Chapter 13

How Knowledge on Land Values Influences Rural-Urban Development Processes

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13.1. Introduction

Questions concerning territorial planning – availability of land for different uses at reasonable prices, quality of development projects, optimal plans, network exploration, scheduling of decisions, and confidence – are very important for regional and local economies. But currently in Portugal an immoderate greed has emerged (Talixa, 2008) in the form of land changes from rural to urban use, and in the intensification of land use. There have been inevitable consequences at the regional and urban levels, as far as the following issues are concerned: (i) municipal policies and planning decisions have not succeeded in reaching a sustained balance between public and private land interests (planning has failed to properly stimulate private initiatives, and land has not been able to accomplish its social function); (ii) city centres have been progressively shrinking as a counterpart of the sprawl of the urban peripheries; and, finally, (iii) the lack of control over land and real estate prices has been nourishing speculative processes.

Thus, regional and urban planning requires a monitoring system and decision tools in order to control and distribute the surplus-values that result from planning decisions and administrative interventions on the territory. It is also important to exert control on real estate final prices, preventing surplus-values from opportunistically resulting in exaggerated and undue profits.

Better monitoring and control of surplus-values will strengthen the operation of planning bodies in pursuing their strategic goals refers, mainly, to: (i) the provision of land for different functional uses at acceptable prices; (ii) the enhancement of private initiatives of promoters, builders and sellers, by asserting the neutrality of landowner's interests in the face of changes in use and in intensities of use anticipated by planning; and (iii) the application of surplus-values taxes on behalf of the population's interests, avoiding excessive profits upstream and downstream the supply and demand chain of development land. Thus regional and urban planning needs to intervene by means of plans and regulations, and property taxation, on the one hand, and develop property appraisal tools suited to location, uses and intensities of use, on the other.This chapter proposes a methodology for the monitoring, evaluation and computation of surplus-values generated by planning and administrative decisions on the territory, thus supporting more

efficient interventions of regional and local planning with taxation devices. Section 13.2 begins with a brief analysis of the concepts of land rent and surplus-values and respective underlying variables. Then, in Section 13.3, the consequences of different kinds of public interventions with regard to the control of property values are assessed in terms of the surplus-values they generate. In Section 13.4 the behaviour of the different agents involved in property markets (including public administration bodies) is analysed. In Section 13.5 a model (composed of a set of tools) is proposed for the computation of land rent and surplus-values (applied to the office market in Oporto city). Finally in Section 13.6 some critical reflections are enlarged with respect to the impact of the proposed regional and urban management information system and methodology on the control of the distribution of surplus-values generated by administrative planning decisions, taking into consideration the different agents involved in property markets.

13.2. Literature Review

13.2.1. Urban land rent and its respective underlying variables

Land and real estate prices have a marked cause-and-effect relation (Clark, 1995; Granelle, 1970; LeFeber, 1958; Thoman et al., 1968). The cost of land is a component of real estate prices, mainly due to: (i) the heterogeneous characteristics of the different plots of land;(ii) competition for land uses; (iii) planning regulations; and (iv) location choices of firms and families (Dunn, 1954; LaFountain, 2005; Needham, 1981). In addition, retention strategies, often adopted by landowners, block land supply and, as a result, generate absolute and monopoly rents that add to real estate production costs (Harvey, 1985). In Portugal, within the framework of a proper land use policy, land value should represent, at most, 15 per cent of the final real estate product value (however, in cases of exceptional centrality or attractiveness it may reach 25 per cent (Pardal, 2006a)). On the other hand, whenever there is competition for land use, the expected prices of real estate assets influence the prices of land plots (George, 1960; Ricardo, 1962; Smith, 1843).

According to these interconnections, land costs can be split into two parts: (i) the transference cost that corresponds to the capitalized income that results from land's productive use; and (ii) the economic rent. Whereas the transference cost is a part of real estate costs (and, thus, it enters into their prices), the economic rent is given by the difference between the market price of land and its transference cost (Chacholíades, 1986). Economic land rent includes, therefore, a surplus rent (in relation to the transference cost), and an additional profit margin, and, in practice, it is very difficult to make an objective distinction between rent and profit. That is why planning should control land profit generation, taking into account the land social function, on the one hand, and the need to stimulate initiatives and investments performed by promoters, builders and sellers, on the other (Pardal, 2006a; Rebelo, 2009).

Land values depend on the land's territorial structure, on the one hand, and on the land policy pursued by central and local authorities (Pardal, 2006a), on the other. The discipline of inter-territorial relations and the respect for private property rights is established within this framework (Pardal, 2004, 2006a). Land values are modelled by various factors, namely: (i) private property laws; (ii) taxation over land and real estate; (iii) land uses permitted by territorial plans; (iv) rules for the production of urban land; (v) public and/or private real estate promotion; (vi) renting laws; (vii) credit systems in real estate acquisition; (viii) subsidies for home-ownership purchase; (ix) legislation to support property acquisition; (x) the woodland regime; and (xi) agricultural land structure (Pardal, 2006a).

