by virtue of density bonus, fiscal, economic and financial nature leverage in order to make Social Housing initiatives operationally and financially feasible. This contribution reports the results of a Reresearch financed by the National Association of Builders, Lazio section and by the Department of Architecture of the University of Florence, which is aimed at defining a procedure for the identification of capped rents and sales prices and lower than the free market, but contextually able to guarantee the break-even point for the promoters of Social Housing initiatives of a private nature. In order to meet the aims of the Research, to determinate rents, it has been decided to deepen the use, in this case, of the Break-Even Analysis (BEA) proposing an operational declination specifically calibrated on the case study; for the sales price, an experimental and specially procedure to verify of their suitability is proposed, based on specif case study of Lazio Region.

Keywords: Break-Even Analysis · Social Housing · Rent/Sales Price Control

1 Introduction

Since the 1990s in Europe, there has been a growing involvement of the private sector in public housing policies, i.e., aimed at providing access to housing to those who lack the income/wealth capacity to access the free market. In fact, albeit with different declinations and audiences from state to state, there has been a steady decrease in the direct participation of the public sector (including Local Authorities) in the implementation of new public housing initiatives, with a greater concentration of energies and resources on the management of existing assets, to the benefit of private initiative. It is precisely this case that is of particular interest today in the very broad field of so-called "Social Housing" (SH). Despite the broad perimeters of the SH terminology, analyzing the different interpretations in the European Union, however, one can recognize a target that accumulates the policies on the subject of the various member states, which in short consists of promoting interventions and initiatives finalized to make available housing with rents (or purchase prices) below free market thresholds [1].

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However, it should be noted at the outset that the potential audience of SH recipients takes on different characterizations from state to state (in short, it depends on the income thresholds for access to SH). According to the 2005 CECHODAS (European Federation of Public, Cooperative & Social Housing) definition, this term refers to "housing solutions for those households whose needs cannot be met under market conditions and for which there are allocation rules" [2]. Similar definition, with more emphasis on the organizational and management profile of the interventions and aspects of social cohesion and integration of SH users, is the European Commission's 2010 definition: "the development, rental/sale and maintenance of affordable housing and its allocation and management, possibly including the management of housing complexes and neighborhoods; […] may include support services involved in housing programs or the rehousing of specific groups or debt management of low-income households" [3].

The constant need for housing by families/subjects unable to access housing in the open market (for rent or for sale), which according to Housing Europe [4], albeit to an extent varying from member state to member state, ranges between 10% and 20% of the population, makes the topic particularly topical and in particular becomes the subject of scientific interest the study of SH-related values, in particular related to the rent or sale of assets within this perimeter.

The present contribution reports the results of a Research that benefited from a dop-first funding: (i) an initial funding was first provided by the National Association of Building Constructors (ANCE), Lazio section; (ii) a second funding was provided by the Department of Architecture of the University of Florence as part of the allocation of University Funds, and which pursues the aim of identifying and/or defining methodologies and tools for the identification of controlled rents and purchase prices that are lower than the free market, but still able to guarantee minimum operating conditions for the promoters of SH initiatives, of a private nature.

To meet the aims of the Research, with reference to the determination of rents, the use, in this case, of Break-Even Analysis (BEA) is explored in depth, proposing an operational declination of it specifically calibrated on the case study; with regard to transfer prices, an experimental and specially constructed model of verification of their suitability is proposed.

In the following: in Sect. 2 a summary is proposed of how SH has been interpreted in Italy in particular in the last 15 years, since the definition of SH appeared in the legislation; in Sect. 3 the methodological aspects related to the techniques to be used because of the purpose of the Research are explored in depth; in Sect. 4 the case study is illustrated and, having carried out the experimentation, the results obtained are discussed; in Sect. 4 the conclusions of the present work are drawn.

2 Social Housing in Italy

In Italy, with the "Piano Casa," introduced by Article 11 of D. L. June 25, 2008, No. 112, a new era began as far as social housing is concerned: it is a parallel model to the traditional model of Public Residential Housing, endowed with copious literature-professional, juridicial and economic. Elaborated between 2007 and 2008, the Piano Casa was grafted into an economic and social framework of housing that, as of 2005, was now showing the first signs of breaking with the previous fifty years.

