

REAL ESTATE AND URBANISM – IN SEARCH FOR A RATIONALE TO INSERT REAL ESTATE INTO MAINSTREAM SPATIAL SCIENCES

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Abstract

Urban design influences the value of private properties when it does not simply generate new ones. Furthermore present urban planning, which is the most common institutional framework for urban design, requires financially balanced urban plans, or even beyond it in search for public funds to interventions outside the plan area. This enhances the role of real estate in urbanism as it is the value added to real estate that allows for the funding of public features within urban planning. Two relevant issues derive from this approach – urban planners have to give a new and awkward place to real estate knowledge within their teams and the value added by the urban plan has to be calculated. The current Portuguese planning law requires municipal plans to evidence their economic feasibility without public disbursements and to provide an algorithm to allocate costs and benefits among initial property owners. This is however done without the least mention to the role of real estate or to a purposeful concept of value added by the plan. These latter issues are the subject of the presentation with illustrations from the Portuguese urban planning framework.

Key words:

Urbanism; urban design; urban planning; real estate development; value added; land readjustment.

0. Introduction

Urban design is the contribution of architecture within urban planning. The latter is a major long-term spatial solution for societal problems. That solution becomes operational through allocating space to uses and functions according to best practices on form. Best practices on form (i.e., urban design) integrate a lot of issues namely the provision of spatial public goods, the purposeful-oriented management of spatial externalities and the issue of property readjustment (i.e., not only “land readjustment” though this is the designation currently used).

Property readjustment derives from the changes in the property registers that urban design forcefully brings. Those changes enhance the value of some of the previously existing properties and decrease (eventually down to zero) the value of others. The issue arises on how to compensate the owners of the latter properties through the former's gains; this issue is the original contents of "land readjustment" and an old one in urbanism.

The initial scope of "land readjustment" has however been widened to meet the funding needs of urban authorities through requiring that the gains on property value brought by urban design are enough not only to compensate value decreases on property but to pay for the public urban design features as well. Direct public disbursements from the municipal, regional or central budgets are presently envisaged as highly exceptional.

The overall picture is one of urban design for public purposes relying on real estate development – i.e., urban design (under the institutional framework of urban planning) is supposed to provide both the compensation funds for property owners and the funds to pay for spatial public features, besides allowing for an attractive real estate development business margin. If the latter condition is met, the real estate developer will be the economic agent that frees and circulates the value added by urban design. If that condition is not met the publicly endeavoured urban upgrade will not take place.

This approach assigns an important role to real estate in the urban design process and leads to the view that urban planning, as the institutional framework of urban design, is nowadays a property-based venture. This is mostly evidenced by the introduction of mechanisms to shift value among properties and public parties, known as "land readjustment".

1. The rationale for "land readjustment"

1.1 "Land readjustment" / "perequação" – the framework

"Land readjustment" [Altermann, 2012] (hereafter LR) is the departing platform for property-based urban planning. It is named "perequação" in the Portuguese case, with a Latin-etymon. The Latin designation provides for an intuitive approach to the concept – an action to allow for an equal treatment along the entities covered by a collective enforced operation.

LR/perequação – which is used within an urban plan – therefore concerns the equal treatment of the property units the plan comprehends and which value it differently affects. Overall taxes on property and concerns about the property owners (e.g., their income levels) are all issues exterior to LR.

The LR we have in mind aims, in most jurisdictions, to capture de value added to property units by urban design within an urban plan (which additionally implies lawful rules for implementation and for monitoring private spatial transformations along time – often called “land regulations” though this might seem to leave aside rules for existing built properties).

Though this is a common approach (i.e., LR that intends to capture the value added of the properties that the plan benefits), a fair approach should indeed capture the value added (how much of it?) to the benefited properties but also compensate through it the value subtracted in the case of value-harmed properties. The fairest approach (which is the one adopted in Portugal) goes beyond this through considering that above-the-average property benefits should be shared with under-the-average ones (where benefits might even be negative, i.e., value decreases).

