Urban form versus economic interests: an unstable balance

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The main purpose of this article consists in making a reflection on the relations between the planning decisions on urban form and the interests of the different agents involved in development processes (where the economic interests stand out) and respective impact on urban land rent and, therefore, on proper real estate values.

The increasing economic pressures on urban morphologies and building typologies simultaneously influence and are influenced by planning processes and practices. Contrary to what currently occurs in planning frameworks, economic issues are rarely dealt with in Portuguese plans. Thus the author contends that plans should cease to be strictly-focused on physical concerns, and enlarge their scope for intervention. She argues that physical and economic issues shouldn't proceed different ways in planning, and proposes that plans should include measures to assess the economic impact they exert on urban realities and vice versa. Some proposals are made for these measures, based on econometric procedures, in order to generate alternative analysis and feasible surplus values taxation devices, complying with morphological and typological patterns of land use, but strengthening synergistic development processes.

Keywords: urban land rent; land and real estate agents; surplus values; economic impacts of planning; econometrics

1 Introduction

Social life of individuals proceeds through a set of inter-relations with spatial expression (Santo, 2006). Territory is a first-order good and, within this scope, local territorialities assume increasing relevance.

Municipal decision-makers have been intervening in property markets in order to foster private free initiative, through concession of permits and provision of favourable development conditions. But territorial users are becoming more and more dependent on state and municipal institutions, and on concessionary firms that explore infrastructures and services networks (Pardal, 2004) that, in practical matters, charge monopoly prices and rents (Pardal, 2006b). Despite property markets are strongly shaped by territorial plans, and by the intervention of those organisms, the urbanism shouldn't be mastered by a strictly market rationale, as it is a public service under the auspices of the state and of the municipalities (Pardal, 2003). Besides, whenever municipal powers take planning decisions, whether at the level of plans or planning processes – concerning land use changes, urban perimeters, land property division; increases in the number of autonomous plots, expansion of building capacity, and public works - they potentially trigger effects on land uses and respective values.

Within this context, the public administration holds the responsibility to provide land for the different kinds of uses (Pardal, 2006a), making sure that their decisions don't benefit certain groups at the expense of the general social interest. A strategic territorial management is required, that includes a whole inter-related assessment of engineering, economics, and law perspectives (Santo, 2006), as

a guarantee of justice, trust and technical and scientific accuracy. Thus changes in land uses and respective intensities should be monitored and rendered operational, in order to articulate sustainable economic and social policies. These interventions involve the development of a set of tools to monitor and control property price levels (and respective evolution) by municipal powers, based on the comprehension of its structure, operation and local characteristics.

2 Bibliographic framework

2.1 The interests of the different agents in property markets

The production and allocation of urban space result from the inter-relations of complex decisions taken by different economic agents. The search for land – and its price – depends on anticipated space needs for family lodging, and for industrial, trade, and services activities. So the analysis of the roles played by the different property agents[1] becomes increasingly important**.**

In order to increase land values, landowners often resort to hoarding and land differentiation strategies. Development agents, promoters and builders operate at the production and trade stages, in order to reach as much profit as they manage to. Real estate agents, valuers, consultants and other professionals foster trade volume and efficiency through the articulation between buyers and sellers, as they render easier the circulation of information concerning real estate availability, characteristics and location. Final consumers (whether owners or leaseholders) worry about real estate quality and prices. Credit institutions, by their turn, perform a cash-flow regulation role within property markets. Finally, regional and local authorities are responsible for the application of laws and regulations; for tax collection, for control over land use changes and respective intensities, and for decisions on investments in infrastructures, equipments and public spaces.