It was precisely with the Piano Casa that, in Italy, the definition of SH (or Edilizia Privata Sociale - EPS) was established. The Italian declination of the European definition of SH includes the following three elements: i) focus on that segment of citizens who are disadvantaged because they are unable to sustain a market rent, but who are not so disadvantaged as to be able to access ERP (so-called gray band); ii) interest and commitment to combine social, economic and environmental objectives; iii) allocation criterion based on the so called "targeted" model [1]. This approach is based on the assumption that the objectives of housing policies are predominantly achieved by the market with identification of households for whom the market is unable to provide decent affordable housing as beneficiaries, with no special restrictions beyond income level and the setting of a capped rent for rents (with which a public subsidy may be associated) [5].

The Housing Plan was followed by the approval of the "National Housing Plan," consisting of six lines of action: (i) establishment of an integrated national and local system of real estate funds for the construction of residential housing properties; (ii) increase of the public housing stock; (iii) financial promotion also at the initiative of private parties (project financing); (iv) facilities to housing cooperatives established among the recipients of the intervention; (v) integrated programs for the promotion of residential housing including SH; (vi) interventions within the competence of the former IACPs (to which the resources identified during the previous legislature by D. M. Infrastructures 28 of December 2007).

With the 2009 National Housing Plan, therefore, a further new taxonomy is developed based on the distinction between housing built only through public funds and managed by public entities (typically, the former IACPs) and various types of Public-Private Partnerships. In fact, it is worth mentioning that SH differs from ERP: i) in that it is aimed at a specific target of recipients, characterized by certain income conditions (the oft-mentioned "gray area"); ii) for the mechanism of calculating rents (lower than market rents, but determined in consideration of the economic-financial sustainability of the initiatives); iii) leaving uncovered a large segment of the population, whose demand can only be met with subsidies from central and local governments.

Against this backdrop, with the enactment of the first Housing Plan, the national housing framework has undergone, at least at the regulatory level, a change from the previous static period. Allocations at the central level and a new paradigm for the selection of interventions stimulated the co-involvement of private investors and the mobilization of different levels of government, in a public-private partnership perspective aimed at the realization of SH [5].

Regulatory evolution, therefore, has resulted in the expansion of intervention tools, graduating their intensity according to the goal of social inclusion of different categories of end users. The overall redefinition of the sector's structure, however, has marked the pace due to both the cumbersome nature of administrative processes and the extreme territorial heterogeneity in the transposition of national regulations and the actual implementation of interventions.

In this area, there remains a wide range of critical issues, the resolution of which is the basis for a genuine revitalization of the sector. In particular: i) the more effective link between the role of the state, regions and local authorities to provide timely and

efficient responses; ii) the identification of a budget of subsidies and compensation in line with that reserved for the sector by the main European countries; iii) the effective development of projects for the renovation and enhancement of existing real estate assets as opposed to new construction; and iv) greater attention to the rental market, the real node for restoring liquidity to the market [6, 7].

Since 2009, de facto, control of SH has shifted to the regions; within the perimeter traced by the Piano Casa, in fact, each region has constructed an interpretation of SH according to a principle of complementarity and, only rarely, of alternative to its own programming (mainly carried out by employing the traditional tools of subsidized, facilitated and conventional housing) to meet housing needs. An examination of the regional legislation, therefore, does not allow the definition of a univocal characterization, but only the placement of the new instrument in a position of intersection between subsidized and subsidized housing, with a greater inclination toward one or the other depending on the degree of public financial involvement, the nature of the interventions and the characteristics of the housing recipients. However, it is possible to identify at least four common aspects relatively the ERS, as interpreted by the Regions: i) the presence of a more articulated and varied housing demand, which cannot be satisfied only with traditional tools and in the absence of integrated projects; ii) the consequent desirability of fractionating supply into different lines of interventions and the identification of two macro-categories for the provision of residential services: the general interest (i.e., the specific role of a universal and solidaristic public service) and the general interest with economic relevance (i.e., the prevision of a correlation between performance and tariffs, albeit lower than free-market sales); (iii) the scarcity of public financial resources and the preference of using them to respond to the provision of housing services of general interest; (iv) the acquisition of proposals at the local level by private operators, considered most capable in identifying sustainable and innovative solutions, with prior evaluative responsibility of municipalities.

