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Abstract

The exceptional contribution of urbanisation (hereinafter simply exceptional contribution) is a regulatory obligation that represents an additional to the costs of primary and secondary urbanisation, at least equal to 50% of the greater value generated by projects in areas or buildings with modifications to town planning. The rule that introduced the exceptional contribution does not indicate the factors to be considered while evaluating the exceptional contribution, and consequently does not address the evaluation procedure to be used in determining its exact form. In this paper, an idea will be proposed regarding the urban development exceptional contribution as it has been applied in Italy both in regional regulations and in various Local Authorities. From this overview, the approach of the different LAs can be seen. Each has autonomously decided upon the adoption of an analytical procedure to estimate the Transformation Value to calculate the extra contribution. Subsequently, in light of the result of not considering a specific rate of return during the estimation of the exceptional contribution, a procedure is proposed for determining the rate of return to be considered in the indirect analytical procedure for estimating the Value of Transformation used to calculate the exceptional urbanisation contribution. The proposed procedure is based on the Build-up Method and will take the form of its operational declination, to be used when one has the coefficients representative of the areas of risk for the different factors that are typical of interventions of settlement transformation. To test the proposed procedure it has been applied to a case study: the evaluation of exceptional contribution in an Integrated Intervention Program in the Municipality of Grottaferrata (RM).

Keywords

Value of Transformation - Rate of return - Exceptional urbanisation contribution - Appraisal - Financial mathematics - Real estate ratings

(separated by '-')

A Procedure for Determining the Industrial Profitability of Settlement Interventions in the Appraisal of Exceptional Contribution of Urbanisation

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Abstract. The exceptional contribution of urbanisation (hereinafter simply exceptional contribution) is a regulatory obligation that represents an additional to the costs of primary and secondary urbanisation, at least equal to 50% of the greater value generated by projects in areas or buildings with modifications to town planning. The rule that introduced the exceptional contribution does not indicate the factors to be considered while evaluating the exceptional contribution, and consequently does not address the evaluation procedure to be used in determining its exact form. In this paper, an idea will be proposed regarding the urban development exceptional contribution as it has been applied in Italy both in regional regulations and in various Local Authorities. From this overview, the approach of the different LAs can be seen. Each has autonomously decided upon the adoption of an analytical procedure to estimate the Transformation Value to calculate the extra contribution. Subsequently, in light of the result of not considering a specific rate of return during the estimation of the exceptional contribution, a procedure is proposed for determining the rate of return to be considered in the indirect analytical procedure for estimating the Value of Transformation used to calculate the exceptional urbanisation contribution. The proposed procedure is based on the Build-up Method and will take the form of its operational declination, to be used when one has the coefficients representative of the areas of risk for the different factors that are typical of interventions of settlement transformation. To test the proposed procedure it has been applied to a case study: the evaluation of exceptional contribution in an Integrated Intervention Program in the Municipality of Grottaferrata (RM).

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1 Introduction and Aims of the Work

In light of the ever decreasing availability of public resources in several European Union countries, including Italy, financing measures "alternative" to the public contributions – such as the urbanization extraordinary contribution of urbanisation

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(hereinafter simply exceptional contribution) – represent one of the main means to finance infrastructures and public works, especially at a local level, which otherwise would be devoid of any necessary financial coverage. For these reasons the urbanization extraordinary contribution appears as a fundamental opportunity for the territory development and regeneration. In this way, the exceptional urbanization contribution can be considered as a measure related to the NPPP and it is part of EU Community-type directives aimed at finding resources and a private nature know-how to be used for the construction of infrastructures and public works. In particular in Italy, the NPPP has been implemented through specific urban planning tools (so-called Complex Programs) and procedures (so-called Agreement for Programs) for their approval that provide the agreement between the various Public Administrations involved in the initiative [1–3].

The exceptional contribution of urbanisation represents a charge, which is configured as an additional costs of primary and secondary urbanisation, at least equal to 50% of the greater value generated by projects in areas or buildings with modifications to town planning.

With article 17, paragraph 1, point (g) of law 164/2014, which included article 16, paragraph 4 of Presidential Decree 380/2001 (Consolidated Building Law) point (d-ter), the payment of exceptional urbanisation contribution has been regulated at a national level since it was already in existence in many Italian local authorities (LA) for over 20 years. However there has been no regulatory framework to refer to [4–6]. In fact, although without specific legal guidelines, over time exceptional contribution had become "customary", in the context of negotiated Public Private Partnership (NPPP), for the LAs to consider in the public interest initiatives in which the creation of public works financed by the private entity promoting the intervention to be "compensated" with the permission to build notwithstanding the General Land Use Plan, both regarding the indexes and the usage.