Municipal interventions foster urban development processes, and render flexible their administrative control. However, they are also pressured by prevailing political and economic forces (Feagin, 1982, 1983; Form, 1954; Rydin, 1984; Short et al., 1986; Tang et al., 2000). Sometimes agents try to escape from the strict application of planning and fiscal regulations, and enter into negotiations with the authorities in order to change zoning borders and land use parameters, to transfer development rights, or to slack tax collection (Wakeford, 1990). The proper characteristics of the property markets – namely the limited number of trade participants, the lack of transparency and a certain monopoly degree detained by some market agents - cherish these behaviours. All these reasons together nourish speculative processes, and lead the majority of surplus-values generated by planning administrative decisions to escape authorities, not being allocated for the general social interest.

2.2 The absence of economic concerns in Portuguese territorial plans

Portuguese territorial plans have systematically ignored the operation of property markets[2] (Pardal, 2006a), and the effects they exert on these markets, namely in what concerns: (i) demand and supply segmentation, (ii) the formation of land and real estate prices; and (iii) how land should perform its social function, respecting property rights (Pardal, 2006b). There exists a high search for

new territorial forms; rules concerning the creation, computation and distribution of surplus values aren't accurately settled; and the planning system doesn't clearly delimitate central and local remits (both of them depend on discontextualised and arbitrary technical views). Thus the assignment of uses, the formation of values, and the appropriation of land become obscure, and many interests operate on the margin of law, what entangles in market uncertainty and distrust. On the one hand landowners search for the maximum profit when they sell land to developers, what increases the latter's risk. On the other hand, promoters also try to appropriate as much surplus-values as possible, what is supported on proper legislation. The state and municipalities – through taxation – and banks – through credit systems – also look forward to appropriate surplus values on their behalf (Pardal et al., 1996).

2.3 How planning can retrieve surplus values

Planning interventions on property markets (Dunse and Jones, 2002) are performed through planning, regulations, administrative proceedings, or fiscal mechanisms. These interventions are implemented through (Ihlanfeldt and Raper, 1990; Rebelo, 2009, 2010): zoning ordinances; legal incentives or restrictions; property taxation; control over land use changes; urbanization costs; and decisions on investments on infrastructures, equipments and public spaces. As these interventions rule development processes (Ihlanfeldt and Raper, 1990), they impact on the physical form, the urban morphologies and the building typologies, as well as on the economic-territorial distribution.

Zoning policies (Ihlanfeldt and Raper, 1990) shape real estate supply, namely through either the prohibition or promotion of respective concentration, or through raised urbanization costs – that may result either from the shortage of proper land, or from the lack of infra-structured land. The United States of America, Canada and several Latino-American countries manage to indirectly control real estate price and rent levels (Rebelo, 2009) through the application of different surplus values taxation mechanisms, and different urban policy regulation tools. Incentive or restriction policies, control over land use changes, urbanization costs or investment decisions – implemented, namely, through fiscal incentives, zoning or building regulations, and subsidy awarding to encourage real estate investment in certain spaces -, besides regulating the capital flow between the economic cycles, guide private investments to certain locations and respective neighbourhoods, thus conditioning respective profitability (Hanink and Cromley, 1998; Feagin, 1983).

The value of a certain land plot is shaped both by plans and by the economic dynamics. Thus it comprises a territorial-based component (that depends on its juridical status, location, dimension, and use authorized by territorial plans), and another component that results from the investments of its owner (Lee, 2003; Arnott and Petrova, 2006; Pardal, 2004, 2006a). The territorial-based value depends on the land use policy that rules the juridical, economic, administrative and functional land appropriation, and settles the reasonable price that should be supported by its use (Lee, 2003; Pardal, 2004, 2006a).

The pure surplus values correspond to the accrued value of a plot that results from the administrative remit to decide on urbanization programmes (that correspond to the qualification of territorial systems), but part of them may translate profits or property valuations that result from owner's investments (Pardal et al., 1996). It consists in ascribing it an index expressed as a building

area, or as the number of autonomous parcels for housing, offices or trade purposes, and it can only be assessed for specific plots, within a determinate market context. Public works may also potentially engender increases in real estate values[3].

