

## **The Effects of Land Policy on Urban Land Prices in Bogotá**

Oscar Borrero

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Working Paper**

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## **Abstract**

The object of this research is to verify how land prices are affected by urban policies implemented in Bogotá since 2004. Bogotá has been the leading city in Colombia in applying national urban land policies and instruments such as the levy on land value increments, charges associated with land use, and the equitable distribution of costs and benefits accruing to the private and public sectors in new urbanization projects. The price of land in the city has been affected by these policies. Preliminary data show that the speculative rise in land prices in peripheral areas has stopped and the new costs have been borne by landowners, since developers discount these costs in purchase prices. More can be learned about the effect of land policies on land prices in consolidated zones where the levy on land value increments is applied. This levy is discounted in negotiations between land owners and developers, and its cost is not passed along to the final purchaser.

## **About the Author**

**Oscar Armando Borrero Ochoa**, an economist at the National University of Colombia, is founder of the Center for Studies of Construction and Urban and Regional Development (CENAC) and was its director from 1974 to 1981. He was president of Colombia's national association of realtors between 1981 and 1990. An expert on real estate valuation, he teaches urban economics at universities in Colombia, Ecuador, and Central America, and is a member of the faculty at the Lincoln Institute for Land Policy. He is also a consultant on market feasibility and a developer and contractor of real estate projects in Bogotá.

Research for the paper was carried out by a team directed by Dr. Borrero. Members of the research team included architect Esperanza Durán de Gámez, economist Johanna Ramírez, and valuation assessors Andrea Roza and Andrey Roa.

## Abbreviations and Acronyms

ANU	Net Urbanizable Area ( <i>Área Neta Urbanizable</i> – ANU)
CAMACOL	Colombian Chamber of Construction ( <i>Cámara Colombiana de la Construcción</i> – CAMACOL)
CENAC	Center for Studies of Construction and Urban and Regional Development ( <i>Centro de Estudios de la Construcción y el Desarrollo Urbano y Regional</i> - CENAC)
FAR	Floor Area Ratio
IGAC	Agustín Codazzi Geographic Institute ( <i>Instituto Geográfico Agustín Codazzi</i> – IGAC)
LPRB	Real Estate Board of Bogotá ( <i>Lonja de Propiedad Raíz de Bogotá</i> – LPRB)
MAVDT	Ministry of the Environment, Housing, and Territorial Development ( <i>Ministerio de Ambiente, Vivienda y Desarrollo Territorial</i> – MAVDT)
OLS	Ordinary Least Squares ( <i>Mínimos Cuadrados Ordinarios</i> – MCO)
POT	Land-use Plan ( <i>Plan de Ordenamiento Territorial</i> – POT)
POZ	Zonal Plan ( <i>Plan Zonal</i> – POZ)
UPAVO	Union of Pan-American Valuation Organizations ( <i>Unión Panamericana de Valuadores</i> – UPAV)
UPZ	Zonal Planning Unit ( <i>Unidad de Planeamiento Zonal</i> – UPZ)
US\$	United States Dollars (Otherwise \$ = Colombian pesos)
VIS	Low-income Housing ( <i>Vivienda de Interés Social</i> – VIS)

# The Effects of Land Policy on Urban Land Prices in Bogotá

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## **The Effects of Land Policy on Urban Land Prices in Bogotá**

### **Research methodology for the study of undeveloped and peripheral parcels**

#### **Summary of Findings**

With this study we have been able to corroborate a hypothesis of the Lincoln Institute of Land Policy: the collection of taxes, charges, and levies on value increments against urban land leads to a reduction in land values. These expenses can not be transferred to the final purchaser because the demand sector is not in a position to pay more for properties. Although in the Colombian case it is the developer or builder who pays the charges and levies on land value increments to the municipality in the direct sense, this value is discounted from the price of the lot with reference to the residual value that the lot would otherwise have, given new regulations, uses, and construction ratios. Peripheral lands on the northern and southern fringes of Bogotá totaling 2,500 hectares have seen their value decreased by 50%, an amount equivalent to the charges and levies on value increments that the municipality of Bogotá sets for payment. This value is expressed in transactions, levies, and purchase offers made by land property owners who are accepting of these new values despite their expectations in previous years that prices would double compared to current transaction values.