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This exceptional contribution is to be determined by the added value generated by a settlement transformation intervention. In the event of an increase in value of the buildings or areas due to town planning variations, exceptions or changes in intended use by the private entity proposing the initiative, this would be deemed as a project in the public interest. The exceptional contribution is thus set up as a charge (in addition to the primary urbanisation costs) linked to the increase in value that the areas and buildings will have as a result of town planning variations, exceptions or changes in use.

However, despite the introduction of the exceptional contribution within the current legislation, all the existing provisions that are in force (regional laws and local authority town planning tools) have been upheld. Even before the introduction of point (d-ter) within article 16, paragraph 4 of Presidential Decree 380/2001, the exceptional contribution: (i) in some regions[1] had already been the subject of specific legislation and in many Local Authorities it was already present with the appropriate regulation in place. Although national and regional legislation (where present) has established the breakdown percentages of the capital gain, the factors to be considered in the assessment of

[1] Only 3 Regions (Piemonte, Veneto, Marche) have included the exceptional contribution in their regulations, offering a definition of the methods used for calculating it.

the exceptional contribution have not been clearly indicated. Consequently, it is not known what evaluation procedures to employ in determining its exact form. In the absence of national and regional provisions, different LAs have autonomously decided upon the adoption of an analytical procedure for estimating the Transformation Value (see Sect. 2) used for the calculation of the extra contribution.

The analysis of a sample of LAs[2], which have independently regulated the exceptional urbanisation contribution highlights any methodological and operational problems discovered in the regulatory procedures that are in use.

In particular, one issue found was the failure to consider the specific rate of return while estimating the exceptional contribution, even in light of the fact that the financial arrangement of settlement transformation operations usually makes use of capital equity for the purchase of the asset subject to transformation and third party capital (debt) to cover production costs.

In the settlement framework, the rate of return can be determined through the Weighted Average Cost of Capital (WACC) [7–9], the Real Estate Risk (RER) [10] and the Build-up Method [11, 12]. The WACC is the minimum rate of yield an investor requires as return for his contribution of capital [7–9]. The RER defines the rate of yield, specifically regarding real estate, taking into account the various risk factors common in this sector: context, endogenous and contractor/final product [10]. Instead, the Build-up Method presents different ways of calculating the rate of return based upon the identification and total sum of all the specific yield differentials of a production initiative [11, 12].

Therefore, the objective of this paper is to identify a procedure with which to determine the rate of return used in the indirect analytical procedure for estimating the Transformation Value applied in the calculation of the exceptional urbanisation contribution. The proposed procedure is based on the "Build-up Method" and will form its operational declination. It can be applied when one has the representative coefficients of the risks affecting the various defining factors of interventions of settlement transformation.

The procedure has been adjusted for use by LAs, and is somewhere between a simplified application of the Build-up Method (the simple addition of the risk coefficients) and a rather more structured procedure (related in any case to the Build-up Method) known as Property and Market Rating Method (PAM) of the European Group of Valuers Association (TEGoVA) which represents an attempt at an international harmonisation of real estate rating [13].

As the paper continues, in Sect. 2, the process with which to calculate the exceptional urbanisation contribution via the indirect analytical method thus obtaining the Transformation Value will be illustrated. The results of "praxis" in the sample related to Public Administration will be examined and the opportunities and problems which in the implementation of this method will also be noted. In Sect. 3, in relation to the issues identified while calculating a suitable rate of return in proportion with the

[2] The analysis has been carried out considering the local regulatory framework of 20 Municipalities: Albisola Superiore, Ancona, Biella, Bussoleno, Caraglio, Cavaion Veronese, Carmagnola, Cuneo, Falconara Marittima, Ferrara, Fiano Romano, Finale Ligure, Novi Ligure, Lecce, Roccagloriosa, Roma, San Benedetto del Tronto, Thiene, Venezia, Vescovana.

specific nature of the settlement transformation initiative for which the exceptional contribution is calculated, a procedure will be proposed via the operational declination of the Build-up Method, for the creation of the rate of return to be used in the analytical procedure to obtain the Transformation Value for the calculation of the exceptional urbanisation contribution. In Sect. 4 the proposed procedure will be applied to estimate the exceptional urbanisation contribution of an NPPP initiative in the community of Grottaferrata (RM); the estimate can be considered "historical" as it refers to the year 2006, in which the NPPP initiative was undertaken. In Sect. 5, the conclusions of this work will be discussed.