The main costs underlying real estate price formation, in their turn, relate to: land, development, technical building, management, administrative and marketing costs, financial charges, and property taxes. These costs refer specifically to (Pardal, 2006a): (i) the land's gross residual value (controlled by demand); (ii) the land's geomorphological characteristics; (iii) forested or agricultural land value (regulated by exploration rents, but often modelled by psychological factors); (iv) the plot's location in relation to the main centres and subcentres; (v) the plot's dimension; (vi) property division (that usually involves a rise in land prices); (vii) the licensed use (that depends on a political or administrative decision); (viii) changes in land use and/or in intensity of use (the administrative decision to change agricultural into urban land, or to alter the urban parameters potentially generate surplus-values); (ix) indirect surplus-values (that result from infrastructures, equipment, public services, or other undertakings), (x) demand (split into useful and speculative demand); (xi) land and real estate taxation; and (xii) private investment in building and in other improvements.

13.2.2. Surplus-values and their respective underlying variables

The increased value of property (usually called surplus-values) may be considered from the legal, the urbanist and the urban economics perspective. From the legal point of view, surplus-values are assimilated to capital gains, in order to include them in total income for taxation purposes. In urbanist terms, surplus-values refer to property's increased worth that accrues from public works or from planning decisions, such as: (i) changes from agricultural to urban land uses; (ii) the definition of urban perimeters; (iii) division of land property; (iv) the expansion of the building capabilities; and/or (v) expansion of autonomous land plots (Pardal et al., 1996). According to this point of view, surplus-values can be subdivided into: pure surplus-values (that results from the increase in property worth as a result of a strictly administrative decision), and non-pure surplus-values (that correspond to increased land worth that results from public works).

The state and municipal authorities are the entities theoretically responsible for the control over surplus-values, either through fiscal devices, or through a suitable land use policy, and respective urban management (Correia, 1993). If the public administration is in charge of the production of development land,

the sale in public auction of these urbanized land plots allows the retention of surplus-values that accrue from their own decisions on behalf of society in general. (Gwin et al., 2005; Hong, 1998; Peto, 1997; RICS, 1996). This strengthens their possibilities to dictate the rules of urban growth, and to balance the operation of property markets, thus preventing conflicts with other involved agents (Pardal et al., 1996). But if the production of urban land is granted to private agents, the surplus-values include the costs of infrastructures, and with profits and losses of promoters, builders and sellers. Under these circumstances, the public administration will only manage to levy part of the surplus-values, and only indefinitely and indirectly, because taxation settles on presumed values. Thus public administration loses a basic policy tool to regulate the use of land plots' and urban growth (Correia and Silva, 1987; Pardal, 2006a).

Despite the scope of the law, surplus-values, by definition, should belong to public administration; both overprofits and land use changes or intensification that result from urbanist undertakings will impact on the evolution of land value. Both these aspects enter in the urban economics understanding of surplus-values (this concept parallels the concept of economic land rent). In practical terms, the increase in property worth has two component parts: (i) one depends on its territorial-based value (the plot's location, dimensions and authorized use), results from social and territorial dynamics, and is independent of landowner's investment or worth and of market behaviour, and thus it can be controlled by territorial plans and other land policy tools; and (ii) the other proceeds from trade profit goals, and from current market operation, as well as from improvements in property undertaken by the owner or leaseholder (Pardal et al., 1996). This implies that, besides the difficult determination of urban surplus-values (due to practical problems in computing the effects of certain decisions), it is almost impossible to dissociate them from profits. This consequently shapes the effects of property taxation on urban economics: namely, through the subsequent behaviours and initiatives of private agents (Correia, 1993; Lichfield and Darin-Drabkin, 1980; Smolka and Amborski, 2003). As surplus-values are, by definition, publicly-due, the taxation system needs to ensure that, at least part of their value should be recovered by the public sector whenever they turn up in privately-owned property (Rebelo, 2003), while respecting the private initiative. Thus, within the current framework of territorial economies, taxes should exclusively fall upon the territorial-based value, with proper landmarks, in light of an informed land use policy (Pardal, 2006a). In the United States of America, Canada and the Latin American countries, different surplus-values appropriation tools are used that range from conventional taxes and urbanization rates (with varying tax basis and percentages, according to countries) to different urban policy contol tools, with diverse characteristics (Smolka and Amborski, 2003). In Portugal, the tax on the land's accrued worth (currently called surplus-values tax) falls on profits, urban surplus-values, and other increases in property worth, generated during a period of time prior to the transaction (Pardal et al., 1996). In the computation of surplus-values, property values are appraised according to the parameters of the municipal

tax on real estate I. M. I. (Decree-Law nº 287/2003, of 12th November). Even though these parameters are clear and objective, the identification and distinction of the increased values that proceed from municipal interventions, and those that result from the initiative of promoters, builders and sellers are neither simple nor clear (Pardal et al., 1996).

The fiscal reform that has been currently undertaken in Portugal is based on the English system, where the measurable tax unit (called 'rateable value in the pound') indicates the contribution that each unit value of property should pay and, consequently, surplus-values taxation is perfectly under control (Rebelo, 2003). Eventhough the Portuguese financial management information system already has concrete indicators concerning property prices, use, typology, location, age, and state of preservation (the latter, in its turn, defined as a function of building's age, and dependent on repairs carried out), it would be valuable to have a complementary database with data that enabled the ongoing monitoring and evaluation of real or potential property market prices, for the different kinds of functional land uses, according to the location concerned and characteristics. The combination of data from these two databases should allow, at each moment in time, the evaluation and quantification of the respective surplus-values.