Again from the examination of regional experiences, it is possible to construct a synopsis of the measures, or levers/facilities, by which they have involved the private sector in the implementation of SH initiatives:

1. economic leverage characterized: in the start-up phase by free of charge or low-cost area rent or sale, capital or interest subsidies for co-construction of housing units; in the operation phase by grants to managers and tenants, rent support vouchers; in the decommissioning phase: grants to tenants for purchase;
2. financial leverage characterized: in the start-up phase: capital underwriting, subsidized financing for area acquisition or initial investment, public guarantees; in the management phase: guarantee funds on risks linked to contracted debts (manager or tenants); in the divestment phase: subsidized loans to tenants for redemption, sale options, guarantee funds on tenants' mortgages/rents;
3. regulatory/urban planning leverage or density bonus [8] characterized: in the start-up phase: granting of land/area rights, volumetric premiums, urban equalization or compensation, exemption or reduction of construction charges.
4. fiscal lever characterized by: in management phase: relief on property taxes on the value of rental apartments.

In what follows, we will dwell on an issue that affects a specific lever, that of legislation/urban planning just mentioned, with specific reference to the case of the Lazio Region in Italy. In Latium, the concept of SH in conformity with the provisions of the Ministerial Decree of April 22, 2008, enters into the regional system with Regional Law August 11, 2009, no. 21 "Extraordinary measures for the housing sector and interventions for SH." To the extent of interest in this Research, we dwell in particular on the provisions of Art. 3b "Interventions aimed at the finding of housing at a lowered rent through the change of use from non-residential to residential," by which the regional legislature imposes on operators in the sector the realization of housing at a lowered rent in exchange for the possibility granted to them to change the use of buildings or areas and cubature premiums.

3 Methodologies for Defining Rents and Sales Prices

3.1 Break-Even Analysis to Assess Rents

BEA allows the verification of the conditions of financial viability to intra-take an investment or rectify, for example, one already undertaken.

It is a tool for assessing the economic-financial feasibility of an investment/industrial project, a key factor in its success that depends not only on the availability of allocable resources on the part of the proposing parties, but above all on the ability of the work to be carried out to generate revenue to offset the costs of implementation and also, in certain cases, to maintain its efficiency.

It is recognized in the scientific literature that BEA presents utility in identifying the extent and magnitude of the economic-financial problems that a company faces and in identifying their solutions.

The main utility of the BEA lies in its ability to examine the impact of prices and costs in relation to profit [9]. Indeed, BEA summarizes the effects of changes in an organization's volume of business on its costs, revenues, and profits [10]. It can be extended to cover the effect on profit of changes in sales prices, service rates, costs, income tax rates, and the organization's product or service mix. It is thus an evaluation tool that can provide a company's management, a comprehensive overview of the effects on revenues and costs of all types of short-term financial changes. Although the word profit often appears in the scientific literature associated with BEA, this technique can also be effectively used for the evaluation of social-impact initiatives that are not focused, preliminarily, on the pursuit of profit, but on the practicality and therefore feasibility of the programmatic/planning forecasts associated with a productive-industrial initiative [10].

The subject of BEA, is in fact the study of the composition of an enterprise's economic and financial items in order to understand the break-even point, or break-even point. The break-even point originates from the economic concept of "point of indifference." From an economic point of view, the break-even point indicates the quantity of certain assets at which the decision-maker would be minimally, but sufficiently, satisfied with the results of an industrial venture, thus being able to undertake it. At this quantity, the costs and benefits, including an ordinary (minimally acceptable) profit are, in fact, exactly balanced. In other words, the break-even point defines when an investment will generate

a positive return using a given price necessary to cover all the costs, including that ordinary minimum profit that prompts a given operator to "take a risk" to undertake an economic-productive activity [10].

Break-even point analysis is a useful tool for short-term planning and decision-making and is most relevant when the proposed changes in the activity are therefore relatively small and thus established patterns and cost relationships are likely to hold over time. If the amount of fixed costs and marginal cost per unit change, the risks of BEA failure increase [10].

Fixed costs are generated by the acquisition of the area and/or real estate of intervention, their suitability and eventual reclamation, the rehabilitation of pre-existing buildings, and the construction of works and buildings related to the infrastructural system (urbanization works) and/or collective level standards and equipment.

Variable costs, on the other hand, are associated with the factors of production, available in variable amounts, of the production process and depend on the volume of production: they increase as it increases and, conversely, decrease when the quantity produced contracts.

The sum of fixed costs and variable costs consequent to each volume of production gives total costs [10].