When public entities buy land that, afterwards, develop and send at public auctions, they manage to keep beforehand[4] the surplus values generated by their own decisions on behalf of the general social interest. This procedure disciplines urban growth, balances land markets, and doesn't trigger conflicting situations (Pardal et al, 1996). However, if the production of development land ceases to be the sole responsibility of public administration, then it faces greater difficulties to rule land markets and urban growth, and consequently looses its ability to keep the resulting surplus values. In the current system, where the majority of development initiatives are lead by private agents, surplus values merge with costs of infrastructures and with additional profits, thus its effective retention for the general social benefit isn't possible any more (Pardal, 2004, 2006a), what is often worsen by difficulties to distinguish rent from profit (Pardal et al., 1996).

In many European countries, speculative prices are kept under control through land exchange: municipalities provide land plots when alternative market plots reach excessive high prices (Correia, 1993).

In property markets, surplus values may be retrieved through taxation (Smolka and Amborski, 2003). As this process is prone to engender unbalanced situations as compared with the taxation of other property assets, its justification funds, on the one hand, on the guarantee of possession rights given by the public administration to landowners and, on the other hand, on the services rendered by infrastructures´ maintenance, and on the support to the settlement structure that justifies land use and economic value. From this perspective, property taxes rely on the benefits attached to each kind of property, and depend on its territorial-based value. In the United States of America, Canada and Latino-American countries different surplus values appropriation tools, as well as urban planning regulation tools, are used by public administration. They span from traditional taxes to urbanization fees, in varying percentages, according to countries (Smolka and Amborski, 2003).

In order to make sure of the neutrality of owners´ interests in relation to uses or intensity of uses proposed in plans, the surplus-values tax should solely have an effect on the territorial-base value (that is independent from investments and improvements that result from the owner's initiatives). So a balanced land use policy should proceed that allows the settlement of parameters, the monitoring and control of surplus values´ creation and distribution, avoiding and fighting against speculative behaviours (Pardal, 2004, 2006a, 2006b). The amounts that add or decrease to the plot value as a consequence of use classifications, of building coefficients, or of other ruling factors that accrue from plans or decisions that impact property values should be clearly defined (Pardal et al., 1996; Pardal, 2006a, 2006b). Also real estate prices should be kept under control, thus avoiding the opportunistic appropriation of speculative profits by promoters (Arnott and Petrova, 2006; Lee, 2003; Pardal, 2006a, 2006b). If these transparent procedures aren't issued, the political, technical and administrative agents that intervene in land use regulation and licensing will strive against one another for changes in land use and respective intensities (Pardal, 2006a).

3 A methodological proposal to compute surplus values

In order to ensure the availability of land for the different functional uses at reasonable prices, avoiding the generation of excessive profits in property markets, and guaranteeing the neutrality of landowners´ interests, planning should intervene on property laws, and develop property assessment tools for any places, uses and intensities of use, at any time.

Herein is exposed a methodology that enables the assessment and quantification of surplus values, in order to support more efficient urban planning interventions in monitoring, evaluation, control, taxation, and distribution of surplus-values engendered by territorial plans and regulations. This methodology consists, on the one hand, of the development and implementation of a management information system, and on the other, of the development of an original way to compute surplus values and additional profits in land aimed at different functional uses, based on a hedonic model for real estate and on average development costs (Figure 1):