13.2.3. Behaviour of the development agents

The production, allocation and prices of urban land are shaped by rules, opportunities and expectations concerning their expected uses (Aydalot, 1985). Thus, they depend on a complex set of interrelated decisions taken by different economic agents: landowners, promoters/developers/builders, real estate mediators, final buyers or tenants, credit institutions and public authorities. But, because of the main imperfections of property markets (few participants in transactions, lack of transparency, and monopolistic features), part of the surplus-values generated by development processes nourish speculative behaviour, escape authorities, and fail to be used on behalf of society in general.

When pursuing their profit goals, landowners try to appropriate as much surplus-value as they can, and they even try to take a slice of the promoters' profit margin, which increases the risk with which the latter will be faced (Pardal et al., 1996). If a market discipline able to stress property's useful sense and social value does not exist, landowners will pursue passive retention strategies, and other appropriation forms designated to planning uses, which frequently leads to vacant property, ruin and dereliction. This land abandonment maximizes its speculative value, and provides prompt availability of property when the opportunity to sell arises (Pardal, 2006a).

Promoters, builders and sellers play important roles in shaping property markets. They intervene on the production/supply side, and try to increase their profit levels not only through urban development activities, but also through the inclusion of surplus-values in their own profits, often escaping the payment of the tax concerned. In order to maximize the surplus-values within their reach, they

often exert pressures on the public administration in order to: (i) change plans, regulations, building permits or licences to more profitable uses; or (ii) intensify land uses (especially in central urban areas, where the profit margins they may keep from surplus-values are already squeezed, because they were appropriated by a series of mediators and land speculators in search of a quick profit).

Real estate agents (including valuers, consultants and other real estate professionals) are an important source of information concerning real estate location, characteristics, and availability, connecting buyers and sellers and, thus, encouraging property market transactions. They also try to hold part of the surplus-values, especially though percentage commissions on transactions (Rebelo, 2003).

Final consumers are mainly guided by use values and not as much by trade values. The main function of the credit institutions, in their turn, consists in the regulation of the cash flows within the property markets. Usually banks and insurance companies are able to reach higher profit levels through their lending activities, and thus they leverage surplus-values and property inflation.

Finally, the role of local authorities in land use management and control is mainly expressed through: (i) the provision of real estate assets; (ii) zoning regulations; (iii) laws; (iv) taxes; (v) permits for land use changes; and (vi) decisions on investments in infrastructure, equipment and public spaces. The state, autarchies and the proper credit institutions also try, through resort to different processes, to take a share of surplus-values, either through tax collection, or throught negotiations involved in development processes (Lichfield and Darin-Drabkin, 1980; Pardal et al., 1996; Smolka and Amborski, 2003).

13.3. Methodology for the Computation of Economic Rents and of Surplus-values

The powers retained by planning and local authorities to generate surplus-values and minus-values draw attention to the urgent need to frame the political and administrative act of land use changes. In order to (i) ensure the availability of land for different functional uses at acceptable prices; (ii) avoid the generation of excessive profits in land and real estate markets; and (iii) assure the neutrality of the landowners interests confronted with planning decisions, urban planning shall, on the one hand, intervene in plans and regulations and, on the other, develop property appraisal tools that are suitable for locations, uses and intensities of use. This chapter proposes a methodology for the evaluation and computation of surplus-values more connected to sites that, consequently, supports more efficient interventions of regional and local planning in taxation, and in the monitoring and control of: (i) the evolution of the variables that underlie property prices and surplus-values; and (ii) the distribution of surplus-values generated by territorial plans and regulations. It is applied, as a case study, to the office market in Oporto city (Portugal) (Figure 13.1).

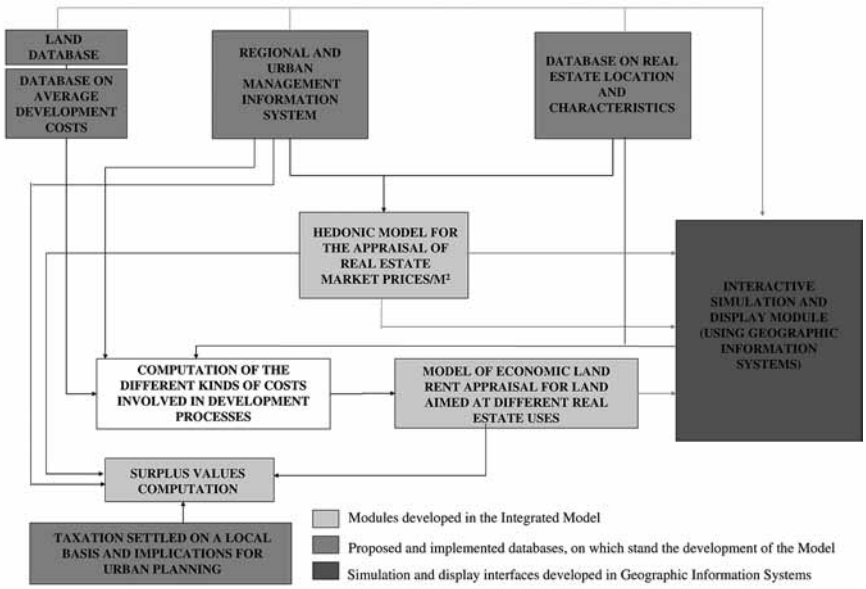

Figure 13.1 Integrated and interactive model to support municipal decisions concerning property markets

A management information system (with ongoing monitoring functionalities) was first developed. Subsequently an integrated and interactive model was implemented in order to compute surplus-values of land designated for office uses, based on a hedonic model of market prices, on average development costs, and on tributary patrimonial values (Rebelo, 2009).