Against the production costs, the sale at market prices of the goods and/or services produced by the intervention determines the firm's returns, or, depending on the volume of production, the total revenue.

Total profit can be positive, return, or negative, loss, or, again, zero, and the budget then is balanced.

In technical terms, "break-even" is an unknown q*, i.e., the minimum amount needed to repay fixed and variable costs, thus ensuring ordinary profitability in market terms for a project proponent [11, 12].

In short, the BEA allows the initiative to be valued by considering its implementation costs and the property values (to be rented) of income-generating assets or disposals.

In traditional BEA, known fixed costs, unit variable costs and unit revenues, the quantity of q, which becomes q* by which equilibrium in the composition of fixed and variable costs and revenues (without extra-profits) is achieved, can therefore be estimated through (formula 1):

$$q^* = \frac{CFt}{Pu - CVu} \tag{1}$$

Putting Pu as the unknown and considering this datum as the relationship between income I and cap rate r, formula 2 will result in:

$$I = P_u * r \tag{2}$$

According to cost approach, Pu is derived from the sum of all settlement costs and area value. Therefore, the formula above can be articulated by considering all fixed and variable costs [13], as per the scientific literature, but considering the applicative specificity of BEA if a unit product is considered, fixed costs can be considered as an incidence to variable costs; therefore, formula 2 can be transformed into formula 3:

$$I = (C_a + C_{te} + C_{ia} + C_{sa} + C_{up} + C_{us} + C_{cc} + C_{tc} + C_{st} + C_{oc} + C_{oc} + C_{ai} + C_{of} + C_{up} - RC) * r \quad (3)$$

dove:

- Ca related to the market value, if any, of the buildings/intervention area;
- Cte related to the technical costs of constructing saleable buildings;
- Cia related to the costs of suitability of the area;
- Csa related to the costs of outdoor private area development;
- Cup related to urbanization costs (equal to or higher than primary urbanization charges);
- Cus relating to secondary urbanization charges;
- Ccc related to contribution on construction cost;
- Ctc related to costs of works to be surrendered, non-locatable/saleable;
- Cst related to technical expenses related to fixed costs;
- Coc related to marketing charges;
- Cai related to other costs, including contingencies;
- Cof related to financial charges;
- Cup related to the profit of the promoter;
- RC related to grant funding.

With reference to Ca, i.e., the market value of the area, it is represented that if the intervention derives from building bonuses on areas that have already been transformed, and where therefore the incidence of the land has already been absorbed by the realized buildings, this component may not be considered in the BEA.

Unit sales prices (Pu) are concerned with the proceeds from the sale of buildings that can be disposed of with the intervention (or even rented out, if rental income is capitalized). For a quick and still effective implementation of the model, they are estimated in a synthetic-direct manner taking into account data provided by databases that reveal sales prices. Thus, the implementation of formula 3 makes it possible to estimate the break-even rental canon of real estate initiatives; it seems clear that, qua-lore the real estate initiative is SH, this case will have to be considered in the estimation of costs.

3.2 Methodological Approach to Verify the Sale Prices

On the other hand, regarding the verification of the impact of Article 8 of R.R. No. 18/2012, it should be preliminarily considered that:

- the housing can be alienated after 15 years from the terms of Article 2 paragraph 3 of the aforementioned R.R. No. 18/2012 (alienation price not exceeding the average OMI quotations of the six months prior to the sale);
- the alienation of the housing to the tenant can be anticipated after 7 years from the commencement of lease considering as the maximum alienation price 70% of the average OMI quotations of the semester prior to the alienation;

– even before the expiration of the term referred to in Article 2 of R.R. No. 18/2012 (15 years), the owner may, at the sale price referred to in Article 8, paragraph 2 (alienation price not exceeding the average OMI quotations of the six-month period preceding the sale), alienate en bloc or fractionally or transfer the reserved housing to a real estate fund or other private entity for management.

In the first instance, it should be noted that the suitability of such sale values defined by R.R. No. 18/2012, once the 15-year rental constraint has elapsed, will depend on the performance of the OMI quotations taken as a reference for the sales compared to the actual market values that will be substantiated at the time of the alienation. It should be noted that once the 15-year rental lien has expired from the terms set forth in Article 2, Paragraph 3 of R.R. no. 18/2012, the real estate units may present themselves, likely, in an average to fair condition of maintenance and efficiency, and that therefore, in this case, the use of the average parameter of OMI quotations may appear fair, both for the seller and for the buyer-re; it should be noted that OMI quotations that are not aligned with market values would produce conveniences for one party and inconveniences for the other (in the case of OMI quotations below market values, conveniences for the buyer and inconveniences for the seller; conversely, with OMI quotations above market values, inconveniences for the buyer and conveniences for the seller).