In undeveloped urban areas covering 3,100 hectares of the city, land property owners have been accepting reductions in price expectations resulting from new uses and anticipated construction by the amount of the charge collected by the municipality in return for the authorization of increased construction ratios. Results are contradictory only in recent partial plans (land readjustments) legislated since October 2006: half of the developers have taken it upon themselves to cover the cost of paying levies and the other half have transferred the costs to property owners. It is hoped that when the new regulations are assimilated by the market in another one or two years, developers will demand that the payment of these charges be deducted from the price of the land just as appraisers from the Bogotá Real Estate Board (*Lonja de Propiedad Raíz de Bogotá - LPRB*) today consider in their appraisals that charges and levies on value increments collected by the municipality should not be included in transaction costs.

In consolidated areas, levies on land value increments have been fully transferred to builders and final buyers in high stratum housing and commercial projects. Given the scarcity of land well located for the highest stratum and the high demand of recent years, builders have assumed responsibility for charges and levies on land for these projects. In the middle strata, this has depended on the dynamics of specific neighborhoods. Land property owners have been the beneficiaries in high demand areas while in other neighborhoods builders have discounted land by the value of charges and levies, thus reducing prices by the same proportion. In the lower-middle and the lowest strata, the cost of levies on value increments has been assumed by property owners since it is

impossible to transfer it through developers and builders and ultimately to the final buyers.

## 1. **Research methodology for the study of undeveloped and peripheral parcels**<sup>1</sup>

This report presents an analysis of market behavior with respect to undeveloped land in Bogotá for the period between June 2005 and March 2007. Researchers regularly recorded offers made public in June 2005 and December 2006 and the evolution of demand and of transactions effectuated until March 2007, a topic that will be discussed in Chapter 3 of this report.

Information was collected for this purpose by consulting various sources, among them offers published in [www.metrocuadrado.com](http://www.metrocuadrado.com) as well as the classified section of the daily newspaper *El Tiempo* and several recognized real estate agencies. Direct contact was made with parties offering land for sale.

At the same time that this primary information was being collected, a total of 19 LPRB appraisals performed by recognized property appraisers were compiled for lots over 10,000 m<sup>2</sup> with or without buildings, but always with most of their area yet to be developed (see Table 3 in Annex 1).

In order to follow up on properties for sale, telephone contact was established with land owners, intermediaries, agents, and offering parties in general, of lots over 10,000 m<sup>2</sup> (some between 3,000 and 10,000 m<sup>2</sup> in the southern part of the city). They were asked if the lot was on sale on the final date of the study (March 2007), why it was being sold, and occasionally why they were no longer interested in selling it. In those cases where transactions had been effectuated an attempt was made to find out if the seller had held to the asking price. As was expected, not many sellers provided this information.

We worked with a sample of 133 properties, which were processed and georeferenced at the level of the Zonal Planning Unit (*Unidad de Planeamiento Zonal - UPZ*)<sup>2</sup> for five large zones of the city (West, Northwest, North, South, Southeast, and Southwest).

The evolution of sales in relation to properties on offer in previous years is presented in Chapter 3 of this report.

A process such as a partial plan or a similar set of requirements is a precondition for building construction on 24 % of the properties on offer, and on some properties construction was contingent on integration into a regulated system of levies and benefits associated with zonal plans.

