Land value in Urban Development Agreements: Methodological perspectives and operational recommendations

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key words: urban land rent, real estate risk, urban development agreement, public city

abstract
Abstract

This paper is focused on land value in urban development agreements based on public-private partnerships. The first part discusses the topic in relation to the neoliberal planning model emerged during the nineties which has characterized the most part of urban developments until today. According to this model, urban development agreements assume a negotiated variation from the local statutory plan, thus bringing flexibility to the planning systems, as well as making the planning choices more discretional than before. Very often the planning gain of developers is not balanced by the value capture from local authorities. In this context the ex-ante evaluation of urban developments proposed by private developers assumes a strategic role to support the negotiation process and to guarantee good public performances within the complex decisional frame where private players and public administration act. For this reason, the paper introduces an operational tool to compare the land value before the development and the surplus value generated by the intervention. The public perspective adopted in the this study has addressed the evaluation with the aim to show how to achieve a fair balance between private gains and public benefits.

1. INTRODUCTION

From the second half of the Nineties urban development has moved from a phase of expansion to a new paradigm based on the redevelopment of existing urban fabrics while a new model of negotiation practices between public and private actors has risen. Urban planning, once focused on growth, has gradually played the role of managing urban transformations through cooperative practices between public and private actors thanks to the Urban Development Agreements (*Programmi Integrati di Intervento*, see art. 16 Law 179, 1992[1]), still widely employed in Lombardy region. The integration of public-private agreements and their legitimation as part of the general urban plan are some of the innovative elements Urban Development Agreements, that the reform of Public Administration towards local autonomies, relationships among different public actors and between public and private actors has made[2] (Ombuen, 2000; Urbani, 2000; Curti 2006).

[1] Law 17 February 1992, n. 179 "Norme per l'edilizia residenziale pubblica".

[2] See also the Law 8 June 1990, n. 142 "Ordinamento delle autonomie locali", in the Law 7 agosto 1990, n. 241 "Nuove norme sul procedimento amministrativo", and also in the Decreto Legislativo 18 August 2000, n. 267 "Testo Unico delle Leggi sull'ordinamento degli enti locali".

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The overcoming of the hierarchical and authoritative model of public-private relationships has brought more flexibility inside decisional processes, but also an increasing level of discretion. The raising of financial resources for common goals reached by the negotiation processes can have different outcomes that are difficult to be forecasted, due to the complexity of the institutional system and to the lack of transparency about the public gain. The absence of ex-ante evaluation models to estimate the effects of the transformations proposed by private actors, has often made the municipalities not effective in capturing a part of the surplus value proportional to the private revenues guaranteed by the flexibility gained with respect to the general plan's rules. Public administrations' effectiveness in negotiation has been often as lower as the private actor's ability of addressing urban transformations toward market-led approach has been stronger.

An ex-post analysis of a sample of Urban Development Agreements in Lombardy region (Pogliani 2006; Oppio e Torrieri, 2016; 2018; Oppio *et al.,* 2019) has highlighted several criticalities of the neoliberal planning model started at the beginning of the years 2000 during a phase of real estate market expansion that ended in recent years of strong demand crisis. The public gain from these projects, that represents the conditio-sine-qua-non for private actors' involvement into negotiation, has been evaluated by the municipalities only in absolute terms and with reference to the construction cost of public equipments required by the new settlements, to the value of public-interest services implemented by the developers instead of paying development fees or to the value of areas for services, without any reference to the surplus value generated by the land development. This value consists in the difference between the value assumed by the area after and before the agreement between public administrations and developers, due to the changes of land uses and volumes allowed by the general urban plan. Moreover, in many cases there is no estimation of the future management costs of the public works provided by the developer according to the agreement.

The strong reduction of planning fees due to the crisis of real estate and constructions markets and the instance of high level urban quality has pointed out that the administrations' role into the negotiations with private developers should be stronger that it has been in the past, whether they are land owners or promoters of real estate development.

Inside this framework this paper proposes a reflection on the value generated by urban development, by taking in account the different phases of land value increase and also the different levels of risk related to the investment with the aim of providing an operational tool to check the adequacy of the reference value used to estimate the surplus generated by the development. The focus is on administration's perspective that evaluates private projects with the aim to balance private profits with public

interest thanks to a fair division of real estate surplus. In particular, the first part of the paper introduces the double perspective that characterize the public-private negotiation; the second describes the appraisal process of land value with a special attention to time and risk as key parameters to estimate land value; the third part concerns the application of this methodology to evaluate an Urban Development Agreement (PII) in Lombardy region whose results are discussed in the last part.