The LR approach which has the sole aim of capturing the value added of the properties that the plan benefits assumes that urban design – through assigning development rights to some properties and not to others, within an urban area dimmed to be worth of an overall coherent scheme – will not be able but to bring value added to the properties and that it will not be possible to withdraw development value from a property that exists prior to the plan. This is a strong assumption with effects on the determination of the property value prior to the plan, which is a relevant issue in LR.

It must also be mentioned that LR was conceived for urban development envisaged as an expansion from consolidated areas to new urban areas. As a matter of fact most present urban plans address the consolidated areas, under either the regeneration or the rehabilitation banner. That is why “land readjustment” (LR) is currently a less accurate designation than “perequação” since the latter covers all types of properties and not only developable land.

The Portuguese law on urban planning states [DL 80/2015, Art.176] that urban plans must warrant the fair allocation of the plan costs and benefits and should include LR mechanisms for the purpose. Urban plans must also – within their intervention area – make land available for public purposes, evidence at least financial neutrality for municipal budgets after costing the public space investments, suppress property held for real estate speculative purposes (this being the only mention to real estate), correct the imbalances of the “urbanism market” (an odd concept to substitute “real estate market”) and enhance the local market of houses to rent (affordability is not mentioned, though the possibility of the involvement of the municipality seems to be envisaged).

This list leads us to the issue of plan costs and benefits – i.e., the costs and benefits that have to be fairly distributed through LR. Along the list we can identify the cost items – i.e., the properties to be made available for public purposes or withdrawn from real estate speculation along time have to be purchased or expropriated with a fair compensation, the public urban infrastructures have ultimately to be paid for by the plan and the need to meet non-market provided items points to private funded stimuli or direct private funding at a loss.

Benefits, on the other hand, are barely mentioned. Their existence is an assumption; but anyway where do these benefits come from? They have to come from the value added to private property through real estate development.

The challenge arises when looking for the mechanisms to achieve the purpose of fair distribution of costs and benefits, for which you have to be able to determine *ex ante* the value of both of them. Costs of works (e.g., public infrastructures) tend to be easier to calculate (and make consensual) than costs of property delivered for public purposes or devalued by urban design with the associated land regulations formally brought by the plan. These property related costs face the same problem of the property related benefits brought by the plan and so the rationale and the method for their determination have to be agreed for, otherwise inefficient eminent domain procedures are the last resort solution.

In the end LR is the algorithm (i.e., a formula or a set of formulae) that the urban plan includes to allocate the value added it expectably generates both to the properties and to the spatial public features within its intervention area (and sometimes beyond it).

The algorithm makes each individual property either a financial contributor to the plan implementation or a receiver, depending on quantitative features of the property and on the net value (i.e., after the urban design derived costs) assigned to those features. This sounds much as the contents of advanced real estate valuation.

The formulae used for LR purposes often resort (it is the Portuguese case) to indicators that are not directly monetary; very common ones are average construction rights *vs* on-site effective constructions rights as well as average private land to cede to spatial public features *vs* on-site private ceded land derived from urban design. The indicators are easy to use for the purpose of allocating urban design derived costs among properties. A relevant question nevertheless arises when using them for benefits allocation without having into account the uses the plan assigns to the properties.

The allocation of benefits to the properties, when the urban plan-permitted property use is an issue (which it normally is), creates the need of evaluating the properties as a way of arbitrating LR, by bringing in an educated opinion (i.e., the appraisers' one).

1.2 Land Readjustment as an urban planning compulsory component

LR is (in Portugal, at least) a compulsory component of the urban plans (i.e., the latter are supposed to manage the issue of equal treatment of properties and of their contribution to financially balanced plans). It seems expectable that the issues LR deals with will be a compulsory component of urban plans even in the jurisdictions where it still isn't.

Urban plans can however deal with those issues without LR formulae, if the issues are duly dealt with in a voluntary deed that comprehends all the abridged property owners. For this purpose the urban design solutions as well as the allocation of their costs and benefits, have to be made consensual among all the stakeholders, namely those that have direct spatial concerns (i.e., property owners and municipalities).