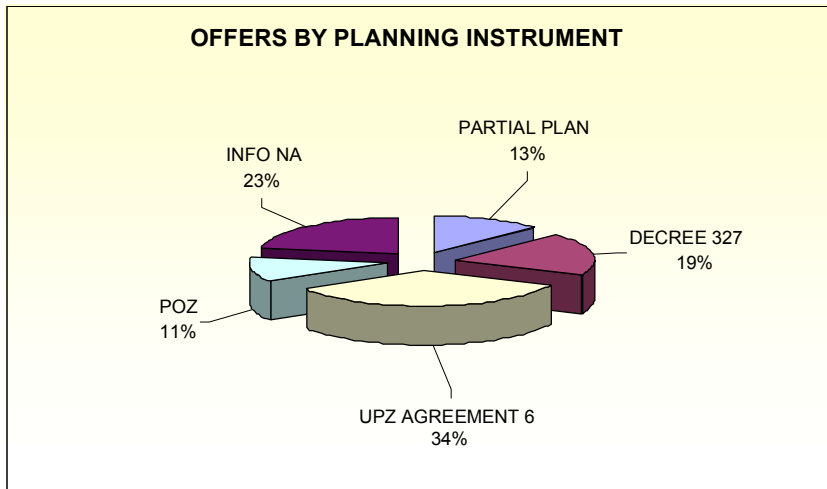
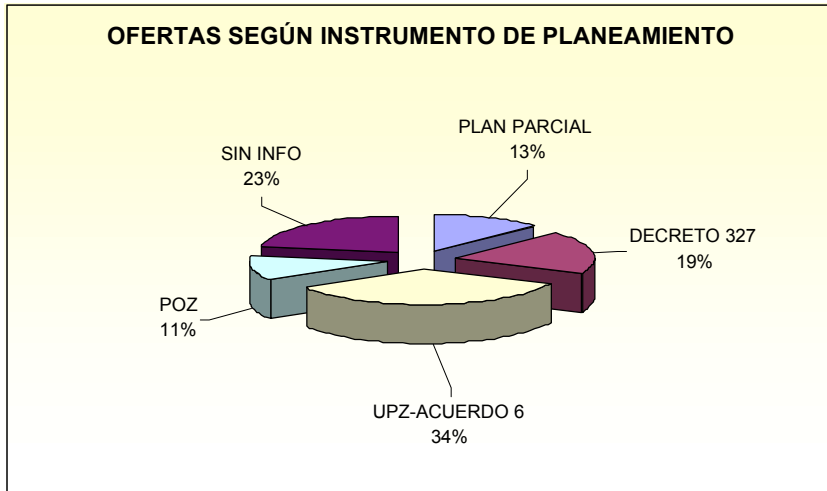
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<sup>1</sup> The research methodology described in report 1 of this study is reproduced here because it is necessary in order to understand the results of this research on undeveloped and peripheral lots in Bogotá.

<sup>2</sup> The Zonal Planning Unit (*Unidad de Planeamiento Zonal*) is the unit of land used in the urban regulation of the city of Bogotá.



**Graph 1**



Source: DACD and calculations by author.

Undeveloped properties on offer were of the following sizes:

Zone	# Properties	Hectares
West	52	128.3
Northwest	27	97.52
Southeast	10	66.50
South	6	11.90
Southwest	6	10.20
North	32	114.00
<b>TOTAL</b>	<b>133</b>	<b>428.42</b>

In a recent report by the Administrative Department for the District Cadastre (*Departamento Administrativo de Catastro Distrital*),<sup>3</sup> the director reported that the organization had conducted a study in Bogotá in 2006 regarding available lands larger than 5,000 m<sup>2</sup> within the urban perimeter. Nine hundred lots with a total area of 520 hectares were included. Not included were the northern area of urban expansion and the southern area of expansion in Usme.

In its technical supporting document for Decree 436/06 on partial plans, Bogotá's District Planning Department also presented information on the area available in Bogotá:<sup>4</sup>

Land property available in Bogotá	
Legislation or decree	Hectares
Northern and Usme Zonal Plans	2,500
Decree 327/04 (less than 10 hectares)	800
Decree 436/06 (partial plans)	2,300
TOTAL	5,600

The District Cadastre refers to lots that form part of the 800 hectares to be developed under Decree 327/04.