2. EVALUATION PERSPECTIVES WITHIN PRIVATE PUBLIC NEGOTIATIONS

Negotiation is a situation in which two or more parties acknowledge the existence of different interests or points of view, but intend or are forced to reach an agreement. According to the traditional paradigm of distributive negotiation (Raiffa, 1982), the parts involved in urban transformations implemented by agreements, compete for the surplus value generated by real estate development with different purposes: for the private the maximization of investment profitability and for municipal administrations the redevelopment of existing brownfields, as well as public works and public-interest services[3]. In this context, the agreement's area is given by the limit below which each contractor is not willing to go on, as this outcome would be a worst than the failure of the agreement. For the private, the limit is represented by a return on investment in consistent to risk of the initiative; for the public, the limit is the achievement of public interest, represented by the construction and management over time of public works and services. In addition to local taxation, the negotiation between public administrations, owners and developers is one of the means for capturing the surplus value generated by urban planning choices, that should be allocated in favor of the whole community (Camagni, 2016; Micelli, 2016).

For the private investor, the buildable area and the uses are two crucial variables to estimate the planning gain. From the economic point of view, a urban development is feasible when the portion of buildable area is able to pay off the land as production factor. This occurs if the Development value (Vtr) that the area acquires as a result of the changes to the buildable area and land uses, as defined by the agreement, is higher than the Market value (Vm) of the area before the changes have been introduced or than its recent market price (Stanghellini and Mambelli, 2003; Morano, 2007; Micelli, 2011; Stellin

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[3] The subjects involved into negotiations are: the public administration, whose willingness to start the agreement with the private developer should be evaluated according to the additional amount of benefits gained with respect to the one due by law; the private developer, who has the goal to maximize the profit in relation to the expected revenues, costs; the construction companies, which in some cases coincides with the private developer; the landowner, who benefits from land rent as a result of changes to the statutory plan; finally, the real estate funders (See Calabrò and Della Spina, 2012).

and Picchioluto, 2014).

In order to achieve a balance between public and private interests, negotiations must take place according to the principle of transparency and full access to information. The information asymmetries, in fact, significantly reduce the ability of public bodies to understand the fairness of the exchange. The revenues and costs generated by land development are usually estimated with reference to the ordinary conditions of real estate and building production market, while the land value before the development is given by the economic reports presented by private developers and too often it is not coherent with the conditions of the area at the agreement start time.

Because of the complexity of the decision-making framework in which public and private are involved, evaluation plays an essential role in supporting the negotiation, through the definition of goals and priority lines of action, the measurement of the effects and the quantification of the surplus allocation for both the parties. From an operational point of view, the issues at stakes within public-private negotiations are on one hand the evaluation of private feasibility and on the other the evaluation of public benefits. While private developers have robust evaluation skills, the same cannot be said about the public administrations, especially with respect to verifying the validity of the assumptions of the private business plans, as well as to assessing (ex-ante, in-itinere and ex-post) the achievement of economic, social and environmental urban development's goals (Fattinnanzi, 2018).

In order to effectively support this kind of decision processes and to enhance the principles of fairness and transparency, the evaluation should be practiced as an ordinary procedure, extended also to the negotiation phase. For this purpose, a significant contribution could be represented by the definition of technical standards and evaluation protocols.

3. VALUE, TIME AND RISK

Real estate development can be considered as a multi-stage dynamic process (Graaskamp, 1981; Haley, 1991; Fischer, 1997; Larsson 1997; Kalbro and Lindgren, 2010), in which different subjects operate in order to achieve properties' values greater than the initial ones (Haley 1992). The multi-stage model proposed in the Anglo-Saxon literature (Miles *et al.*, 1996; Williamson, 2010) and developed by some Italian authors (Bravi and Fregonara, 2004; Prizzon, 1995; Florio, 2006), albeit with differences in the sequence of the steps, describes the complexity and dynamism of the development process, discretizing it in different time phases according to specific levels of expected returns and risks (McGrath, 2006)[4]. With respect to land development processes, it is possible to recognize 4 basic phases, as shown by Figure 1:

1) an initial phase when alternatives are identified and a pre-feasibility study is performed. This is a start-up phase in which developers analyze the land development options

according to the Highest and Best Use Analysis (Wilson, 1995, 1996; Prizzon, 1995). The functional mix and the buildable area are at the basis of the profitability of the investment and subjected to bargaining with the Public Administration (Bravi and Fregonara, 2004). Therefore, in this phase the uncertainty is very high, especially due to the regulatory/administrative risk associated with obtaining the permits and signing the agreement, as well as for the environmental risk in case of brownfields to be reclaimed;

2) the design and the construction phase of the project in which the prevailing risks are of the technical ones. The developer passes from the feasibility phase of the intervention to the study of the detailed design options until the realization of the program. In this phase the technical/production risk due to possible variations of costs and time is high, as well as the operational risk of liquidity that require to find a balance between realization time, costs and potential revenues;

3) a lease-up or post-project phase, characterized by a high management risk concerning several aspects mostly related to the marketing strategies, the collection of rental fees and the asset management activities[5] (Morri, 2014);

4) a phase of operational stability in which the revenues generated by the investment become positive, the returns most stable and the profits are highest (Bravi and Fregonara, 2004). During the whole cycle of the valorization process of the area it is therefore possible to assume that the investments and the consequent profitability expectations are not considered as homogeneous cash flows and that they are not uniformly distributed over time due to the decreasing risk level and the consequent increase of land surplus value. Figure 1 shows the relationship that exists between the level of risk and the phases of the land development process. As shown in the graph, at the initial stages the risk is very high and consequently also the probability of failure of the initiative is close to 40%. During the construction phase, this percentage of bankruptcy is halved, since the bureaucratic-administrative procedure has been completed, and then the risk decreases gradually until a range between 10% and 8% in the final stages. It can be assumed that land value follows the increasing trend of the entire real estate development process, in others words it is smaller in the initial phases and greater in the settlement period where the maximum land surplus value is then obtained. More precisely, the land surplus value is estimated as the difference between the value of

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[4] As defined by Fisher 1997 there are numerous risks related to a real estate development process: market risk, technical risk related to the construction phase, legislative and regulatory risk, environmental risk, financial risk and liquidity risk.

[5] This phase is typical of the investments made by the asset management companies for real estate funds or in any case for properties managed by developers.

the area before the Urban Development Agreement (V0) and the land value after the development process (Vf) that is:

$$\text{Land Surplus value} = V_f - V(0) \qquad (1)$$

Thus, the land value can be appraised on the basis of the Development value by considering the difference between the potential revenues and the development costs according both to the Residual Value approach and to the Discounted Cash Flow Analysis model. While the first is relatively simple to be used and widely understood, the latter is appropriate for longer term development schemes, ie taking into account the distribution of costs and revenues over time. This assumption consequently implies the use or not of a discount rate that reflects the investment's gross risk/return. Therefore, Land Surplus Value (TR) can be estimated on the bases of the following formula:

$$RT = \frac{\Sigma_{t=1}^{n} R/r' - (Kt + P + Vap)}{(1+r)^n}$$

R = Incomes

Vap = Value of the area before the Urban Development Agreement

Kt = Development costs

P = Developer's profit

r = interest rate

r' = cap rate

The Development costs (Kt) can be divided into:

• construction costs;

• planning fees, pieces of land for public-interest services, public works and monetized payments, negotiated within the agreement in addition to the planning fees due by statutory plan;

• reclamation costs of the area and costs for the connection to main infrastructures;

• soft costs or technical expenses, project management cost;

• marketing costs.

In the next sections, the Development value of a Urban Development Agreement regarding a past-industrial site will be estimated according to the Residual approach. In particular, this method has been applied in order to verify the Land surplus value (TR) with respect to every step of the development process and its relative risk. Consistently with the Residual approach, it has been assumed that costs and revenues of the program have been both referred to the end of the development process, when the land surplus value is at its highest point. This value has been then discounted with respect to the risk of failure of the initiative related to each phase, according to the following formalization:

$$TRn = TRmax\ (1-r_n)$$

Where

$TRmax$ = maximum of land surplus value at the end of the development process;

n = time period or phase of the development process;

r_n = risk of failure of the specific phase.