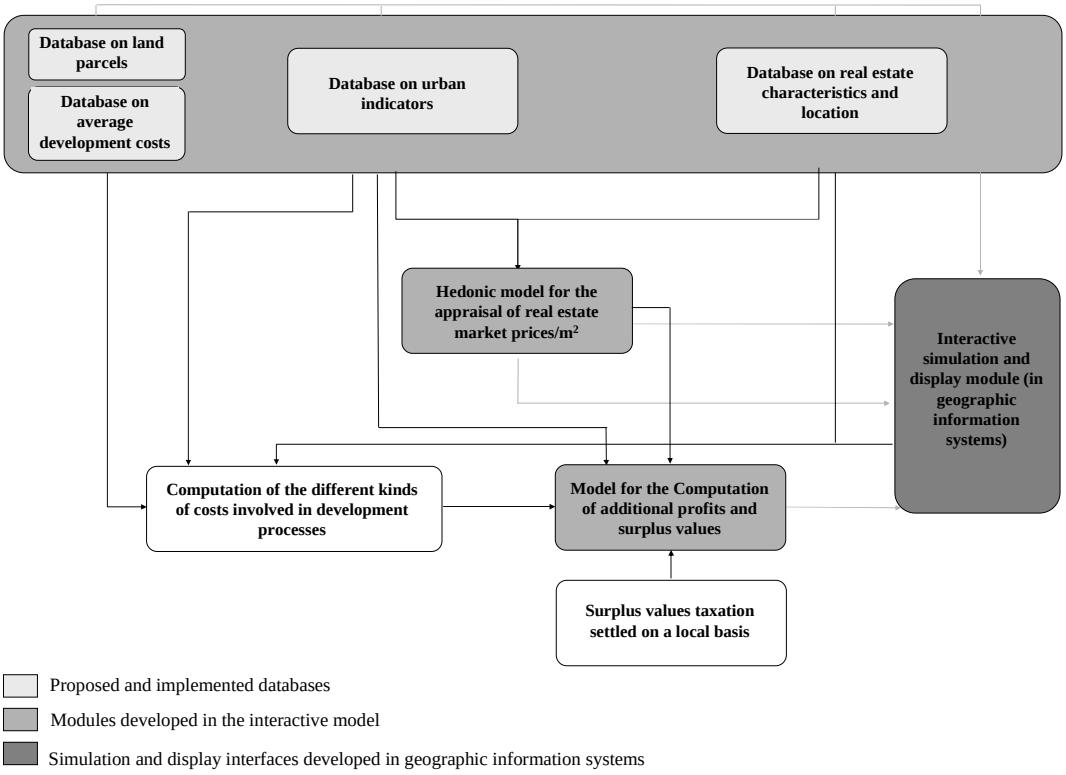

Figure 1. Model to compute the extra-profit and surplus values that accrue from planning decisions.

The management information system developed and implemented in the research reported in this article is made up by the following four databases:

1. Database on land parcels, that enables the monitoring of the majority of variables concerning land characteristics and uses allowed by territorial plans and other land use policy tools. It includes the following indicators: dimension of the plots; geomorphologic characteristics; absolute and relative location in relation to the main centres and sub-centres; licensed land use; (current or anticipated) property division; (real or anticipated)

taxes; and indirect surplus-values that accrue from infrastructures, equipments, public services and other undertakings.

2. Database on urban indicators, that include indicators that shape real estate supply, demand and prices (some accrue from market operation and others are under municipal authorities´ control): geo-referenced location of real estate units; applicable planning rules (concerning, namely, zoning ordinances and land use coefficients); location indexes of different kinds of functions (that show their relative spatial concentration as compared with the whole territory); weighted distance to the main urban centres; tendency that activities exhibit to remain in the same location, or to change to a new location; public investments in communications and transports; culture, sports and leisure time; public health utilities; environment; education; housing; economic development and tourism; civil protection; social action; and urbanistic qualification; number and density of inhabitants in each block; and date.

3. Database on average development costs, that includes land acquisition and related costs; urbanization costs; building costs; management, administrative and marketing costs; financial costs; and property taxes:

- Building land costs/m^2 are computed taking as a base the selling prices of plots for housing traded at public auction – which approach land prices for social uses. These prices are, then, weighted according to the average percentage that land for different functional uses (for industrial, trade or services purposes) exceed land for housing purposes. Land acquisition costs include other parcels, expressed as percentages of building land costs/m^2: municipal transfer tax (10%); stamp duty (0.4%); property registration costs (0.5%); notarized costs (0.5%); and lawyer honoraries (0.5%).
- Development costs/m^2, that represents the costs of land infrastructures and participation in public investments, are computed according to the municipal tax on urban infrastructures.
- Building costs/m^2 include not only proper construction costs (that approach selling prices/m^2 of common housing, annually published as a decree in the government diary), but also costs of equipments (heating systems, lifts and special foundations); building honoraries; different contingent costs (that generally go up to 5% of the total costs); and building inflation.
- Management, administrative and marketing costs/m^2 were assumed to amount to 0.8% of total construction costs/m^2. It was additionally considered a 20% added value rate upon those costs.
- As far as financial costs/m^2 are concerned, it was considered a 6.2% rate of annual capital cost, and 50% of borrowed capital for land acquisition purposes, and 50% of borrowed capital for commercialization