2 Indirect Analytical Method Used to Estimate the Value of Transformation in LA Practices and in Methodological (Theoretical) Procedures

From the analysis of regional legislative measures and local authority regulations (Sect. 2) it has emerged that the exceptional contribution, as part of Italian practices relating to settlement transformation procedures during changes to town planning, has been included as a charge corresponding with the capital gain obtained from interventions which vary from the existing town planning systems. In the various regulations examined, two calculation procedures are proposed to estimate the capital gain:

1. a first one:

$$CG = TVpt - TVat$$

Where:

- CG is the financial capital gain (plus-valenza) of the initiative;
- TVpt (after/post transformation) is the Transformation Value of the real estate in question according to predictions regarding the changes, to be projected through the analytical procedure of estimation for the Transformation Value;
- TVat (before/ante transformation) is the Transformation Value of the real estate involved in the initiative according to previous forecasts; in this case the estimation procedure used depends on the object being assessed (area that cannot be built on, building area, condition of building, property to be redeveloped, etc.).

The Transformation Value in both cases is calculated using:

$$TV = MVpt - \Sigma k$$

where MVpt (post transformation) is the Market Value of the real estate subject of the initiative according to forecasts regarding the changes; Σk is the total sum of the transformation costs (technical costs of construction, construction levies related to building permits, financial interests, overheads, constructor's profits, etc.);

or

2. a second one, representing an alternative simplified formula for Transformation Value:

$$CG = MVpt - (\Sigma k + MVat)$$

Where:

- CG is the financial capital gain (plus-valenza) of the initiative;
- MVpt (post transformation) is the Market Value of the real estate subject of the initiative according to forecasts regarding the proposed changes;
- Σk is the total sum of the transformation costs (technical costs of construction, construction levies related to building permits, financial interests, overheads, promoters profits, etc.).
- MVat (ante transformation) is the market value of the real estate subject of the initiative according to previous forecasts (area that cannot be built on, building area, condition of building, property to be redeveloped, etc.).

In both procedures, the methods for estimating the capital gain require use of the analytical procedure to estimate the Value of Transformation. In the first case, we are dealing with the differences between the Transformation Values of real estate interventions considering their usage in town planning both pre and post intervention. In the second case, the estimation of the capital gain coincides with the Value of Transformation to be calculated by including in the costs of the transformation and the previous Market Value of the areas and or buildings involved in the intervention.

Both methods for calculating the exceptional urbanisation contribution noted in Italian practices represent a simplification of the traditional indirect analytical calculation of the Transformation Value [14]:

$$TV = \frac{MV(pt) - \sum Kp}{(1 + r')^n}$$

Where:

- MV(pt) is the Market Value of the asset constructed in the area.
- Σkp = is the total sum of all production costs (construction costs, urban planning costs, technical expenses, general and administrative expenses, building permit fees, financial costs, constructor's profit, other expenses necessary for building construction).
- r′ = is the specific rate of return for the intervention.
- n = is the number of years needed to complete the intervention.

The insertion, in the calculation formulas, of a specific rate of return relevant to the particular initiative being evaluated has not been noted in any of the resolutions (and related attachments) examined. Even if the various procedures observed in the Local Authorities under analysis, take into account various issues as the technical costs of construction in the direct costs, construction levies and related building permits, financial interests, overheads, and even the profit of the constructor. This last cost item

is generally a fixed percentage (as stated in the regulations) of all the other costs of transformation or of the Market Value after transformation and is intended as a "regular average profit" for the housing development sector. Considering that the financing of settlement transformation operations is usually composed of capital for the acquisition of the asset undergoing transformation and debt capital to cover the production costs. This simplification, which presupposes that all settlement transformation initiatives in a particular territory are "ordinary" and of average "complexity" and business "risk", can have a negative effect on the estimation of the exceptional urbanisation contribution:

- if the initiative is particularly simple and therefore less risky than an "ordinary" settlement transformation initiative, to estimate a profit commensurate with an "ordinary" settlement transformation, results in an unjustified increase of this outlay - and consequently all costs - to the detriment of the capital gains, and is seemingly a "loss of revenue" for the Local Authority administration, considered as "damage to the treasury", as the exceptional urbanisation contribution is connected to the capital gain;
- if the initiative is particularly complex and therefore more risky than an "ordinary" settlement transformation initiative, to estimate a profit commensurate with an "ordinary" settlement transformation results in an unjustified decrease of this expenditure bringing a consequent risk of the initiative being halted by the constructor, and therefore a lack of revenue relative to the exceptional urbanisation contribution.

To calculate the exceptional urbanisation contribution it is therefore necessary to put into practice a Transformation Value using the traditional procedure, by considering a rate of return directly related to the initiative for which the exceptional contribution is being calculated [15, 16].

The rate of return, which takes the place of the "direct" profit of the constructor, must be identified by the operational risk of the intervention and that depends on the defining factors of the settlement transformation intervention itself. These include risk free rates in the financial market, real estate sector risks, risks associated with the location of the intervention, risks related to the type of real estate produced by the intervention, technical risks, urban risks and financial risks [17–19].