This approach can represent a useful and transparent tool for the public administrations in order to: a) evaluate the uplift in value generated by the development; b) control the land values used as input of economic and financial report by private developers and c) define how much public administrations could capture from land surplus value.

4. CASE STUDY: THE REDEVELOPMENT OF THE ABANDONED INDUSTRIAL SITE EX-NESTLÈ, ABBIATEGRASSO (MILAN)

4.1 Description of the case study

The case study concerns the redevelopment of an abandoned industrial site, that represents a critical situation because of the reclamation and demolition costs of the existing buildings.

The Urban Development Agreement (U.D.A) has been approved in 2000, while the final version signed by all the parties involved was closed in 2004. The company that owns the area is both the developer and the constructor.

The intervention is located in two different areas:

• the Area 1, close to the historic centre, where it has been located the residential function (11.355 sqm, 10% for social housing), retail and offices (651,50 sqm), public parking (1.446 sqm) and moreover public spaces;

• the Area 2, that consists in a portion of the historic complex of the Annunciata, renewed as social care service.

An ex-post evaluation has been carried out, by assuming the definition of the agreement (2002) as the date of evaluation. The assumptions has been both obtained from the developer's economic-financial report have and estimated using synthetic procedures.

Table 1 shows the functional mix of Urban Development Agreement under investigation and the unit market and cost values, respectively deduced from the OMI Database of the Agenzia delle Entrate (2002) and from the "Listino Prezzi, Tipologie edilizie" (2002). More specifically, the inputs provided by the documentation included in the Urban Development Agreement are:

• the general costs as reported by the economic-financial report, such as:

– primary and secondary urbanization costs;

– contribution on the construction cost;

– area for public and public-interest services;

– monetized payments.

The inputs estimated by synthetic procedures are:

• *construction costs*;

• *reclamation cost*, divided into demolition costs of existing structures, reclamation and infrastructure costs;

• *soft costs* (professional services and unforeseen costs, both equal to 4% of construction cost);

• *commercial costs* (2% revenues from sales);

• *developer's* profit (10% of the total development cost);

• *land value,* has been assumed equal to zero, on the contrary to the value declared by the developer in the economic-financial feasibility analyses attached to the agreement. The land value before the development is one of the parameters of great uncertainty in the analyses developed by private developers. From the ex-post analysis carried out on a sample of Urban Development Agreement in Lombardy Region, it is clear that the values declared in the economic analyses often do not reflect the real value of the area before the agreement, but the one achieved after the development process.

For example, in the case under analysis, the value declared by the private developer, equal to the 31% of the finale market value, is not consistent with the conditions of an abandoned industrial site.

• *revenues from the sale* taken from the of the Agenzia delle Entrate Observatory (OMI) with reference to the second half of 2002, the year of signing the Agreement.

4.2 Application of the Residual Value model

According to the evaluation model described in Section 3, the Surplus Land value has been estimated as the difference between the potential revenues, the development costs and the land value (see Table 2).