purposes (commercialization costs were assumed to amount to 0.5% of total building costs).

— The municipal tax on property depends on the kind of use[5].

4. Database on real estate characteristics and location, that gathers systematized information on the characteristics, location, morphology, typology, and kinds of uses of real estate units and respective buildings.

The planning regulations and restrictions allow the construction of a certain area or volume in each land plot. The total expected income may be computed by the product between the total allowed building area and the selling price of the real estate product/m^2. According to the functional use, characteristics and location, the selling price/m^2 may be anticipated by a hedonic model that expresses it as a function of the indicators systematised in the urban management information system (Rebelo, 2009; 2010). This model easily fits new and upgraded information, thus it may be reformulated and used as a continuous monitoring system.

The difference between the land market value and the land cost based on public auction sales of land plots with similar characteristics and locations includes two distinct components: the additional profit (difference between the land patrimonial value[6] and the land cost based on public auction sales), and the surplus value (difference between the land market value and respective patrimonial value). The land market value is given by the difference between the total expected income and the set of anticipated urbanization, construction, management, administrative marketing, and financial costs, taxes and a normal profit margin, and expressed as a multiple of those total costs[7]) (Rebelo, 2003, 2009). The patrimonial value of building land is computed according to the municipal tax on property[8] (Rebelo, 2009): it is given by the sum of the value of the buildings´ implantation land with the value of building-adjacent land. The value of buildings´ implantation surface, by its turn, spans between 15% and 45% of building costs (this percentage already includes the location characteristics).

4 Case study: the office market in Oporto city

The developed hedonic model expresses offices selling price/m^2 as a function of the following urbanistic variables (see Rebelo, 2009, 2010): spatial location of offices; zoning and land use coefficients; location indexes of office activities; weighted distance to the most recent business district (located on Rotunda of Boavista); temporal inertia of the activities (tendency they have to stay in the same location); public investments; number of people working in the upper tertiary sector; and date.

In Table 1 is presented an excerpt of the database of the different costs involved in offices urbanization and building processes in Oporto city:

Table 1. Different kinds of costs/m^2 involved in land acquisition and building of offices, according to their location in Oporto city (excerpt of the database)