13.3.1. Development of a management information system

The main office areas in Oporto city are located in the Boavista district, the Constituição/Marquês district and the old downtown centre (Figure 13.2).

A management information system (with monitoring purposes) was developed and implemented for Oporto city. It is comprised of databases on (i) land parcels; (ii) regional and urban indicators; (iii) average development costs; and (iv) real estate location and characteristics (Rebelo, 2009).

The database on land parcels supports the monitoring of most characteristics of the plots, as well as of their uses (enabled by territorial plans and other land-use policy tools). The included variables are: (i) the plot's dimensions; (ii) geo-morphological characteristics; (iii) absolute and relative location (in relation to the main centre and sub-centres); (iv) value of the agricultural land or woodland (computed using the exploration rents); (v) current or anticipated property

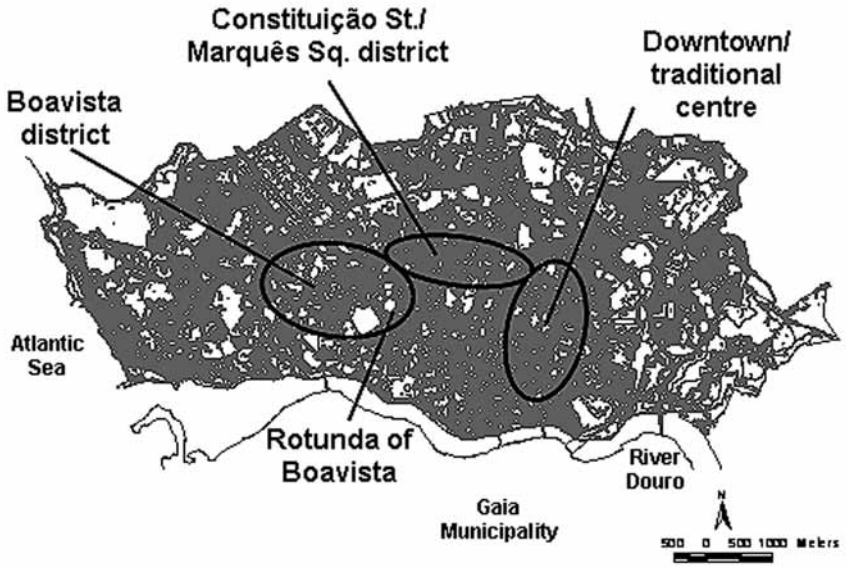

Figure 13.2 Main office areas in the city of Oporto

division; (vi) licensed use; (vii) real or anticipated taxes; and (viii) surplus-values that result from infrastructure, equipment, public services and other undertakings (indirect surplus-values).

The database on regional and urban indicators contains the variables that exert influence on office demand, supply and prices – some proceeding from market operation, and others under the control of local authorities (Rebelo, 2009). These variables refer to: (i) spatial/geo-referenced location of offices; (ii) planning regulations (including zoning regulations and land use coefficients); (iii) location indexes of different kinds of office activities (that show relative spatial concentration in relation to the overall territory); (iv) weighted distance to urban centres and sub-centres; (v) inertia exhibited by offices to remain in the same location; (vi) 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 urban (re) generation; (vii) number or density of inhabitants in each block; and (viii) date.

The database on average development costs includes: (i) land and land-related costs; (ii) development costs; (iii) building costs; (iv) management, administrative and marketing costs; (v) financial charges; and (vi) property taxes: The costs of land plots per square metre of building area correspond to the economic capitalized return from land use (it reflects its transference costs). They are considered to match the prices of the housing construction plots sold at public auction (that approach the prices of land for social uses). The computation of land costs for office uses

takes account of those prices according to the average percentage that office prices represent over them. Land acquisition costs also include other elements, which are expressed as a percentage of the land acquisition costs/m^2: (i) municipal transfer tax (10 per cent); (ii) stamp duty (0.4 per cent); (iii) property registration costs (0.5 per cent); (iv) notarized costs (0.5 per cent); and (v) legal fees (0.5 per cent). The development costs represent the costs of land infrastructures and participation in public investments. They are computed according to the municipal tax for urban infrastructures. The building costs include: (i) construction costs properly so called (that approach the selling prices/m^2 of common housing, annually published as a decree in the government diary); (ii) costs of equipment (namely, heating systems, lifts and special foundations); and (iii) building honoraries. This category of costs also includes different contingent costs (that generally go up to 5 per cent of the total costs), as well as the building inflation. It was assumed in this research that management, administrative and marketing costs amounted to 0.8 per cent of total construction costs/m^2. Additionally a 20 per cent added-value rate was imposed on those costs. In what concerns the financial costs, it was considered a 6.2 per cent rate of annual capital costs, and 50 per cent of borrowed capital for land acquisition purposes, and 50 per cent of borrowed capital for commercialization purposes (commercialization costs were assumed to represent 0.5 per cent of total building costs). Finally the municipal tax on property was applied, according to the kind of use.[1]

The database on real estate location and characteristics contains a set of indicators concerning the characteristics, location, morphology and typology of buildings and real estate units, and respective kinds of uses.