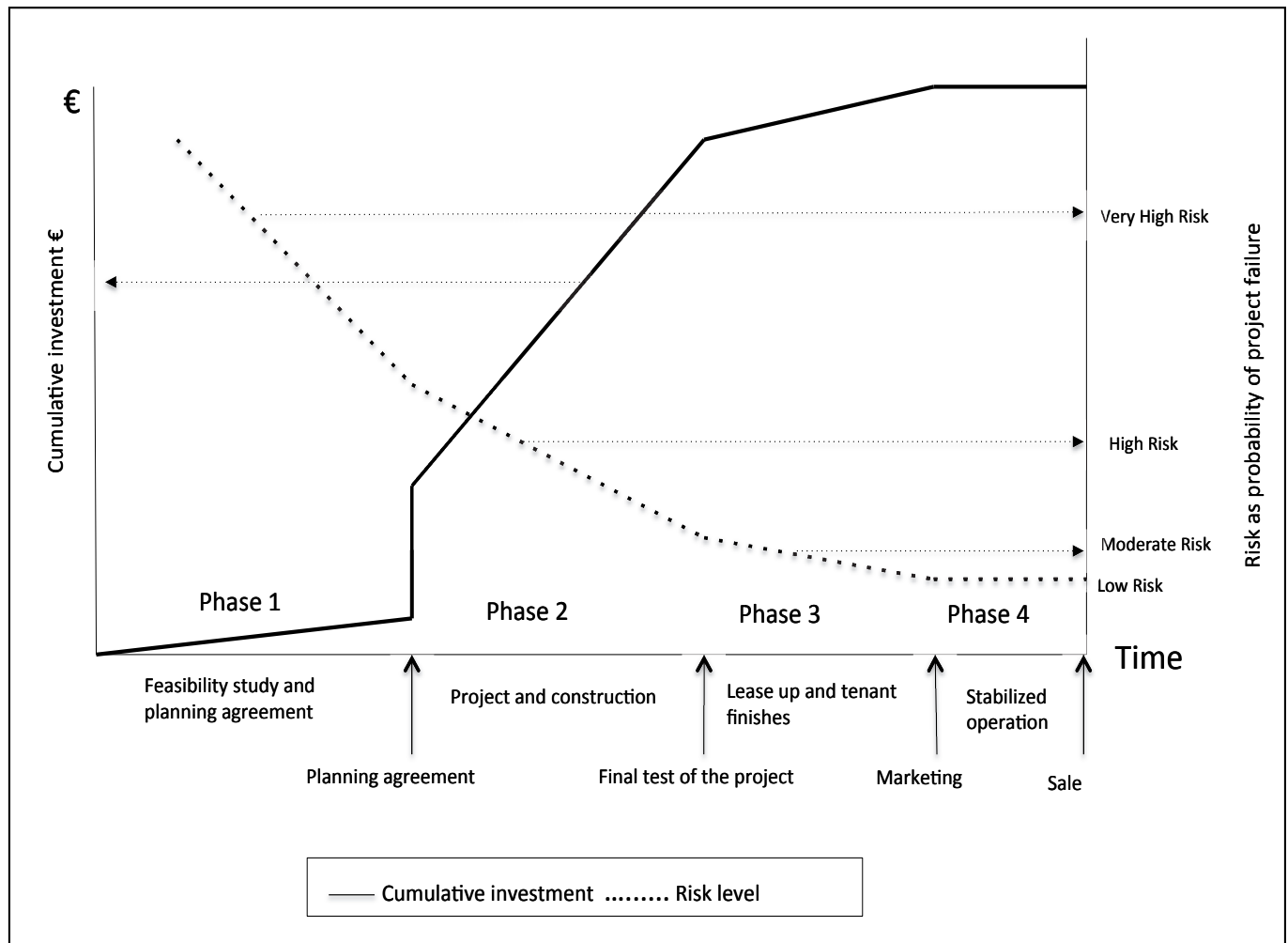The development process of the Urban Development

Figure 1 - *Value and risk in real estate development process*
Source: re-edit by McGrath 2006

Table 1 - *Functions, size, Unit Market and Cost values*

	U.M.	Residential	Social Housing	Commercial	Offices	Public services
Size	sqm	11.355	1.262	717	0	0
Unit Market values	€/sqm	1.550	1.470	1.835	0	0
Unit Cost values	€/sqm	916	604	800	878	878

Table 2 - *Input for estimating the Surplus Land value generated by the development*

Input	Total Value (€)	Source
A) Value of the area	–	
B) Total generla costs	1,417,999.00	Agreement
C) Construction cost	11,741,550.47	Listino Tipologico, Dei, 2002
D) Reclamation costs	2,628,524.00	Dati Confindustria, 2002
E) Total soft costs	939,324.04	8% construction cost
F) Marketing	415,399.67	2% Total revenues
G) Developer's profit	1,714,279.80	10% Total costs
H) **Total costs without profit (A+B+C+D+E+F)**	**17,142,798.80**	
I) **Total costs (A+B+C+D+E+F+G)**	**18,857,077.77**	
L) **Total revenues**	**20,769,983.33**	OMI data, Agenzia delle Entrate, II half 2002
Revenues-Costs (L-I)	**1,912,906**	

Agreement under investigation has been divided into the following 7 operational phases:

1) Start-up[6].

2) Signing[7].

3) Closure[8].

4) Design.

5) Construction.

6) Lease-up.

7) Stabilized operation.