	Land acquisition costs/m^2									Building costs/m^2				Financial costs/m^2				
Address	**Building land costs/m^2 for offices**	**Municipal transfer tax /m^2**	**Stamp duty/m^2**	**Property registration costs/m^2**	**Notarized costs/m^2**	**Lawyer honoraries/m^2**	**VAT on lawyer honoraries/m^2**	**Urbanization costs/m^2**	**Total land costs/m^2**	**Average office building costs (andspecialized works)/m^2**	**Average costs of building garages /m^2 of office buildings**	**Office buildings´ total cosrs/m^2**	**Management, administrative and marketing costs/m^2**	**Financial costs of land acquisition/m^2**	**Financial costs of trade/m^2**	**Total financial costs/m^2**	**Municipal tax on property/m^2**	**Total costs/m^2**
95 RUA JOAO BAPTISTA LAVANHA R	11,5	,2	0	2	2	2	2	,5	2,0	5,0	,8	8,8	7	,4	1	,4	0,8	,6
ALAMEDA ECA QUEIROS AL	,1,5	,2	8	1	1	1	2	,5	8,4	5,0	,8	8,8	7	,3	1	,4	0,770	,0
RGO ADRO LG	11,5	,2	1	4	4	4	2	,5	6,8	5,0	,8	8,8	7	0,7	1	,8	0,770	,8
7762 ESTRADA CUNVALACAO EST	6,0	,6	9	1	1	1	2	,5	4,6	5,0	,8	8,8	7	,8	1	,9	770	5,7
7742 ESTRADA CUNVALACAO EST	6,0	,6	9	1	1	1	2	,5	4,6	5,0	,8	8,8	7	,8	1	,9	770	5,7
RUA TENENTE VALADIM R	0,0	,0	2	5	5	5	2	,5	6,3	5,0	,8	8,8	7	1,0	1	,1	770	0,6
RUA INFANTE SANTO R	11,5	,2	0	2	2	2	2	,5	2,0	5,0	,8	8,8	7	,4	1	,4	770	4,6
646 RUA PROF REIA ARAUJO R	,1,5	,2	8	1	1	1	2	,5	8,4	5,0	,8	8,8	7	,3	1	,4	770	0,0
RUA ALEGRIA R	6,0	,6	9	1	1	1	2	,5	4,6	5,0	,8	8,8	7	,8	1	,9	770	5,7
RACA FLORES PC	11,5	,2	1	4	4	4	2	,5	6,8	5,0	,8	8,8	7	0,7	1	,8	,8	0,8
48 LARGO FONTINHA LG	11,5	,2	1	4	4	4	2	,5	6,8	5,0	,8	8,8	7	0,7	1	,8	770	0,8
46 CAMPO TIRES PATRIA CPO	11,5	,2	1	4	4	4	2	,5	6,8	5,0	,8	8,8	7	0,7	1	,8	770	0,8
RUA ALEGRIA R	6,0	,6	9	1	1	1	2	,5	4,6	5,0	,8	8,8	7	,8	1	,9	770	5,7
RUA EUGENIO CASTRO R	0,0	,0	2	5	5	5	2	,5	6,3	5,0	,8	8,8	7	1,0	1	,1	770	0,6
PRACA PEDRA VERDE PC	5,0	,5	8	0	0	0	2	,5	1,1	5,0	,8	8,8	7	,1	1	,2	770	2,5
RUA EUGENIO CASTRO R	0,0	,0	2	5	5	5	2	,5	6,3	5,0	,8	8,8	7	1,0	1	,1	770	0,6
6 LARGO PROF L SALAZAR LG	11,5	,2	1	4	4	4	2	,5	6,8	5,0	,8	8,8	7	0,7	1	,8	770	0,8
ALAMEDA ECA QUEIROS AL	,1,5	,2	8	1	1	1	2	,5	8,4	5,0	,8	8,8	7	,3	1	,4	770	0,0
0 RUA SOEIRO MENDES R	5,0	,5	8	0	0	0	2	,5	1,1	5,0	,8	8,8	7	,1	1	,2	770	2,5
PRACA PEDRA VERDE PC	5,0	,5	8	0	0	0	2	,5	1,1	5,0	,8	8,8	7	,1	1	,2	770	2,5
ALAMEDA ECA QUEIROS AL	,1,5	,2	8	1	1	1	2	,5	8,4	5,0	,8	8,8	7	,3	1	,4	770	0,0
PRACA PEDRA VERDE PC	5,0	,5	8	0	0	0	2	,5	1,1	5,0	,8	8,8	7	,1	1	,2	770	2,5
174 CAMPO TIRES PATRIA CPO	11,5	,2	1	4	4	4	2	,5	6,8	5,0	,8	8,8	7	0,7	1	,8	770	0,8
ALAMEDA ECA QUEIROS AL	,1,5	,2	8	1	1	1	2	,5	8,4	5,0	,8	8,8	7	,3	1	,4	770	0,0
116 PRACA	6,0	,6	9	1	1	1	2	,5	4,6	5,0	,8	8,8	7	,8	1	,9	770	5,7