On the other hand, with regard to the verifications related to the early alienation to the tenant after 7 years from the terms referred to in Article 2 paragraph 3 of R.R. No. 18/2012, it is intended to put in place verifications on the suitability of the values provided by R.R. No. 18/2012 also combined with the effects produced by the rents defined by Article 6 of the same regulation.

Since what is contemplated in Article 8 paragraph 4 of R.R. No. 18/2012 is an option, it is intended to construct some scenarios from which to extrapolate data to assess the balance of the measure. Using procedures inferred from financial mathematics to calculate prepaid and deferred annuities, we proceeded to associate the regulatory forecasts with a financial structure structured on the basis of the assumption that the rents paid for the duration of 7 years are discounted and can be "virtually" considered as an advance on the purchase price, however, to a partial extent with respect to the capped rent (in fact a gross income for the implementing party) having to consider the "part-ownership expenses" that remain with the landlord. Given the nature of housing with purposes that have social impact, any further curtailments that in the free market are generally practiced in contracts that take the form of rent to buy are not considered.

This discounting of rents, operated by considering a discount rate that is considered to be assumed to be equal to the risk free rate practiced at the Research start date (October 2023), equal in round figures to 4.5 percent, is therefore interpreted as a "down payment on the price" [14].

The scenarios are constructed by simulating average OMI quotations, based on which to consider 70 percent as the purchase amount, varying from €1,000/sqm to €2,500/sqm (interval every €250).

The findings of this analysis brings out data that is believed to be indicative for understanding the viability of the regulatory measure.

In fact, the proposed methodology, aims to define an equivalent quotation in terms of alienation price, "simulating" a contract – "fictitious" - which provides for the capping

rents on account of price (which is allowed to be revalued pursuant to Article 6 paragraph 1 of R.R. No. 18/2012) and at the end of the 7th year, the balance in the amount established by Article 8 paragraph 4 of R.R. No. 18/2012, equal to 70% of the average OMI quotations of the six months prior to the alienation.

The calculation is made considering the current OMI quotations; therefore, a linear trend of OMI quotations with respect to the relationship with market values and inflation must be admitted as a condition to postulate the reasoning. It is worth noting that even in this case, affordability depends on the relationship between OMI quotations and market values actually re-discounted at the end of year VII.

4 Case Study: Social Housing in Lazio Region

The outcomes expected from the experimentation pursue the purpose of verifying the congruity of the related regulatory provisions (R.R. no. 18/2012) in terms of the capped calmierated rent and sales price of SH resulting from the conventional obligations assumed following the application of the oft-mentioned art. 3 ter, observed from the point of view of economic-co-financial feasibility for operators who would be in the administrative condition to be able to activate initiatives for the realization of housing at a capped rent, but who nevertheless are inhibited by rents deemed no longer consistent with the current economic context (2024) with suspected risks of economic-financial losses to implement interventions that although of social impact, are to all intents and purposes private in nature.

The BEA, appropriately declined because of the principles inferable from Article 3b of Regional Law No. 21/2009, was applied with the aim of determining the rents that allow the implementation of initiatives that, while providing for capped rents, are implementable by private operators, without the support of public contributions. In addition to the BEA, checks were carried out regarding the fairness of the amounts of housing alienation, according to the terms of Article 8 paragraph 4 of R.R. No. 18/2012.

The experimentation was extended to the entire territory of the Lazio Region; in this regard, a database was constructed containing about 100,000 data, taken from institutional and/or recognized scientific sources such as the Revenue's Agency Real Estate Market Observatory (OMI), the Ministry of the Interior, and ISTAT. The construction of the database was carried out by taking the micro-zones of the OMI as basic cores; for each micro-zone, with respect to the data made available by the Internal Revenue Service, additional data were integrated, which allowed to prepare sets of attributes the implementation of traditional, large-scale estimation procedures as a basis for being able to apply the BEA.