In the course of 18 months, our study of lots on offer found 428 hectares for sale, corresponding to 7.7% of total development areas in the city. This is a small amount of land considering that we studied all the different ways by which property sales are made known in the city, not only in the press and on the Internet, but also through real estate companies engaged in sales, and we did so for a whole year and a half. If the owner of a property included in the 5,600 hectares had wanted to sell a lot or lots, he would have announced it in some way during this period of time.

The limited supply reflects the fact that the municipal legislation and decrees had not yet been issued. Construction would have been regulated only on the 800 hectares subject to Decree 32 of 2004. The 2,300 hectares pertaining to partial plans, on the other hand, were only regulated and available for development after Decree 436/06 was issued in October 2006. Likewise, the 2,500 hectares of the Northern and Usme Zonal Plans have not been approved and although various offers have been made, their owners prefer to wait until the regulations and costs have been defined.<sup>5</sup>

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<sup>3</sup> Available Land in Bogotá, presentation by Hernando Maldonado, director of the District Cadastre to the Real Estate Board of Bogotá, December 10, 2006.

<sup>4</sup> Source: Administrative Department for the District Cadastre (DACD) supporting technical document and presentations to the LPRB and the Colombian Chamber of Construction (CAMACOL) on the management of partial plans.

<sup>5</sup> At this writing, the Usme POZ awaits the signature of the mayor. This zonal plan will generate 800 hectares for use by lower social strata. The northern POZ is expected in mid-2007 and will generate an additional 1,500 hectares for use by middle and higher strata.

In addition to the 428 hectares found to be on the market, another 309 hectares were subject to transactions or appraisals carried out by the Real Estate Board of Bogotá for the purpose of preparing bank guarantees or transactions between individuals. The total sample thus increases to 737 hectares representing 13.2% of land available or slated for development within both the city of Bogotá and its peripheral zones of expansion.

From among the properties thus categorized as available, a preliminary sample of 25 lots was selected to be appraised using the usual residual method with the strict application of charges as imposed by the four planning instruments evaluated in this study: Decree 327 of 2004, Decree 436 of 2006, POZ (Zonal Plan), Usme, and POZ North. Five additional lots also in the midst of transactions in the northern and southern zones of the city were subsequently added to the sample (see sample in Annex 1, selected properties).

The sample that was selected was intended to be representative of the city and of the planning and management systems applied. To this end homogenous zones were defined for the purpose of analysis to reflect the supply of properties at that moment and to be representative in terms of their physical relationship to principal thoroughfares, economic activities, land uses, market dynamics, and regulatory instruments.

The 30 properties that were investigated in the city, distributed among the northern, western, and southern parts of Bogotá, were regulated by the following legal instruments (see Annex 1):

- Decree 327/04 for undeveloped zones of less than 10 hectares: 13 properties.
- Decree 436/06 for undeveloped zones of more than 10 hectares that require land readjustment through partial plans: 9 lots or properties.
- Northern Zonal Plan: 6 properties.
- Usme Zonal Plan: 2 properties.

To give an idea of the size of the lots that were studied, the total area of assessed lots and those being transacted amounted to 334.5 hectares. This was 50% of the area that we found on offer in Bogotá between June 2005 and December 2006. This is due to the large size of the lots that were appraised or whose sales were transacted in the zonal plans and peripheral areas.

The results of the appraisals are presented in Annexes 3, 4, and 5 in Excel tables, applying the residual method described in an earlier report. After the appraisal data were collected, the LPRB,<sup>6</sup> the District Cadastre, and the Planning Secretary were consulted in order to determine and incorporate the charges and obligations required by the existing decrees and regulatory norms for land to be developed. Two expert appraisers were subsequently contracted to compile the data for this research study as presented in Annexes 3, 4, 5, and 6, coordinated by and under the supervision of the director of the research team, also an expert appraiser.