MARQUES POMBAL PC																
1 LARGO JOSE OREIRA SILVA LG	6,0	,6	9	1	1	1	2	,5	4,6	5,0	,8	8,8	7	,8	1	,9	770	6,7

Unit: euros

In Table 2 is presented the computation of the additional profits and surplus values for some selected offices in Oporto city, according to their location:

Table 2. Computation of the additional profits and surplus values in some selected offices in Oporto city (excerpt from the database)

Address	**Land use coefficient**	**Number of floors**	**Anticipated selling prices/m^2 (euros)**	**60% of total income/m^2**	**Land market value/m^2 (according to the hedonic model) [1]**	**Land costs/m^2 (based on sales at public auction) [2]**	**Land patrimonial value/m^2 [3]**	**Additional profit = Land patrimonial value/m^2 – Land costs/m^2 [3]-[2]**	**Surplus-values = Land market value/m^2 – Land patrimonial value/m^2 [1]-[3]**
8 RUA BRAS CUBAS R	5	1,85	1052,4	1169,3	855,5	211,5	705,1	493,6	150,4
57 RUA FLORES R	5	1,85	858,0	953,3	691,4	281,5	653,1	371,6	38,3
55 RUA DR RICARDO JORGE R	5	1,85	1377,0	1530,0	1268,1	281,5	659,2	377,7	608,9
49 RUA FORMOSA R	5	1,85	1429,5	1588,3	1285,4	226,0	659,5	433,5	625,9
455 COMBATENTES GRANDE GUERRA AVE	5	1,85	1160,3	1289,2	975,5	211,5	705,8	494,3	269,7
433 RUA NOSSA SENHORA FATIMA R	5	1,85	1436,0	1595,6	1340,0	290,0	637,4	347,4	702,6
411 RUA CASTELOS R	5	1,85	1362,1	1513,5	1290,5	290,0	753,8	463,8	536,7
393 RUA ALEGRIA R	5	1,85	1472,4	1636,0	1332,9	226,0	696,5	470,5	636,4
35 RUA LIMA JUNIOR R	5	1,85	1284,0	1426,7	1074,0	159,0	756,2	597,2	317,8
2533 FERNAO MAGALHAES AVE	5	1,85	935,3	1039,2	686,5	159,0	758,4	599,4	-71,9
242 RUA S BRAS R	5	1,85	1504,2	1671,3	1409,5	281,5	649	367,5	760,5
227 RUA PINTO BESSA R	5	1,85	1260,8	1400,9	1059,0	173,5	745	571,5	314,0
203 RUA GUEDES AZEVEDO R	5	1,85	1554,3	1726,9	1465,1	281,5	645,2	363,7	819,9
1395 RUA CONSTITUICAO R	5	1,85	1304,9	1449,9	1146,9	226,0	694,3	468,3	452,6

Unit: euros

5 Conclusions

In this article were carried on some reflections of the consequences that urban planning decisions on urban morphologies and building typologies exert on land and real estate economic values, considering planning regulations and tools, as well as the behaviours of property agents.

It was additionally proposed the setting of an urban management information system, and a methodology was developed for the computation of surplus-values that accrue from planning decisions. It is expected this research contributes to the incorporation of economic issues in

territorial plans, simultaneously promoting the private initiative but making sure planning is able to keep the social value of land.

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Endnotes

[1] These include landowners, development agents, promoters and builders, real estate mediators, final owners or leaseholders, credit institutions and public authorities.

[2] Namely in what concerns the great variability of land and real estate prices.

[3] The surplus values generated by public works are called non-pure.

[4] Before land enters the competitive market.

[5] The alternative uses may be housing, trade, industry and equipments.

[6] The land patrimonial value represents its territorial-base value.

[7] However, as it was admitted that 60% of a certain area was assigned to the studied use, and only 40% to the remaining uses (including public spaces), only 60% of the total income was considered.

[8] The municipal tax on property is regulated by the decree law nº 287/2003 (the official valuation code) that settles the parameters for the computation of reasonable real estate prices/m^2, based on the application of socially-oriented land policy principles (Pardal, 2006b).