Specifically, the database was constructed considering the following data:

(a) geographic/demographic: territorial area, Region, Province, Municipality (and category), resident population (if greater than 10,000 inhabitants), band, zone, microzone;
(b) estimative: type description, state of preservation, maximum, average and minimum quotations, type of area considered for quotations, maximum, average and minimum rents, type of area considered for rents, master party expenses (value and percentage), capitalization essay, construction cost (referred to settlement production).

Geographic data were extracted from the Internal Revenue Service's OMI, the Ministry of the Interior and ISTAT.

Data of an estimative nature, on the other hand, were extrapolated by taking as reference data from the Internal Revenue Service's OMI and any appropriate reworkings.

Particular attention was given to the cost of construction (settlement production), which was specially estimated by considering:

(a) as direct costs: i) Technical Costs of Building Renovation, taken as a reference from the "Prices Building Types" (edition 2024) published by DEI, Tipografia del Genio Civile of RomeIn particular, the comparables were taken from typologies B5 and B7, which were considered to be those most consistent with the design types of Social Housing implemented under Article 3ter of R.L. no 21/2009. Data have been elaborated considering adjustment coefficients aimed at recording the recurring differences between the data of the Province of Milan and/or the Region of Lombardy to which "Prices Building Types"refer and homologous data instead referring to the five Provinces of Lazio;
(b) as indirect costs: i) suitability of the area, assumed to the extent of 2.50% of the technical cost of construction; ii) primary and secondary urbanization costs/charges according to the average rates practiced in the Lazio Region, also assuming that, given the nature of the interventions referred to in Art. 3ter of R.L. no. 21/2009, no further urbanization costs are to be expected since they are already included (and amortized) within the exclusively private component of the interventions; iii) contribution on the construction cost, not considered for the effects of art. 6 paragraph 5 of R.L. no. 21/2009; iii) costs due to works to be divested, non-locatable/non-saleable, not provided for; iv) technical costs, assumed at the rate of 8% of the Technical Construction Cost; v) marketing charges, not provided for; vi) other costs, including contingencies, assumed at the rate of 2% of all proceeding items, including technical costs; (vi) financial charges, provided for by considering a share of debt capital (debt) equal to 100% and assuming as the reference rate the IRS, calculated by the "European Banking Federation" plus spread (referring to ordinary contractor), or the additional delta that banks add to the index defined above to determinate the rate at which they grant loans. The repayment plan is assumed to be seven-year; vii) profit of the real estate developer (general manager of the transaction), considered by assuming two scenarios, as outlined above: 1) an initial scenario in which the developer's profit is assumed to be 10% of the total post-transformation Market Value; this amount of profit is lower than what is ordinarily considered in real estate development (15–25%) and is expected in the consideration that the real estate development initiative aimed at the production of housing to be subjected to subsidized rent produces risks that must be remunerated also in the consideration that it is profit related to the ""management" of the operation, as distinct from the return on capital profits, contemplated in the profitability essay of the operation (see below), which is generally used to estimate the incidence of the area/goods on which to intervene; 2) a second scenario in which the developer's profit is not considered, on the assumption that the rewards in Art. 3b can produce can produce a profit (which cannot be estimated since it differs from intervention to intervention) that is in any case capable of also absorbing the risks arising from the real estate development of

housing to be allocated at a lowered rent; viii) non-repayable financing, which is not provided for.

The results of the estimation related to construction costs (settlement production) were, through the elaborated regrouping coefficients, estimated with reference to the five Latium Provinces and also considering the differences related to costs due to the positioning of the intervention in the central area. In view of the processing of a large number of data on a large scale (approximately 100,000 data) and the differences in the results of the present elaboration, which are considered negligible (less than 1 percent between the various Provinces), it is considered appropriate to adopt, in each of the two scenarios, a single average regional figure for the non-central areas and a single average regional figure for the central areas. As of now, it should be noted that this differentiation is performed for methodological rather than practical reasons, as the inter-vents referred to in Article 3b of Regional Law No. 21/2009 fall exclusively not in the historic settlements as identified by the Regional Landscape Territorial Plan. Table 1 shows the outcomes of the estimates, under the two scenarios assumed.