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<sup>6</sup> This real estate association brings together 250 businesses in Bogotá, of which 130 conduct appraisals, employing about 800 appraisers.

Once the appraisal data were obtained, personnel experienced in property sales and real estate brokerage communicated with land owners or their representatives to give them the results of the appraisal and make offers for the lots. In many cases, land owners agreed to lower their asking prices between 10 and 20% in keeping with appraisal data. A reduction of 10% is normal, but when property owners are advised of the conditions of new regulatory measures and told how they will affect the lot, they accept greater reductions, but not frequently more than 20%.

At the time of this writing, contact has only been made with land owners or property agents in order to make an offer corresponding to the appraisal. The prices reached through negotiations that are presented in Tables 1 and 2 of Annex 1 reflect the results of these contacts with land owners. In other cases there was a large difference between the asking price and the appraisal value. In such cases builders were contacted to inquire how much they would offer for the lot in question. In general they accepted the results of the appraisal after charges and told the seller or the member of the research team who contacted them that they would not pay more than that. Even if they thought that the lot was very well located, they considered the asking price to be too high given that the lot required the fulfillment of obligations and charges that they were not inclined to pay.

In order to complement this report, realtor-researchers will continue to offer these 25 lots to developers or builders until they receive commercially viable offers. When transactions are accomplished, sales prices will be recorded. For the moment, the values of actual transactions have been recorded, and additional data on negotiations reflect the lowest price that the land owner is currently willing to accept. Some property owners who are told of appraisal values and corresponding charges and obligations accept substantial reductions in lot prices.

## **2. Final results regarding the impact of charges and obligations on the value of undeveloped land in Bogotá**

### **2.1. Undeveloped urban properties (under 10 hectares) without readjustment obligations**

Annex 3 provides the appraisal values of thirteen selected lots in undeveloped areas of Bogotá subject to Decree 327/04. That is to say that they can be licensed for urban development and construction property by property without recourse to a Partial Plan or Land Readjustment and without any agreement among or between property owners.

Regulations allow them a floor to area ratio of 1.0 per ANU or Net Urbanizable Area (*Área Neta Urbanizable* - ANU)<sup>7</sup> as the basic construction to which all land owners with this type of property are entitled. Above and beyond this base ratio, they must pay a fee if

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<sup>7</sup> In Colombian legislation the Net Urbanizable Area or NUA (*Área Neta Urbanizable* – ANU) refers to the total undeveloped area minus areas comprised by any street, road, rail, or transit system, topographical zones where building is prohibited, and environmentally protected areas. Areas for parks, local community infrastructure, and local streets are subsequently subtracted from the NUA (in Bogotá this generally comes to 40%). The usable area is salable and generally corresponds to 60% of the NUA.

they want to increase construction height or density, and therefore floor area ratio, until reaching the maximum density allowable under the UPZ or the Land-use Plan. This ceiling generally reaches 1.75 of ANU in almost all housing zones, or up to 2.0 in residential areas that are better located and better served by streets and roads. In the case of multiple-use areas including business and offices, the FAR (Floor Area Ratio) may reach 2.5 of ANU. In this report we work with ceilings of 1.75 and 2.0 in different cases. These ceilings also applied to areas of urban partial plans (land readjustment plans) referred to in Decree 436/06, which are discussed in the following section. The difference is in the base charges and the basic permissible density, which is not always 1.0.

Below we will analyze four lots selected from among the thirteen presented in Annex 3, referring to Decree 327/04.