13.3.2. Methodology for surplus-values computation

The computation of surplus-values of land for office uses is undertaken in two steps: first the economic land rent is computed, and then the surplus-values are calculated.

The economic land rent/m^2 is given by the difference, per square metre, between the expected income and a set of anticipated land, development, technical building, management, administrative and marketing, and financial costs, property taxes and a normal profit rate (expressed as a multiple of those overall costs) (Rebelo, 2003, 2009). Office floor space selling price/m^2 according to the functional use concerned, its characteristics and location can be anticipated by a hedonic model that expresses it as a function of the indicators systematized in the urban management information system[2] (Rebelo, 2009). Each building site is assigned a certain licensed area or volume, according to planning regulations and restrictions. The total expected income is computed as 60 per cent of the product

1 The alternative uses may be housing, trade, industry and equipment.

2 This model provides ongoing monitoring functionalities, as it can be fitted to updated information introduced in the urban management information system.

of the licensed building area (according to the land use coefficient or index), and the office selling price/m^2 anticipated by the hedonic model.[3]

The surplus-values of land for office uses are then computed by the difference between the land market values and respective tributary patrimonial values (computed according to the municipal tax on property[4]) (Rebelo, 2009). The land market values are reckoned by the sum of the land rent (that corresponds to the economic return on land use, previously computed) and the economic land rent. The tributary patrimonial-value of building land is given by the sum of the value of the building implantation surface and the value of land adjacent to the construction (38th, 40th, 41st, 42nd and 45th articles). The value of the implantation surface of buildings varies between 15 per cent and 45 per cent of the building costs (this percentage already considers location characteristics). The taxable value of urban buildings targeted at housing, trade, industry and services is computed as the product of: (i) the property's territorial-based value; (ii) the gross construction area plus the area that is adjacent to the implantation surface; (iii) the use coefficient; (iv) the location coefficient; (v) the comfort and quality coefficient; and (vi) the building age coefficient. The use coefficient (41st article) depends on the kind of use: trade, services, housing, social housing, warehouses and industrial activities, or parking. The location coefficient (42nd article) considers accessibilities, such as nearness to social provisions, public transportation services, and location in expensive real estate areas.[5] The comfort and quality coefficient (43rd article) of urban property for trade, industry and services purposes is positively weighted by the location in trade centres or in office buildings, by the existence of central heating, by the building quality and the existence of lifts or escalators, and negatively weighted by the lack of sanitary installations, water and electricity nets, sewerage system, paved streets, lifts in buildings with more than three floors and low maintenance conditions. The building age coefficient (44th article) expresses the influence that building age exerts on prices.

According to the proposed methodology, and considering that the developed hedonic model (that accounts for 67.8 per cent of the explained variance) expresses office prices/m^2 as a function of variables with urban content, it becomes possible to observe the dissociation between the urban surplus-values (that accrue from variables mainly controlled by municipalities), and the profits (that result from

3 In the Oporto office areas, it was assumed that 60 per cent of each square metre is devoted to office uses, and the remaining 40 per cent to other uses (including public spaces). The total expected income was, thus, empirically computed as 60 per cent of the product of the average licensed number of floors, considering an average height of 2.7 metres (according to the general regulation of urban buildings R.G.E.U. and the selling price/m^2 anticipated by the hedonic model.

4 The patrimonial value is computed according to the official valuation code (DL n^{o} 287/2003) that sets the parameters for the computation of real estate reasonable prices/m^2, based on the application of socially-oriented land policy principles (Pardal, 2006b).

5 However subjective this judgement may be.

variables mainly regulated by the market[6]). The taxation of these two components can, therefore, assume different rates, so that surplus-values are recovered without discouraging private investments and initiatives (Arnott and Petrova, 2006; Rebelo, 2009).

The interactive model developed in this paper can be redefined by the inclusion of new and updated information. Furthermore, its simulation and display interfaces allows: (i) ongoing monitoring and control of factors that influence property prices; (ii) computation and cartographic display of economic land rent and surplus-values patterns and their respective evolution; (iii) analysis of changes in surplus-values that result from spatial and economic variations in planning variables; and (iv) simulation of alternative scenarios to support local authorities' decisions.[7] Because of its structure and flexibility, this model easily adjusts to other urban realities, and to other property markets.

13.3.3. Results

The developed hedonic model expresses office floor space selling prices/m^2 as a function of different urban variables (Rebelo, 2009): (i) offices' spatial location; (ii) urban planning regulations (zoning restrictions and land use coefficients); (iii) location indexes of different office activities; (iv) weighted distance to the most recent business centre (Rotunda of Boavista); (v) temporal inertia of office activities, (vi) different kinds of public investments; (vii) number of people working in the upper tertiary sector; and (viii) date. Table 13.1 below presents an excerpt from the database on the different kinds of costs involved in office development processes in Oporto city:[8]

The outputs of the integrated and interactive model that refer to the economic land rent and to the surplus-values of land aimed at office uses, according to respective characteristics and location, are detailed in Table 13.2 below.

Using the module of cartographic visualization leads to the distribution of surplus-values presented in Figure 13.3:

6 Considering the respective percentage in total land economic rent.
7 Namely, concerning the location of certain activities in certain areas.
8 The collected information refers to the year 2000.