These factors result in an operational risk owing to the volatile nature of operating cash flows, and derives mainly from the possibility that the created real estate is unable to earn revenue [20–23].

Therefore, the rate of return demonstrates the profitability that the constructor can expect from the settlement transformation initiative, such as: $MV(pt) - \Sigma kp$. If the financial interests on the capital needed to support the project costs (assuming, as usual, that the costs of the settlement transformation initiative are paid for by borrowed means) are considered among the costs of the transformation (Σkp), it follows that the difference: $MV(pt) - \Sigma kp$ represents the Investment Value of the settlement transformation initiative.

Performance indicators (e.g. IRR) usually represent the actual return on the investment value and include the profits of those who have supported the investment. It follows that the return on the investment must be considered as a discount rate of the difference: $MV(pt) - \Sigma kp$; as a result the rate of return includes the constructor's

profit. When using the traditional indirect analytical method to estimate the Value of Transformation it should not therefore be included among the costs of the transformation or only be considered as an ordinary profit [24].

3 A Procedure to Build the Discount Rate in the Analytical Procedure for Estimating the Transformation Value

In this section, a procedure (Build-up Method) is proposed to define the rate of return of a settlement transformation initiative involving town planning variation. The suggested procedure represents an operational declination of the Build-up Method, a methodology that allows the creation of the rate of return as the sum of the different yield differentials, which depends upon the different defining factors of the actual initiative [25].

According to the Build-up Method, the rate of return r it is calculated via the sum of the different economic yield differentials (dx):

$$r = d_{(1)} + d_{(2)} + \cdots + d_{(n)} = \sum_{x=1}^{n} d_{(x)}$$

The differentials express the risk in the variability of yield (ya = min yield; yb = max yield) specific for each defining factor of the operational risk involved in a construction initiative:

$$y_a < d_{(n)} < y_b$$

Therefore, the application of the Build-up Method requires the definition of the various differentials that characterise the operational risk related to the production initiative and the specific value of each of these differentials.

On this basis, the Build-up Method is subsequently declined to determine the rate of return for a settlement transformation initiative in town planning variation. Returning to what was already briefly explained in Sect. 3, the factors that distinguish the operational risk of a settlement transformation intervention subject to exceptional contribution and therefore different to the existing urban planning systems are:

- risk free rates in the financial market (d_1), coinciding with those relating to assets free from the risk of debtor insolvency and changes in interest rates on the market; therefore, the performance indicators of government bonds or interbank rates such as the EurIRS rate may be used, with a uniform deadline on the projection horizon;
- real estate risk (d_2) subject to the specific features that characterise the real estate sector (activities subject to regulatory, administrative, legislative, fiscal and environmental norms, etc.) from which derives the yield spread required to invest in the real estate market with a risk-free asset. It represents the minimum risk level for an investment that does not involve other factors that will increase the specific real estate risk;

- risk related to the location of the intervention (d_3) resulting from the specific market to which the asset fits in to. It consists of risk at both a national level (primary and secondary areas) and a local level (quality of and future developments planned in the designated area, neighborhood and street). The more attractive a location proves for consumers, the smaller the risk. The elements include the economic performance of the local market, the infrastructure, the transport routes and accessibility;
- risk related to the type of property (d_4) inferred from the specific types of intervention of each sort of property with different physical characteristics and a different market, thus resulting in different rates. It is linked to the possibility of interchangeability of use and by the user;
- technical risk (d_5) derived from changes in the expenses and timescale of the building construction. This also includes the risks connected with the similarity of the finished building to the initial project plans (building site phase risks);
- town planning risk (d_6) related to the different housing and planning situations that require different procedural processes. It is therefore linked to uncertainty about the schedule and obtaining the necessary permits for real estate development;
- financial risk (d_7) consisting of a higher return required for borrowing which, due to the priority of payment with respect to equity, increases the risk of damaging the latter. It is determined by applying a multiplier based on the financial leverage model that considers the effect of the financial structure and the differential with respect to the amount of related debt and the tax benefits.