The abovementioned framework (i.e., the urban plan that may dispense with the compulsory LR algorithm since it is substituted by a voluntary deed) has a low probability of occurring without being led by a major local property owner or developer that organizes the necessary bargaining process, under the institutional "umbrella" of an interested municipality. It is also expectable that the major property owner who would be able to lead this operation is himself a developer, as a non-developer property owner would not have the required know-how for the purpose.

Settling the LR issues within an urban plan through the lead of a developer configures an urban development operation as a public-private partnership (PPP). This is ultimately the referral for LR – to find an overall spatial agreement that is acceptable for both private property owners and public bodies. In the case of a non-PPP urban plan the operation is led by the urban design team and not by a developer.

The latter circumstance (compulsory LR without the public-private partnership framework) creates the possibility of non-LR-complying plans, i.e., either the urban design or the plan intervention area (size and features) do not allow for the joint requirements of equal treatment and financial balance since the real estate value added by the plan is not enough to pay all the urban design derived costs, to compensate properties that receive under-average net benefits and to allow for a normal business margin for developers.

To avoid such an outcome, urban planning authorities and urban design teams have to be careful on intervention areas delimitation (e.g., avoiding installing an 8 ha urban park with land to be purchased, within a low-density detailed plan with 16 ha intervention area) and accept trade-offs between private property concerns and public spatial features. The rationale for these trade-offs resides on the *ex ante* analysis of marginal real estate development results.

Real estate knowledge seems therefore fundamental for urban planning under LR requirements.

2. The need for the *ex ante* calculus of real estate value added within the urban plan

2.1 The rationale for value added

The *ex ante* determination of the value added is a core concern either for land readjustment / “perequação” algorithms within urban plans or for urban development through PPP.

The assumption is that the value added is the difference between the “value of the set of properties included in the urban development project once the urban design is settled” (i.e., in *their current condition* but with the development potential defined) and their “value at the outset” (i.e., even if with some future value expectation but without knowing if, when and how, that expectation will be fulfilled, i.e., the expected value has to be discounted for time lag and uncertainty).

The latter value is the value for eminent domain procedures should the property owner refuse to collaborate voluntarily in the urban development project. The property owner is therefore not entitled to a payment greater than the eminent domain value in jurisdictions where the reference for the latter is the fair market value (e.g., as it happens in Portugal).

The inputs for the value added calculus are the real estate values at the outset (which should figure in the analysis as the opportunity cost of the properties allocated to the urban development project), the value of the properties generated by the settled urban design and the total costs of the operations required for the installation of the new urban layout; specific parameters have to be added for the risk-free opportunity cost of capital and for risk (i.e., discount rate), for time schedule (i.e., distribution of costs and benefits along time) and for the developer's business margin.

The determination of the value added therefore grossly derives from the following steps:

- + value of the properties generated by the settled urban design
- total costs required to achieve the urban layout that corresponds to the new properties
- financial costs
- developer's business margin
- initial value of the set of existing properties before the launching of the urban plan
- = value added by the urban design within the institutional framework of urban planning

The developer's business margin role in the analysis seems straightforward within the framework of a PPP; under an urban plan which is led by the urban authorities the developer's margin may be the same as it would be in a PPP through assuming that the business margin required by the developer concerned with the development of each individual property is equal to the global developer's one (in the PPP). Otherwise, it could be the weighted (e.g., by each property share in the post-plan global value) average of the business margins along every developable property (e.g., smaller developments might require a higher percent margin since its absolute value might be very small).

This methodological framework allows for the determination of the Net Present Value (NPV) of the operation which is indeed its value added, since all the costs have been taken into account, even the property and funding capital opportunity costs. A negative NPV would evidence an unfeasible plan and would point at the need of urban design revision; simulation would be possible.

The Internal Rate of Return (IRR) of the operation may also be calculated and its role in the process is for checking if the global operation achieves the expectable return of a real estate development business. An IRR falling under the lower limit of an interval for the expectable IRR should also determine the urban design revision.