Table 1. Estimated unit costs of settlement production of SH initiatives in the five provinces of Lazio - scenarios 1 and 2

Unit costs assessment of settlement production of Social Housing initiatives in the five provinces of Lazio Region						
Area type	U/M	Frosinone	Latina	Roma	Rieti	Viterbo
Scenario 1						
Total non-central areas	€/sqm	1,964	1,955	1,950	1,936	1,920
Total central areas	€/sqm	2,072	2,063	2,057	2,045	2,028
Scenario 2						
Total non-central areas	€/sqm	1,803	1,795	1,790	1,774	1,760
Total central areas	€/sqm	1,911	1,903	1,897	1,883	1,868

4.1 Data Elaboration: Scenarios 1 and 2

The data in the database were processed to identify sustainable rents in scenario 1, i.e., considering an albeit minimum profit and the incidence of the area. In the calculation it was necessary to put in place some operational simplifications: although aware of the applicative limitations of art. 3 ter of R.L. No. 21/2009 about the historical settlements identified in the Regional Territorial Landscape Plan, since it was not possible to verify on the coincidences of said landscape classification with the perimeters of the OMI

micro-zones, it was decided, for operational reasons related to the management of a particularly large database with about 100,000 data, to consider in the elaborations all the OMI micro-zones where data were available. On the other hand, from the calculation of municipalities with a population of less than 10,000 inhabitants, the parameters relating to the islands (Ponza and Ventotene) were excluded, as they were considered misleading for the purposes of the present application, considering these territorial realities not affected by the dynamics referred to in Art. 3 ter of Regional Law No. 21/2009. Having estimated the incidence of the area (the data were entered into the database), it was finally possible to implement the BEA.

A second processing of the data in the database was carried out to identify the sustainable rents in scenario 2; in this case, the profit of the developer of the initiative was not considered; the incidence of the area is considered equally as in scenario 1. What has already been explained above about area value, storic settlements and islands also applies in this case. Based on these considerations, the BEA was applied.

Table 2 shows the results of the experimentation; the data processing was aimed at searching for the rent that would allow the implementation of housing initiatives with subsidized rent in the territory of Roma Capitale (result 1), in the remaining municipalities of the Lazio Region with a population of 10,000 or more (result 2) and with a population of less than 10,000 (result 3).

Table 2. BEA scenarios 1 and 2

Rents (results)				
			Scenario 1	*Scenario 2*
1	*Rome*			
	Value	€/sqm for month	10.50	9.90
2	*Municipalities with population greater than 10.000 inhabitants*			
	Value	€/sqm for months	9.90	9.10
3	*Municipalities with population lower than 10.000 inhabitants (islands excluded)*			
	Value	€/sqm for months	10.20	9.40

The results generally refer to non-core areas (consolidated fabrics, expansion, renovation/transformation). The data resulting from the experimentation are to be considered "average," that is, generically referring to the macro-territorial areas considered (Roma Capitale, Municipalities with a population of 10,000 inhabitants or more, and Municipalities with a population of less than 10,000 inhabitants); it is evident that, if referred to more circumscribed areas, variations with respect to average rents could occur depending, in particular, on the Market Values found in the aforementioned areas. The proximity of the values of Lazio municipalities above or below 10,000 inhabitants suggests that this distinction could be, without consequence, overcome.

4.2 Verification of the Impact of Article 8 of R.R. No. 18/2012

Using the data in the database, in accordance with what is illustrated in Sect. 4, scenarios were constructed with the aim of verifying the impact of Article 8 of R.R. No. 18/2012. Table 3 shows the outcomes of the application illustrated in Sect. 4.4: rents were discounted and 7 scenarios were assumed for as many hypothetical OMI quotations (from € 1,000/sqm to € 2,500/sqm with inter-values of € 250).

On the other hand, with regard to the check on alienation prices after the 7 years of lease, contemplated by art. 8 c. 4 of R.R. no. 18/2012, it is noted how this optional measure results, with the rents referred to in art. 6 of the aforementioned regulation, and with the 30% deduction from the OMI quotations (always of the semester prior to the sale) of doubtful practicability for the owners of the housing, since at increasing quotations, even considering "virtually" the amounts disbursed during the lease as a down payment on the price, the equivalent paid decreases, with ratios compared to the average OMI quotations, which reach even below 80%.

It is considered useful to reiterate that the proposed applications and simulations refer to the case study provided in art. 3 ter of R.L. n. 21/2009; the determination of rents for additional forms of SH production, can avvenire always using the proposed procedure but must be considered input data specifically referred to the characteristics of the form of SH to which the application of the procedure is referred.