Considering the 7 differentials involved in determining of the rate of return for settlement transformation initiatives in town planning variations and putting in action the previous formula 4, it is possible to define the equation, according to the Build-up Method for the specific rate of return of settlement transformation initiatives in changes to town-planning, as follows:

$$r = d_{(1)} + d_{(2)} + d_{(3)} + d_{(4)} + d_{(5)} + d_{(6)} + d_{(7)}$$

For each operational risk factor, based on analysis of a sample of real estate valuations conducted by independent valuation companies, the following intervals of "standard" values for each differential have been drawn up:

$$\begin{aligned} d_{(1)} &= \text{depending to financial market} \\ 2.50\% &< d_{(2)} < 4.00\% \\ 0.50\% &< d_{(3)} < 2.00\% \\ 0.50\% &< d_{(4)} < 4.00\% \\ 0.50\% &< d_{(5)} < 1.50\% \\ 0.00\% &< d_{(6)} < 7.50\% \\ 1.50\% &< d_{(7)} < 3.50\% \end{aligned}$$

Each differential must be placed within its proposed range in relation to the category of risk in which in the settlement transformation initiative falls. Five risk

categories, corresponding to 5 different possibilities (VH, H, M, L, VL) have been defined for each differential. For each differential (excluding the $d_{(1)}$), it is possible to define correlations between the risk categories VH, H, M, L, VL and the relative reference values through linear interpolation.

Assuming that the risk category VH corresponds with the full risk probability (100%) and therefore the highest differential value (yb) and the VL risk category represents the total absence of risk (0%) and therefore the value of the lowest differential (ya), using linear interpolation, it is possible to define the differential values for the other risk categories H, M, L and consequently the range of values for each risk category:

$$y^* = y_a + \frac{y_{b-}y_a}{x_{b-}x_a}(x^* - x_a)$$

In order to calculate the rate of return it is therefore necessary to identify for each of the factors representing the operational risk of a settlement transformation intervention involving changes to town planning, the specific level of risk (VH, H, M, L, VL) and then to calculate the relative differential (Table 1). The results obtained for the differentials as predicted using the Build-up Method establishes the specific rate of return for the settlement transformation interventions in town planning modifications.

Table 1. Differential threshold values in relation to risk categories in settlement transformation interventions

Factors defining the operational risk of an intervention subject to exceptional contribution	Risk category				
	Very high (VH)	High (H)	Medium (M)	Low (L)	Very low (VL)
Risk free rates in the financial market (d_1)	Dependent variable to financial market				
Risk of the real estate sector (d_2)	4.00%	3.63%	3.25%	2.88%	2.50%
Risk connected to the location of the intervention (d_3)	2.00%	1.63%	1.25%	0.88%	0.50%
Risk connected to the property type (d_4)	4.00%	3.13%	2.25%	1.38%	0.50%
Technical risk (d_5)	1.50%	1.25%	1.00%	0.75%	0.50%
Town planning risk (d_6)	7.50%	5.63%	3.75%	1.88%	0.00%
Financial risk (d_7)	3.50%	3.00%	2.50%	2.00%	1.50%

This procedure was applied for each of the 7 risk factors that characterise settlement transformation interventions involving town planning variations. Therefore, the values of the 7 differentials have been defined in relation to the 5 risk categories and accordingly the threshold values.

4 An Application of Proposed Procedure to Evaluate the Industrial Profitability Return Inside the Analytical Procedures for Estimating the Transformation Value in the Evaluation of Exceptional Urbanisation Contribution of an Integrated Intervention Program in Grottaferrata (RM)

In 2006 the Local Authority of Grottaferrata (RM) approved an Integrated Intervention Program (hereinafter also IPP) in order to redevelop the disused hotel complex known as the "Grand Hotel Traiano" (the project is hereinafter referred to as Traiano IIP). The initiative was proposed by the company who actually owned the complex. This IIP was approved in 2010 by the Region of Lazio. In short, the Traiano IIP envisages the change in use of some existing buildings and an increase in building potential compared to the previous projections (Table 2).

The Traiano IIP was taken up and approved by the 2006 Local Council (LC) of Grottaferrata, as it was considered an urban initiative of public interest, by virtue of it generating an exceptional urbanisation contribution (to carry out public works) equal to € 4,214,565, which corresponds to 66.6% of the capital gain of the initiative, estimated at € 6,313,000. The estimates for the capital gain of the Traiano IIP (and consequently of the exceptional urbanisation contribution) were made in a synthetic-direct manner: a unit value has been attributed to the building potential, both of the object due to change its use and to the results of the new project.

Table 2. Traiano IIP data

Data of IPP Traiano		
Territorial area Total	sm 24.393,00	
Existing private building potential Total	Volumetry (cm) 26.381,25	Gross surface area (sm) 8.244,14
Turistic	26.381,25	8.244,14
IPP private building potential Total	Volumetry (cm) 34.160,78	Gross surface area (sm) 10.675,24
Residential New buildings Renovation	14.142,77 12.500,00 1.642,77	4.419,62 3.906,25 513,37
Commercial/directional New buildings Renovation	12.527,93 4.585,48 7.942,45	3.914,98 1.432,96 2.482,02
Turistic New buildings Renovation	7.490,08 0.00 7.490,08	2.340,65 0.00 2.340,65