2.2 The real estate development valuation method as the basis for determining value added

The referral for the abovementioned methodology is the development valuation method for property appraisal also known as the residual method valuation. It addresses property with a significant development potential which is the case of a set of properties considered to deserve being dealt with under an urban plan.

This valuation method intends to provide the value of the property at its current condition, with a still unsettled development potential, targeting informed developers that might buy it. The residual value of the property in its initial condition, found after having deducted all costs from the gross capital income of the operation, has to be compatible with the normal return benchmarks for developers.

This residual value of the set of all properties within the urban plan territory, but with a still unsettled development possibility, obtained through the development (residual) valuation method, should be envisaged as their opportunity cost. The value added by the plan is the final NPV associated to that initial value of the set of properties, once return benchmarks (e.g., IRR) have been taken into account.

The difficulties on the determination of this opportunity cost are the current ones for development valuation, namely on choosing parameters for the analysis (e.g., discount rates). It is also an issue the choice of the development possibility (i.e., the “highest and best use”) to be considered for each property before the plan; it should be conceived under a best practices approach, its uncertainty being dealt with through the discount rates.

2.3 Specific questions arising from this approach

The *ex ante* value added we are talking about is therefore the difference between the expected value of the properties comprehended by the operation once the urban design has been implemented and their value in the moment prior to the launching (i.e., prior to design) of the operation, minus the costs incurred in-between.

The criterion for allocating the value added among property owners is their share of the overall initial property value. They will therefore implicitly pay the incurred costs according to this criterion and these incurred costs include whatever the urban authorities (municipality) may have bargained as planning gains.

We may however consider that there are three moments, within the route to an efficient urban design, that provide for interesting arguments. The 1st is the assessment of initial property values, the 2nd is the planning gains value and entitlement and the 3rd is the final value of the post-plan properties when the latter are allocated to different uses and occupation typologies.

The 1st and 3rd moments are supposed to be solved through real estate valuations. The initial property values should be their “real” value, though it incorporates undefined (positive) development expectations (derived from the fact that if an urban plan is being launched it is because an important development potential is consensually assigned to the zone). The incorporation of expectations into the initial value may therefore require specific procedures to achieve consensus on the subject. The final value may also require more than what standard real estate valuations normally give, since analysis of the relative behavior of future uses or of demand trends may make sense and no direct empirical evidence will be available (evidence being what standard real estate valuations rely upon).

The 2nd moment – i.e., planning gains bargaining and entitlement – concerns a negotiation through which the “virtual” developer (one or more) voluntarily accepts to deliver to the municipality more than he is compelled to [Ratcliffe, 2003] (the compulsory deliveries being the technical planning obligations that may derive from the law above the urban plan regulations). The spatial components (i.e., there may be others) of these public-intended planning gains are integrated in the urban design and, if not complying with NPV and IRR as mentioned above, will have to be traded-off against higher private business outcomes.

The urban authorities may benchmark, whenever their institutional power is determinant for achieving a significant change in the development status of properties (or for providing a “fast track” to the endeavored status) [Altermann, 2012], the minimum business margin the developer will accept – and not the average one – in order to maximize the value they want to capture.

3. Case study

3.1 Value added

To illustrate this role of real estate in urban planning we chose a Portuguese rural land site in the Lisbon Metropolitan Area, being submitted to a detail plan to allow for hosting a growing urban housing demand.

The urban design for the plan area considered 129.797 sqm of land lots of which 66.951 sqm corresponded to new land lots created by the urban design. The overall area was 307.017 sqm; the remaining non-land lots areas corresponded to public uses (more than 57% of the intervention area).

The total costs of the plan were estimated at 5.561.670 €, which includes 1.551.433 € for private land to be purchased for public use purposes. The latter amount corresponds to 24,24 €/sqm for an area of 64.003 sqm. The remaining land for public uses derived from urban design options is obtained through law norms that are independent from (i.e, above) the plan options and that require no compensation either to property owners that decide to develop or to developers.