Hence it should be considered that the outcome values of the conducted experimentation cannot be generically applied to estimate sustainable rents for operators and/or as a starting point for capping, for different forms of SH than the one on which the present Research activity is focused.

Table 3. Sales prices verify according to art. 8 c. 4 del R.R. n. 18/2012

Fairness verification of alienation prices art. 4 c. 8 Reg. Reg. Lazio n. 18/2012								
Hypothesis 1: rent art. 6 Reg. Reg. Lazio n. 18/2012 - Roma Capitale - €/sqm 5 per month								
Discounted net income (tot.)	€	282						
OMI listings	€/sqm	1,000	1,250	1,500	1,750	2,000	2,250	2,500
Art. 8 c. 4 R.R. n. 18/2012	70%	700	875	1,050	1,225	1,400	1,575	1,750
Discounted net income	€	282	282	282	282	282	282	282
Sales price	€	982	1,157	1,332	1,507	1,682	1,857	2,032
Sales price/listings	%	98.20%	92.56%	88.80%	86.12%	84.10%	82.53%	81.28%

(*continued*)

Table 3. (*continued*)

Fairness verification of alienation prices art. 4 c. 8 Reg. Reg. Lazio n. 18/2012								
Hypothesis 2: rent art. 6 Reg. Reg. Lazio n. 18/2012 - Other municipalities with a population of 10,000 inhabitants or more - €/sqm 4 per month								
Discounted net income (tot.)	€	225						
OMI listings	€/mq	1,000	1,250	1,500	1,750	2,000	2,250	2,500
Art. 8 c. 4 R.R. n. 18/2012	70,00%	700	875	1.050	1.225	1.400	1.575	1.750
Discounted net income	€	225	225	225	225	225	225	225
Sales price	€	925	1,100	1,275	1,450	1,625	1,800	1,975
Sales price/listings	%	92.56%	88.05%	85.04%	82.89%	81.28%	80.03%	79.02%
Hypothesis 3: rent art. 6 Reg. Reg. Lazio n. 18/2012 - Other municipalities with population under 10,000 inhabitants - €/sqm 3 per month								
Discounted net income (tot.)	€	169						
OMI listings	€/mq	1,000	1,250	1,500	1,750	2,000	2,250	2,500
Art. 8 c. 4 R.R. n. 18/2012	70,00%	700	875	1,050	1,225	1,400	1,575	1,750
Discounted net income	€	169	169	169	169	169	169	169
Sales price	€	869	1,044	1,219	1,394	1,569	1,744	1,919
Sales price/listings	%	86.92%	83.54%	81.28%	79.67%	78.46%	77.52%	76.77%

5 Conclusions

The experimentation was intended to pose mainly from the perspective of the private operator. The results obtained from the experimentation mentioned in the previous chapter are sustainable rents for private SH operators; further and future studies will have to verify, beyond the break-even point of SH initiatives but not necessarily for the citizens for whom social housing is intended, i.e. those who do not qualify for ERP but also have difficulty accessing the free market [15].

The fees resulting from the experimentation can already be considered in part "capped": in fact, they are "break-even fees" with which to repay the costs of the initiative, with reduced profits (scenario 1) or even no profits (scenario 2) unlike therefore what is generally expected from initiatives in the free market; as already illustrated, in detail in scenario 1 it is a fee that also considers a profit, albeit minimal; in scenario 2

it is assumed that the completely free market component of art. 3b of R.L. No. 21/2009 compensates for the assumed absence of profit.

Finally, it should be noted that, from the reading of the results of the experimentation in the light of the findings of the Research, in the present case referred to the capped rents referred to in R.R. No. 18/2012, but also in general in social housing, based on the actual condition of the construction sector, a diachronic situation is presented characterized by the size of the identified rents that if on the one hand would ensure the implementation of the initiatives, on the other hand could exceed the threshold of sustainability for low-income households.

A further calming operation, by decreasing the identified rents, on the other hand, if on the one hand it would broaden the audience of possible beneficiaries of the initiatives, on the other hand it could condition the activity of private operators.

Further investigation, to overcome some "rigidities" related to the choise of economic and assessment parameters in the proposed methodology, may involve the implementation of sensitivity analyses aimed at identifying not a single output value (in the case of rents), but multiple output values dependent on the change in the economic-context underlying the assessment.Ultimate aim of the work should be aimed to define a balance that avoids situations of ""non-intervention" and that at the same time has a social rents affordable to the families on the basis of their income.

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