- a) Lot intended for low-income housing in the south: Appraisal 10 of the Annex, Calle 48 South at Avenida 4 East

Appraisal 10 of Annex 3 refers to a lot intended for low-income housing in the south of Bogotá. The complete appraisals of each lot are presented in Annex 6 of this report to provide information regarding the location of the lot, photographs, and a description of the property (owner, relevant regulations, topography, etc.). This information is provided in the final report along with supporting annexes for the 25 appraisals carried out as part of the study. The results of appraisals are presented in Annex 3 in Excel tables applying the residual method, a methodology that has previously been described.<sup>8</sup> For clarity's sake a table summarizing the results of each appraisal is presented within the text of this report.

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<sup>8</sup> Lot assessment methodology distinguishes between two sets of regulations: one that applies to properties and undeveloped areas under 10 hectares (Decree 327 of 2004), and another that applies to properties over 10 hectares, the latter requiring partial plans and land readjustment (Decree 436 of 2006). The deductive residual method is prescribed for state, bank, and individual assessments and appraisals in Colombia through IGAC (Agustin Codazzi Geographic Institute – Instituto Geográfico Agustin Codazzi) Resolution 762 of 1998. Although the market or comparative method is more common in real property appraisals, market information must be confirmed through the residual method. Undeveloped lots, on the other hand, can not be assessed or appraised by the comparative method due to their heterogeneity. It is not possible to perform an effective homogenization of values of unimproved lots to be developed due to regulatory differences between lots, different uses, the differing effects of streets and roads, environmental conditions, and topography. For these reasons, builders do not accept or discount the results of assessments performed by the comparative method for lots in which they are interested. They demand that the assessor or appraiser perform his work using the residual method and the required methodology, considering the regulatory environment and the other relevant considerations mentioned above. The builder or developer will also perform a feasibility study to determine if he can pay what is asked for an undeveloped lot. In practice, an evaluation by the residual method is performed. For this reason we only consider the residual method in the appraisals performed for this study to approximate the value as evaluated by the demand sector, that is to say the maximum that a developer cognizant of applicable regulations would be inclined to pay. What's more, this is the only option available if one wishes to analyze the impact of the charges, obligations, and levies on value increments applicable to the lot for sale. See Annex 3 for information on the residual method. For greater detail on the residual method of property assessment, please contact the author.

**Appraisal 10**  
**Calle 48 South at Avenida Carrera 4 East**  
**Decree 327 of 2004**  
**SUMMARY OF LOT VALUE WITH CHARGES**

**TOTAL OR UNDEVELOPED AREA** **25,697.71**

<b>RESULTING CONSTRUCTION RATIO</b>	<b>0.99</b>		
		AVERAGE VALUE PER M <sup>2</sup>	TOTAL VALUE
<b>TOTAL NET URBANIZABLE AREA</b>	<b>25,697.71</b>		
ANU VIS	25,697.71	\$ 40,849	\$ 1,049,737,215
ANU STRATUM 5	0.00		\$ 0
TOTAL	25,697.71		\$ 1,049,737,215
AVERAGE PER ANU DISTRIBUTION AREA 2 /M2			
AVERAGE PER ANU DISTRIBUTION AREA 2 /M2 + OTHER CHARGES			
CHARGE	0.00	\$ 40,849	\$ 0
AVERAGE CHARGE			
TOTAL CHARGES		0	\$ 0
LOT VALUE MINUS CHARGES		\$ 40,849	1,049,737,214.99
LOT VALUE ASKING PRICE		\$ 40,587	
LOT VALUE NEGOTIATED PRICE		\$ 36,528	
DIFFERENCE TO BE ASSUMED BY OWNER		-\$ 4,321	
CHARGE ON EXPECTED PRICE		0.0%	

TOTAL EXPECTED SALES **15,137,236,075.50**

The results for Lot 10 illustrate that since it is designated for low-income housing, it is not subject to any charges. The market value determined by the residual method coincides with the market value being paid by builders and developers for lots at this social stratum. The appraisal value is \$40,849 per m2 and the owner is asking a corresponding \$40,587 per m2.