These 7 phases are related to the 4 macro phases described in the Section 3. In particular, up to the signing phase of the agreement, the failure rate of the initiative is very high, since the process of development is starting. The risk decreases gradually in the next phases until the last phase of stabilized operation.

The Table 3 shows the estimation of the transformation annuity in each phase of the valorisation process of the area with respect to the specific risk. It should be noted that the risk rates considered, which represent the failure rate of the initiative, have been taken from the literature (French and Gabrielli, 2005) and represent an average ordinary rate for property development projects with similar characteristics.

As can be seen from Figure 2, at time 0 the land value increase is very low and it depends on the initial use of the area, since the project is at a start-up phase in which the agreement on the changes to the statutory plan has not yet been signed.

During the next phases, the land value increases, together with the reduction of the investment risk until reaching its maximum value when the project has been completed and the revenues are stable.

In the case under investigation, starting from the maximum value of € 1,912,904.23, obtained as the difference between the potential revenues and investment costs on the basis of the assumption that the initial land value is close to zero (100% of the land surplus value achievable after the development, see Table 2), the increasing of land value in relation to the specific risk of

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[6] From a procedural point of view, the main stages of Urban Development Agreements are three: signing by all the interested parties, the approval with publication in the Official Bulletin of the Lombardy Region and the closing date in which the Regional Supervisory Board ratifies the end of the program and verifies the achievement of all the objectives. The starti corresponds to the opening of the negotiation.

[7] It coincides with signing of the Urban Development Agreement.

[8] The closure corresponds to the time when the Regional Supervisory Board checks the results achieved, the resources used and declares that the agreement has been concluded.

Table 3 - *Phases, Duration (n = years) and Discount rates (Scenario 1, Initial Land value = 0)*

Risk	Surplus Land value €	Time (years)	Phases of the development process
1,00	–	0	Start-up
0,40	1,147,743.14	4	Signing
0,20	1,530,324.18	11	Closure
0,20	1,530,324.18	12	Design
0,18	1,572,408.10	14	Construction
0,10	1,729,266.33	16	Lease-up
0,08	1,912,905.23	18	Stabilized operation

Table 4 - *Phases, Duration (n = years) and Surplus Land value (Scenario 2. Surplus land value = Threshold value)*

Risk	Surplus Land value €	Time (years)	Phases of the development process
1,00	–	0	Start-up
0,40	524.,43.65	4	Signing
0,20	699,524.86	11	Closure
0,20	699,524.86	12	Design
0,18	718,761.80	14	Construction
0,10	790,463.10	16	Lease-up
0,08	874,406.08	18	Stabilized operation

each temporal phases has been estimated. Considering, for example, that before signing the agreement the Surplus Land value will be equal 60% (100-40%), being at this stage the risk of failure equal to 40%. This operational scheme has been repeated for all the temporal phases of the case under examination, thus defining an incremental function of the Surplus Land value as time changes (Scenario 1, Figure 2).

As can be seen from Figure 2, the project risk function is inversely proportional to the one of Surplus Land value, since when the risk decreases over time, the Surplus Land value increases.

A further scenario has been then defined (Scenario 2) in which the land value is not assumed to be null but equal to €1,038,499.15, which represents a threshold value above which, according to the same costs and revenues, the Surplus Land value becomes negative. In this second scenario, the difference between revenues and costs after the development process is equal to € 874.406.08.

As can be seen from the graph, the Surplus Land value decreases because the differential value of the area before and after the agreement is lower than in the first scenario. The line V shown in the graph represents the land value before the development envisaged by the Scenario 2, which would remain constant without the approval and development of the agreement.

In this case, with respect the conditions of the as an abandoned industrial area, the land values above or equal to € 1,038,499.15 do not seem likely, being this value not consistent with the initial destination, but rather to the outcomes of the development process.

The proposed model can therefore represent a useful control tool for the public administration of the land values reported in the economic-financial feasibility analyses proposed by private developers.

5. CONCLUSIONS

This paper describes a model for the evaluation of the land surplus value generated by the development of a past industrial site with a special focus on land value increase in relation to the different phases of the process, starting from the definition of the agreement between public administration and developer until the implementation of the project.

In the first part it has been presented the multi-stage model that characterizes the land development process with specific reference to its different phases and to their specific risks.