Following the approval of the Traiano IIP, the company that owns the site (which will subsequently be known as the "developer"), despite having entered into a contractual commitment with the Grottaferrata Local Council through a planning agreement and the related legal obligations, did not implement the IIP. This was owing to the fact that, on the basis of the operational business plans of the industrial redevelopment initiative of the complex, the exceptional urbanisation contribution was not financially sustainable because it virtually eliminated the IRR by placing the entire initiative at a loss. Only in 2017, was it recognized[3] that the exceptional urbanisation contribution estimated in 2006 was not financially maintainable for the developer. Therefore, the Grottaferrata Council are presently (2018) reviewing the commitments that the developer assumed as part of the urban development agreement and related mandatory acts. In light of this, it is clear that the synthetic-direct method adopted in 2006 to estimate the exceptional urbanisation contribution of the Traiano IIP proved inadequate and led to an incorrect evaluation result that caused the interruption of the redevelopment initiative for several years.

The Traiano IIP case study is a useful vehicle for testing the operational capacity of the procedure proposed in the previous Sect. 3 when used in the application of the estimate, through an analytical procedure of the Value of Transformation (see Sect. 2) of the effective capital gain in 2006[4] (the date of approval) of the Traiano IPP. The estimate of the capital gain is preliminary to the definition of an exceptional urbanisation contribution that could have been financially sustainable for the development company in 2006. The estimate of the capital gain for 2006 is shown below according to the practices in use in various Local Authorities as illustrated previously in Sect. 2. An analytical procedure is applied in order to estimate the Value of Transformation, in predictions both before and after the IIP:

$$CG = TVpt - TVat$$

With reference to the implementation of the indirect analytical procedure for the estimation of the Transformation Value, also considering as benchmarks the parameters (to evaluate Market Value and transformation Costs) included in the regulation approved by LA of Rome (so called DAC n. 128/2014):

– the post production Market Values, namely the finished building product (i.e. the hypothetical revenues of the transaction) were taken from the database of the Real Estate Market Observatory of the Tax Revenue Agency (common acronym: OMI) for both residential use and commercial/tertiary (or directional) uses, through indirect analytical procedures to capitalise income for the purposes of tourism and hospitality. The OMI provides data for the year 2006 regarding residential,

[3] The recognition of the inconsistency of the exceptional urbanisation contribution and the related commitments of the developer came following a complex administrative-procedural process that saw the involvement of the Department of Architecture and Planning of the University of Rome "La Sapienza" for the purposes of technical-scientific support, scrutiny and supervision of the Grottaferrata Council as part of the "Grand Hotel Traiano" Integrated Intervention Program.

[4] Since this is a historical estimate, all the data based on valuations refer to the year 2006.

commercial and administrative initiatives. Maximum limit values, which relate to new construction projects were chosen from within the range proposed by the OMI. However, the OMI database does not hold records and parameters associated with tourism and hospitality. In order to compensate for this lack of data, market analysis was carried out to record the data involved in the indirect analytical estimation procedure for the market value of real estate in the tourism and hospitality sector of the territory in which the IIP is located.

- the (direct) Technical Processing Costs of construction have been taken as reference from the Typological Price List published by DEI, 2006 edition [26]. These costs have been obtained for the various uses, however the indirect costs considered are: (1) the costs of making the area suitable and improving connections, assumed to be about 3.5% of the Technical Construction Costs (or Technical Costs); (2) costs related to the charges associated with art. 16 of Presidential Decree n. 380/2001, taken on a flat rate basis of 10% of the Technical Costs; (3) the costs of professional services, technical and unforeseen additional costs, assumed to be 10% of the Technical Costs and the costs of making the area suitable and improving connections; (4) marketing expenses, assumed to be 2.5% of the market value of the finished building product; (5) estimated financial charges considering an interest rate equal to that of the EurRSr/Euribor rate in June 2006 (around 2.00%) + Spread (around 1.00%) with a 15-year loan hypothesis; in round numbers, the assumed interest rate is 3.00%; (6) the minimum profit of the developer, assumed to be around 10% of the Market Value of the finished building product; (7) financial expenses related to the transfer of the real estate property equal to 11% of the Market Value of the assets before transformation (coinciding with the Value of Transformation) and relating to: stamp duty; cadastral and mortgage tax (negligible) and the financial expenses related to acquisition value to be estimated in the same way as the financial charges relating to other cost items. This cost item cannot be directly estimated as it represents a percentage of a value that is still unknown; to be included in the estimate, the effect of this cost item must be considered as a component with which to update the Transformation Value of the calculation;
- the rate of industrial profitability was estimated (using the conditions of 2006) in accordance with the procedure proposed in Sect. 3, taking into consideration (Table 3): (1) a risk free rate from 2006 equal to 1%; (2) "Very high" risk related to the real estate sector, which can be hypothesised for 2006 due to awareness of the first signs of contraction in the North American real estate market; (3) "High" risk related to the location of the intervention, due to the setbacks suffered by the initiative in Grottaferrata, a medium-sized community located within in the orbit of Rome; (4) "Low" risk related to property types; (5) "High" technical risk, considering the possible lengthy timescales for the opening of construction sites and the consequent cost fluctuations connected to the carrying out of the intervention; (6) "Very high" urban risk linked to the uncertainty of a favourable outcome to the project involving changes to urban planning; (7) "Medium" financial risk, in which a financial debt structure at 100% is assumed for the execution of the initiative also considering the legal nature of IPP Traiano developer (limited liable company);