Table 13.1 Different kinds of costs/m² involved in office development processes in land acquisition and office building, according to their location in Oporto city (excerpt from the database)

Address	Zone in Oporto city	Land acquisition costs/m²									Building costs/m²			Management, administrative and marketing costs/m²	Financial costs/m²			Municipal tax on property/m²	Total costs/m²
		Land cost/m2 of office buildings	Municipal transfer tax	Stamp duty	Property registration costs	Notarized costs	Lawyer honoraries (0,5%)	VAT on lawyer honoraries	Development costs	Total land costs/m²	Average office building costs (and specialised works)	Average costs of building garages/m² of office buildings	Total office building costs/m²		Financial costs of land acquisition/m²	Financial costs of commercialization/m²	Total financial costs/m²		
646 Rua Prof Correia Araujo R	Antas	211,5	21,2	0,8	1,1	1,1	1,1	0,2	31,5	268,4	415,0	43,8	458,8	3,7	8,3	0,1	8,4	0,770	740,0
94 Alameda Eca Queiros Al	Antas	211,5	21,2	0,8	1,1	1,1	1,1	0,2	31,5	268,4	415,0	43,8	458,8	3,7	8,3	0,1	8,4	0,770	740,0
130 Alameda Eca Queiros Al	Antas	211,5	21,2	0,8	1,1	1,1	1,1	0,2	31,5	268,4	415,0	43,8	458,8	3,7	8,3	0,1	8,4	0,770	740,0
194 Alameda Eca Queiros Al	Antas	211,5	21,2	0,8	1,1	1,1	1,1	0,2	31,5	268,4	415,0	43,8	458,8	3,7	8,3	0,1	8,4	0,770	740,0
256 Alameda Eca Queiros Al	Antas	211,5	21,2	0,8	1,1	1,1	1,1	0,2	31,5	268,4	415,0	43,8	458,8	3,7	8,3	0,1	8,4	0,770	740,0
191 Praca Pedra Verde Pc	Aldoar/ Antunes Guimarães/ Vilarinho	205,0	20,5	0,8	1,0	1,0	1,0	0,2	31,5	261,1	415,0	43,8	458,8	3,7	8,1	0,1	8,2	0,770	732,5

216 Praca Pedra Verde Pc	Aldoar/ Antunes Guimarães/ Vilarinho	205,0	20,5	0,8	1,0	1,0	1,0	0,2	31,5	261,1	415,0	43,8	458,8	3,7	8,1	0,1	8,2	0,770	732,5
250 Rua Soeiro Mendes R	Aldoar/ Antunes Guimarães/ Vilarinho	205,0	20,5	0,8	1,0	1,0	1,0	0,2	31,5	261,1	415,0	43,8	458,8	3,7	8,1	0,1	8,2	0,770	732,5
305 Praca Pedra Verde Pc	Aldoar/ Antunes Guimarães/ Vilarinho	205,0	20,5	0,8	1,0	1,0	1,0	0,2	31,5	261,1	415,0	43,8	458,8	3,7	8,1	0,1	8,2	0,770	732,5
280 Rua Eugenio Castro R	Boavista/ Rotunda	290,0	29,0	1,2	1,5	1,5	1,5	0,2	31,5	356,3	415,0	43,8	458,8	3,7	11,0	0,1	11,1	0,770	830,6
300 Rua Eugenio Castro R	Boavista/ Rotunda	290,0	29,0	1,2	1,5	1,5	1,5	0,2	31,5	356,3	415,0	43,8	458,8	3,7	11,0	0,1	11,1	0,770	830,6
352 Rua Eugenio Castro R	Boavista/ Rotunda	290,0	29,0	1,2	1,5	1,5	1,5	0,2	31,5	356,3	415,0	43,8	458,8	3,7	11,0	0,1	11,1	0,770	830,6
370 Rua Eugenio Castro R	Boavista/ Rotunda	290,0	29,0	1,2	1,5	1,5	1,5	0,2	31,5	356,3	415,0	43,8	458,8	3,7	11,0	0,1	11,1	0,770	830,6
686 Rua Tenente Valadim R	Boavista/ Rotunda	290,0	29,0	1,2	1,5	1,5	1,5	0,2	31,5	356,3	415,0	43,8	458,8	3,7	11,0	0,1	11,1	0,770	830,6
174 Campo Martires Patria Cpo	Gonçalo Cristóvão/ Baixa	281,5	28,2	1,1	1,4	1,4	1,4	0,2	31,5	346,8	415,0	43,8	458,8	3,7	10,7	0,1	10,8	0,770	820,8
46 Campo Martires Patria Cpo	Gonçalo Cristóvão/ Baixa	281,5	28,2	1,1	1,4	1,4	1,4	0,2	31,5	346,8	415,0	43,8	458,8	3,7	10,7	0,1	10,8	0,770	820,8
9 Largo Adro Lg	Gonçalo Cristóvão/ Baixa	281,5	28,2	1,1	1,4	1,4	1,4	0,2	31,5	346,8	415,0	43,8	458,8	3,7	10,7	0,1	10,8	0,770	820,8
48 Largo Fontinha Lg	Gonçalo Cristóvão/ Baixa	281,5	28,2	1,1	1,4	1,4	1,4	0,2	31,5	346,8	415,0	43,8	458,8	3,7	10,7	0,1	10,8	0,770	820,8
26 Largo Prof Abel Salazar Lg	Gonçalo Cristóvão/ Baixa	281,5	28,2	1,1	1,4	1,4	1,4	0,2	31,5	346,8	415,0	43,8	458,8	3,7	10,7	0,1	10,8	0,770	820,8