The unitary cost of 24,24 €/sqm for land to be purchased for public uses is the weighted (by area) average of prior-to-plan local values for land, taking into account the classification the municipal plan (which norms are compulsory for the detailed plan) assigns to each plot, as follows:

Rural land <i>non-aedificandi</i>	2€/sqm	
Rural land – construction allowed	11€/sqm	(within the existing property)
Developable rural land	32 €/sqm	
Urban land	106 €/sqm	

The overall capital income of the plan was estimated at 15.903.132 €. It corresponds to the land value derived from the detailed plan before subtracting the initial land value (i.e., before urban design) and the spatial execution costs of the plan.

This value was obtained through defining types of land lots and evaluating them to get an average value/sqm for each type. The types were the following:

“Small farms”	10,7 €/sqm	122.292 €/lot
Existing lots (value after plan)	78,5 €/sqm	82.622 €/lot
New lots	46,0 €/sqm	125.432 €/lot
(overall average value)	53,0 €/sqm	

The initial land value was estimated at 9.865.138 €, evidencing the positive expectations of property owners in the intervention area, derived from the location (regional accessibility) and from the non-detailed land classification in the existing municipal plan.

The gross (i.e., before deducting the spatial execution costs of the plan) land value-added is therefore 6.037.993 € (i.e., final value minus opportunity costs of existing property).

The net value added by the plan is close to 476.000 € (gross land value-added 6.037.993 € minus execution costs 5.561.700 €). The first estimation of the value added by the plan was negative and the urban design had to be duly revised.

We must besides be aware that the plan value added is an economic reference but it is not a financial one, since it gives no information on the plan cash-flows which depend on the timing of the private development decisions (the positive contributions for the operation by properties entitled to them will generally be due on permit submissions).

The urban authorities might lead negotiations aiming at mitigating public negative cash-flows, for instance, through searching for the private contributions to take place at the date (or close to it) of on-site public investments on infrastructure.

3.2 LR algorithm

The LR algorithm through which the plan benefits are shared among the properties, taking into account the need to eliminate the costs to the public budgets (or, at least, mitigate them, down to a required level), relied on the criterion of “allocation of urbanization costs according to construction rights” (the latter being taken as a “proxy” for the plan benefits).

The choice of this criterion (one that the law explicitly mentions) needs a clear definition of urbanization costs. The choice of construction rights, as a proxy for the benefits, requires property-use uniformity along the plan area and is indeed an escape from the swampy discussion on future property values. These are issues where fine tuning is needed.

The value obtained for the contribution from the new land lots was 71 €/sqm of gross construction area above surface. This is the outcome of dividing 5.561.700 € (the plan execution costs) by 78.168 sqm (the gross construction area above surface of the new lots). The contribution aims at paying the urbanization costs.

The existing land lots prior to the plan will pay the same contribution if (and when) they want to increase their existing construction area; the contribution will refer to the additional area. This only happens in the cases where the plan permits additional construction area in the previously existing lots.

4. Conclusion

The main conclusion is the dependence on real estate that contemporary urban planning finds itself in. Urban design has to match real estate to fulfill the legal aims of the plans.

The mismatch between urban design and real estate development, whenever it exists, may result in the need to revise the former. This makes real estate an intrinsic part of urban planning on a par with urban design.

We should however ask which is the real estate field that may assume this role in urban planning? The answer points at real estate development, i.e., a deep and experienced knowledge on *real estate development* seems to be indispensable for an effective urban design within the formal framework of an urban plan.

Real estate development aims at maximizing the developer's business margin which is itself a good rationale for an urban design team when searching for enough value added to comply with current LR obligations. This rationale doesn't mean the urban design team would be allowed to ignore the public aims of the urban plan, only that it should trade them off against real estate value added as a *sine qua non* condition for delivering a feasible plan.

The principles of the real estate valuation development method are the framework for a methodology to "knit" urban design to real estate development and, through simulation, to analyze the possible trade-offs between them.

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