The starting point is the estimation of land value by the Residual model in order to take into account the potential revenues and the costs of changes in land uses and buildable area, compared to what was allowed from the statutory plan before the Urban Development Agreement being defined. In order to provide the public administrations with an effective operational tool for
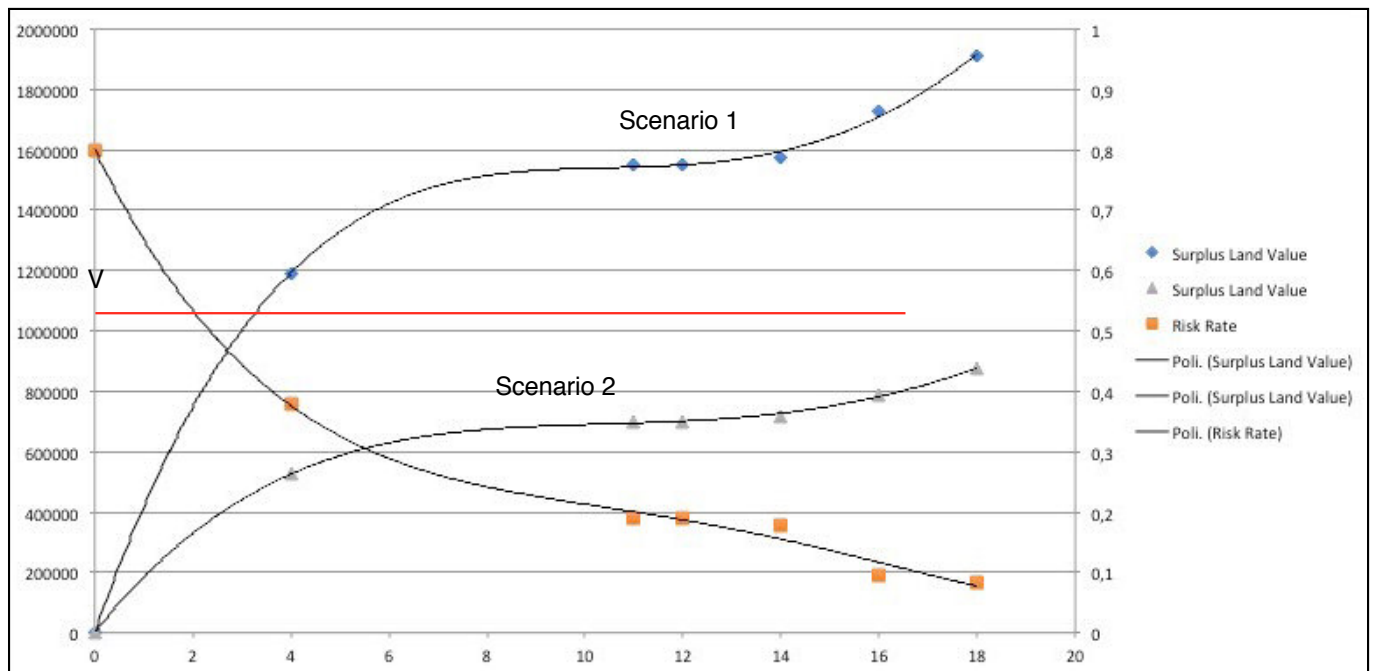
Figure 2 - *Trend of the Surplus Land value in the time and value of land before U.D.A*

estimating the surplus value generated by the development with respect to the initial land value.

The proposed approach has been tested on Urban Development Agreement concerning the former industrial area "ex-Nestlè" in the municipality of Abbiategrasso (Milan).

The outcomes has pointed out that the values declared by private developers do not always reflect the land values according to the phases of the development process (Camagni, 1999). The value capture by public administrations is therefore considerably reduced due to the high values of the areas declared in the economic-financial reports by private developers that do not always reflect the land value at the initial state, but rather the increase of values as the result of land use changes.

As it emerged by the results of case study, the land value declared by the developer represents the 31% of the final value at the end of the development process, thus reducing the gain from the Urban Development Agreement both for the private and the public.

The proposed model therefore appears to be a useful tool for enabling public administrations to control the surplus value generated by urban development within negotiating practices and to make explicit the gain from to the initial value of the area as well as its allocation between private and public parties.

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