54 Praca Flores Pc	Gonçalo Cristóvão/ Baixa	281,5	28,2	1,1	1,4	1,4	1,4	0,2	31,5	346,8	415,0	43,8	458,8	3,7	10,7	0,1	10,8	0,8	820,8
95 Rua Joao Baptista Lavanha R	Foz/Gomes da Costa	241,5	24,2	1,0	1,2	1,2	1,2	0,2	31,5	302,0	415,0	43,8	458,8	3,7	9,4	0,1	9,4	0,8	774,6
67 Rua Infante Santo R	Foz/Gomes da Costa	241,5	24,2	1,0	1,2	1,2	1,2	0,2	31,5	302,0	415,0	43,8	458,8	3,7	9,4	0,1	9,4	0,770	774,6
399 Rua Alegria R	Marquês/ Constituição	226,0	22,6	0,9	1,1	1,1	1,1	0,2	31,5	284,6	415,0	43,8	458,8	3,7	8,8	0,1	8,9	0,770	756,7
582 Rua Alegria R	Marquês/ Constituição	226,0	22,6	0,9	1,1	1,1	1,1	0,2	31,5	284,6	415,0	43,8	458,8	3,7	8,8	0,1	8,9	0,770	756,7
7742 Estrada Circunvalacao Est	Bonfim/ Campo 24 Agosto	226,0	22,6	0,9	1,1	1,1	1,1	0,2	31,5	284,6	415,0	43,8	458,8	3,7	8,8	0,1	8,9	0,770	756,7
7762 Estrada Circunvalacao Est	Bonfim/ Campo 24 Agosto	226,0	22,6	0,9	1,1	1,1	1,1	0,2	31,5	284,6	415,0	43,8	458,8	3,7	8,8	0,1	8,9	0,770	756,7
11 Largo Jose Moreira Silva Lg	Bonfim/ Campo 24 Agosto	226,0	22,6	0,9	1,1	1,1	1,1	0,2	31,5	284,6	415,0	43,8	458,8	3,7	8,8	0,1	8,9	0,770	756,7
116 Praca Marques Pombal Pc	Marquês/ Constituição	226,0	22,6	0,9	1,1	1,1	1,1	0,2	31,5	284,6	415,0	43,8	458,8	3,7	8,8	0,1	8,9	0,770	756,7

Table 13.2 Estimate of economic land rent and surplus-values of land aimed at office uses in Oporto city (excerpt from the database)

Address	Zone in Oporto city	Land use coefficient	Average number of floors	Anticipated office selling prices/m^2	60% of income/m^2	Land, development, building, management, administrative, marketing, and financial costs, property taxes/m^2, and normal profit rate/m^2	Economic land rent/m^2 [1]	Land rent/m^2 [2]	Land market value/m^2 [3]=[1]+[2]	Land patrimonial value/m^2 [4]	Surplus-values [3]-[4]
203 RUA GUEDES AZEVEDO R	Gonçalo Cristóvão/Baixa	5	1.85	1554,3	1726,9	543,4	1183,6	281,5	1465,1	645,2	819,9
227 RUA PINTO BESSA R	Corujeira/S. Roque da Lameira	5	1.85	1260,8	1400,9	515,4	885,5	173,5	1059,0	745	314,0
242 RUA S BRAS R	Gonçalo Cristóvão/Baixa	5	1.85	1504,2	1671,3	543,4	1128,0	281,5	1409,5	649	760,5
2533 FERNAO MAGALHAES AVE	Paranhos/Costa Cabral	5	1.85	935,3	1039,2	511,7	527,5	159,0	686,5	758,4	-71,9
35 RUA LIMA JUNIOR R	Paranhos/Costa Cabral	5	1.85	1284,0	1426,7	511,7	915,0	159,0	1074,0	756,2	317,8

411 RUA CASTELOS R	Ramalde/Monte dos Burgos	5	1.85	1362,1	1513,5	513,0	1000,5	290,0	1290,5	753,8	536,7
433 RUA NOSSA SENHORA FATIMA R	Boavista/Rotunda	5	1.85	1436,0	1595,6	545,6	1050,0	290,0	1340,0	637,4	702,6
49 RUA FORMOSA R	Bonfim/Campo 24 Agosto	5	1.85	1429,5	1588,3	528,9	1059,4	226,0	1285,4	659,5	625,9
55 RUA DR RICARDO JORGE R	Gonçalo Cristóvão/Baixa	5	1.85	1377,0	1530,0	543,4	986,6	281,5	1268,1	659,2	608,9
57 RUA FLORES R	Gonçalo Cristóvão/Baixa	5	1.85	858,0	953,3	543,4	409,9	281,5	691,4	653,1	38,3
393 RUA ALEGRIA R	Marquês/ Constituição	5	1.85	1472,4	1636,0	529,0	1106,9	226,0	1332,9	696,5	636,4
1395 RUA CONSTITUICAO R	Marquês/ Constituição	5	1.85	1304,9	1449,9	529,0	920,9	226,0	1146,9	694,3	452,6
455 COMBATENTES GRANDE GUERRA AVE	Antas	5	1.85	1160,3	1289,2	525,3	764,0	211,5	975,5	705,8	269,7
8 RUA BRAS CUBAS R	Antas	5	1.85	1052,4	1169,3	525,3	644,0	211,5	855,5	705,1	150,4