Table 3. Rate of industrial profitability evaluation

Factors defining the operational risk of an intervention subject to exceptional contribution	
Risk free rates in the financial market (d_1)	1.00%
Risk of the real estate sector (VH) (d_2)	4.00%
Risk connected to the location of the intervention (H) (d_3)	1.63°%
Risk connected to the property type (L) (d_4)	2.25°%
Technical risk (H) (d_5)	1.50%
Town planning risk (VH) (d_6)	3.75°%
Financial risk (M) (d_7)	2.50%
Total	16.63%

– in 2006, time period of 4 years was considered necessary for the implementation of the initiative, on the understanding that 2 years would be required to complete the alterations to town planning and a further 2 years for the completion of the initiative.

The estimate of the capital gains for the Traiano IIP was created using on the parameters that have been listed. Table 4 shows partial estimates of the Transformation Value for different uses of the IIP, before and after the transformation.

Table 5 shows the calculation of the overall capital gain of the Traiano IIP initiative, and the resulting hypothesis for the contribution considering the rate established by the Grottaferrata Council, which is equal to 66.6% of the capital gain.

The results gained by applying the procedure outlined previously give us a capital gain of € 4,485,612 and an exceptional urbanisation contribution of € 2,987,418, lower than that estimated in 2006 by the Grottaferrata Local Council.

This confirms the inconsistency of the estimated financial capital gain, which did not take into account the specifics of the industrial initiative of the Traiano IIP that are represented by the industrial profitability rates calculated by using the proposed procedure.

Table 4. Value of Transformation (before and after transformation) of the Traiano IIP for different destinations