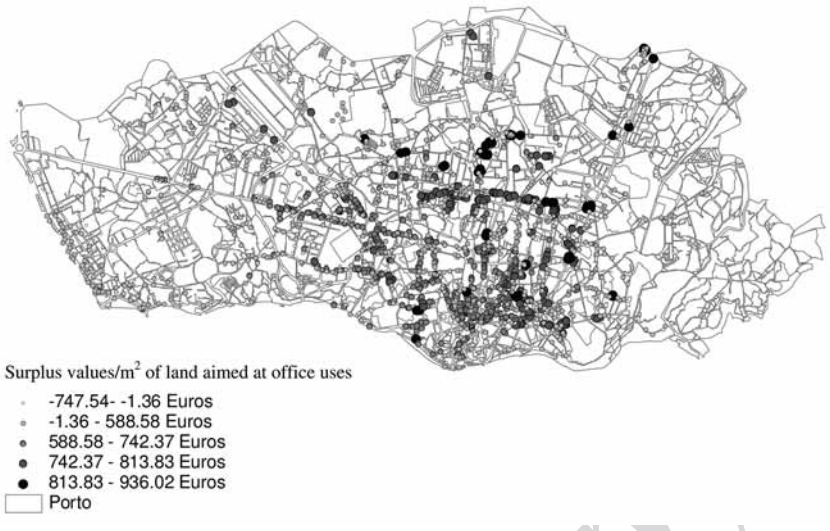

Figure 13.3 Expected distribution of surplus-values of land aimed at office uses in Oporto city, according to the proposed methodology

13.4 Conclusions and Recommendations

All participants in the development process should be encouraged to bring in to use their factors of production the socially-best way, in order to reach acceptable profit margins, while observing market rules, urban regulations, and land use policy principles (Clark, 1995; Correia, 1993; Pardal, 2006a,b). In the absence of a clear and objective assessement of surplus-values (including their generation, quantification and distribution), urban development or recovery processes risk being blocked either by supply or by demand.

A better awareness of the underlying conditions and ways to assess surplus-values will probably exert impacts on property agents' behaviour that results from these values. Landowners can still continue to search for profits, and have their own initiatives encouraged and rewarded. However, they are prevented from taking advantage of their extended prerogatives in land policy and cease to take advantage of their monopolistic/oligopolistic power. Promoters/developers/builders are becoming able to develop their activities in a more informed way, because their decisions are being better guided by the variables that underlie demand, and by the variables that underlie other suppliers' decisions, and are thus becoming more aware of legal, planning and market restrictions that they have to face. Property mediators, in their professional activities, can also take advantage of these analysis and intervention tools that may potentially induce a better efficiency in their decisions; namely, through a reduction in time adjustment mismatches between supply and demand. Through making it easy for final

consumers (buyers or tenants) to have access to real estate products that fulfil their needs, and to a wider range of choices of characteristics and location, they will probably contribute to lower transaction prices, and still maintain reasonable profit levels. Credit institutions will have landmark cases settled on the assumptions for credit concession, thus using more realistic and socially-oriented criteria. Finally, this knowledge and these proposed tools allow regional and local public authorities: (i) the enhancement of the private initiative of promoters, builders and sellers, ensuring the neutrality of the landowners' interests in the face of land use dynamics and changes in intensity of use anticipated by planning decisions, and a more effective, balanced and informed intervention on property markets; (ii) the real-time provision of land and real estate products for the different needs; (iii) a better monitoring and control of property prices; (iv) prevention of speculative processes upstream and downstream the land development chain; and (v) a better control of taxation mechanisms, and of the collection of property taxes (namely, through parameter setting, and control over the distribution of the surplus-values).

Decision makers should implement planning strategic priorities in order to foster urban and socio-economic development, ensuring useful land purposes and social functions, through surplus-values control. Within this scope, the model to evaluate, compute and quantify surplus-values proposed in the research reported in this chapter seeks to reinforce strategic planning priorities in an effective and efficient manner, through fighting and preventing the speculation problem. As such, it should be considered in territorial plans and other land use policy tools, in order to appraise the economic and social impacts of administrative decisions and public investments concerning land uses or intensities of use.

It is hoped that this proposed methodology and developed model contributes to improve regional and urban strategies and policies in order to assure a better balanced rural-urban development, and the stronger sustainability of rural regions. Indeed, a better knowledge of: (i) land and real estate price formation mechanisms; (ii) the mutual cause-and-effect relations between them; (iii) the relations between rural and urban land; (iv) the land economic rent; (v) the surplus-values; (vi) the property taxation system; and (vii) the behaviour of property market agents, reinforces the role of planners and decision makers in regulation, guidance, coordination and control of land uses. In operational settings, this role will translate into more direct intervention on property markets: namely, through the use of these tools to assess, monitor, visualize and simulate the results of alternative regional and urban policies, and through a more effective application of taxation tools (in order to fasten them more to local realities, and to differentiate taxes on urban surplus-values and on private improvements). This more fair taxation of surplus-values would contribute to ensuring that they are used on behalf of populations, to control property prices, and to prevent/control property speculation.

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