Transformation Value of Integrated Intervention Programme "Traiano"																					
Market Value																					
IPP parameters			Residential destination				Commercial and Directiona destination				Tourist destination				Previous destination (tourist)			
V	Volumetry for each destination	cm	14,142.77				12,527.93				7,490.08				26,381.25			
GSA	Gross Surface Area for each destination	sm	4,419.62				3,914.98				2,340.65				8,244.14			
SA	Salable Area (from IIP documents)	sm	4,773.18				3,914.98				2,340.65				8,244.14			
UMV	Unitary Market Value	€/sm	3,000				3,350				2,372				2,400			
TMV	**Market Value (total for destinations)**	**€**	**14,319,555**				**13,115,177**				**5,552,246**				**19,555,892**			
Construction cost																		
C0.n	Technical costs (new buildings)	€/sm	1,307	for sm	3,906.25	5,105,469	1,357	for sm	1,433	1,944,530	1,199	for sm	0	0	1,199	for sm	0	0
C0.r	Technical costs (renovation)	€/sm	1,404	for sm	513.37	720,765	1,368	for sm	2,482	3,394,156	1,199	for sm	2,341	2,806,439	1,199	for sm	8,244	9,884,725
C0.d	Technical costs (demolition)	€/cm	15	for cm	7,121.26	106,819	15	for cm	885	13,273	15	for cm	0	0	15	for cm	0	0
C0	Total technical costs	€	C0.n+C0.r+C0.d			5,933,053	C0.n+C0.r+C0.d			5,351,959	C0.n+C0.r+C0.d			2,806,439	C0.n+C0.r+C0.d			9,884,725
C1	Costs of making the area suitable and improving connections	2-5% of C0	3.50%	of €	5,933,053	207,657	3.50%	of €	5,351,959	187,319	3.50%	of €	2,806,439	98,225	3.50%	of €	9,884,725	345,965
C2	Costs related to the charges associated with art. 16 of Presidential De-cree n. 380/2001	10% of C0	10%	of €	5,933,053	630,435	10%	of €	5,351,959	535,196	10%	of €	2,806,439	280,644	10%	of €	9,884,725	988,472
C3	Costs of professional services, technical and unforeseen additional costs	8-12% of C0+C1	10.00%	of €	6,140,710	614,071	10.00%	of €	5,539,278	553,928	10.00%	of €	2,904,665	290,466	10.00%	of €	10,230,690	1,023,069
C4	Marketing expenses	2-3% of TMV	2.50%	of €	14,319,555	357,989	2.50%	of €	13,115,177	327,879	2.50%	of €	5,552,246	138,806	2.50%	of €	19,555,892	488,897
C5	Financial charges	5% of C0+C1+C2+C3	5.00%	of €	7,385,216	759,576	5.00%	of €	6,628,401	331,420	5.00%	of €	3,475,775	173,789	5.00%	of €	12,242,231	612,112
C6	Minimum profit of the developer (for real estate sector)	10% of TMV	10.00%	of €	14,319,555	1,431,955	10.00%	of €	13,115,177	1,311,518	10.00%	of €	5,552,246	555,225	10.00%	of €	19,555,892	1,955,589
TC	**Total construction costs**	**C0+C1+C2+C3+C4+C5+C6**			**€**	**9,934,736**			**€**	**8,599,218**			**€**	**4,343,595**			**€**	**18,077,790**
Evaluation of Transformation Value																		
Tvacnd	Transformation Value before charges related to the transfer (undiscounted)		TMV-TC		€	4,384,819	TMV-TC		€	4,515,958	TMV-TC		€	1,208,652	TMV-TC		€	1,478,102
q^n	Industrial profitability rate (16.63% from table 4)		q=(1+r')^n			1.5865	q=(1+r')^n			1.5865	q=(1+r')^n			1.5865	q=(1+r')^n			1.5865
Tvad	Transformation Value discounted		Tvacnd/q^n		€	2,763,891	Tvacnd/q^n		€	2,846,552	Tvacnd/q^n		€	761,851	Tvacnd/q^n		€	931,694
C7	Financial expenses related to the transfer		11.00% for registration fee, cadastral and mortgage taxes; 10,29% financial charges			21.29%	11.00% for registration fee, cadastral and mortgage taxes; 10,29% financial charges			21.29%	11.00% for registration fee, cadastral and mortgage taxes; 10,29% financial charges			21.29%	11.00% for registration fee, cadastral and mortgage taxes; 10,29% financial charges			21.29%
TV	**Transformation Value**		**Tvad/1+C7**		**€**	**2,278,746**	**Tvad/1+C7**		**€**	**2,346,897**	**Tvad/1+C7**		**€**	**628,124**	**Tvad/1+C7**		**€**	**768,154**

Table 5. Total capital gain and exceptional contribution for the Traiano IIP

Exceptional contribution evaluation (at 2006)		
Value of Transformation residential destination	€	2,278,746
Value of Transformation commercial and directional destination	€	2,346,897
Value of Transformation tourist destination	€	628,124
Value of Transformation (total) - new destination	€	5,253,767
Value of Transformation previous destination (tourist)	€	768,154
Capital gain	€	**4,485,612**
Exceptional contribution (66,6% of capital gain)	€	**2,987,418**

5 Conclusions

The case study (IIP Traiano) demonstrates that the accurate estimation of the exceptional urbanisation contribution can greatly influence the success of a settlement transformation initiative. An incorrect calculation (ex post) of this charge may result in an income loss if the exceptional contribution is too low in comparison to the actual capital gain (which can be deduced from the financial results of the initiative).

Conversely it may cause an interruption of the initiative (in itinere) if the exceptional contribution is excessive compared to the actual capital gain, as the profit margin of the constructor may end up being reduced, thus rendering the initiative not cost-effective when taking into account the risks involved.

The results of case study also demonstrates the suitability of the analytical procedure for obtaining the Value of Transformation based on the estimate of capital gains if it is considered its "generally widespread" application: in the case study the parameters included in the regulation approved by the LA of Rome (DAC 128/2014), represented the benchmarks to implement the Transformation Value.

The application of proposed procedure allowed to taking into proper consideration in yield/profit issues and the particular details of each transformation initiative (on which the entity of the return has been calculated).

Further changes to the proposed procedure (which push it in the direction of PAM) are: (i) the introduction of new factors, which define settlement transformation initiatives; (ii) for each factor that characterises variation settlement transformation initiatives, the introduction of sub-factors to which the specific conditions of each risk category can be attributed: VH, H, M, L, VL; (iii) the conditions related to the specific risk categories; (iv) models which define the differentials even in the absence of "comparisons".

In this way it is affirmed that an LA can validate town planning variation initiatives with greater certainty as regards the verification of the exceptional contribution in compliance with article 16 paragraph 4 point d-ter) of Presidential Decree 380/2001, thus protecting itself from eventual economic damage, and at the same time guaranteeing economic and financial practicability for the of the initiative's construction firm [27, 28].

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