In the experience of real property professionals in the city, the negotiating margin is estimated at 10%. Applying this margin, the land owner would be willing to sell the property for \$36,528 per m2 without a great deal of discussion. In cases where there is an urgent need to sell, the owner may offer a discount of up to 20% or more, but under normal circumstances he would not reduce the asking price by more than 10% in the context of the city's current period of real estate growth.

b) Appraisal 7: Carrera 119A at Calle 63

This is a lot located in western Bogotá that would have lower-middle stratum uses. The complete appraisal report with photographs, its location in Bogotá and a description of the property appears in Annex 6 and the application of the residual method, which is the appraisal technique used in this case, is found in Annex 3.

If its value is calculated strictly on the basis of relevant regulations and its use for lower-middle stratum purposes, it would be \$186,670 per m2. However, with the obligation to construct VIS (Low-income Housing or *Vivienda de Interés Social* - VIS),<sup>9</sup> for which land is worth \$130,983 per m2, the value of the entire property is reduced to \$175,533 per m2.

Charges have been calculated at \$27,427 per m2, which represents 15.6% of the expected value of the property without charges. After applying charges and obligations a builder would buy the property for \$148,106 per m2.

The owner is asking \$159,956 per m2, or \$143,960 per m2 after calculating a 10% negotiating margin. This is to say that the owner would be willing to sell it for the appraised value, the maximum figure that the developer would pay because the obligations and charges would need to be discounted. In this case the property owner is assuming responsibility for charges and obligations, not passing them along to the builder or developer.

**Appraisal 7**  
**Carrera 119 A at Calle 63**  
**Decree 327 of 2004**

**SUMMARY OF LOT VALUE WITH CHARGES**

<b>TOTAL OR UNDEVELOPED AREA</b>	<b>14,735.00</b>		
<b>RESULTING CONSTRUCTION RATIO</b>	<b>1.75</b>		
<b>TOTAL NET URBANIZABLE AREA</b>	<b>14,735.00</b>	Average value per M <sup>2</sup>	
ANU VIS	2,947.00	\$ 130,983	TOTAL VALUE
ANU STRATUM 3	11,788.00	\$ 186,670	\$ 386,007,540
TOTAL	14,735.00		\$ 2,200,469,119
AVERAGE PER ANU DISTRIBUTION AREA 2 /M2			\$ 2,586,476,660
AVERAGE PER ANU DISTRIBUTION AREA 2 /M2 + OTHER CHARGES			
GENERAL CHARGES FOR INCREASED CONSTRUCTION RATIO	2,302.34	\$ 175,533	
INTERMEDIATE CHARGE			<b>\$ 404,136,978</b>
TOTAL CHARGES		\$ 27,427.01	
VALUE OF LOT MINUS CHARGES		\$ 148,106	\$ 404,136,978
PRICE OFFERED FOR LOT		\$ 159,956	\$2,182,339,681.57
NEGOTIATED PRICE		\$ 143,960	
DIFFERENCE TO BE ASSUMED BY OWNER	-\$ 4,145		
CHARGE AS PROPORTION OF EXPECTED PRICE			15.6%

TOTAL EXPECTED SALES

**19,736,802,196.56**

<sup>9</sup> In Bogotá and other Colombian cities 20% of areas of expansion and land to be developed must be used for low-income housing. Demand for low-income housing is stimulated by the national and city governments with subsidies of up to 50% of housing price. The ceiling price for low-income housing in Colombia is 135 minimum monthly salaries, or US\$ 27,000, but the greatest percentage subsidies are for houses valued at US\$ 13,500.

c) Appraisal 05: Carrera 54 at Calle 151

This lot is in the northwestern part of the city and is authorized for middle stratum multifamily housing.<sup>10</sup> It is well serviced by city streets and demand is currently strong. The value for this stratum and use would be \$331,617 per m2. However, with the requirement that 20% of development be VIS, the average adjusted value is reduced to \$296,353 per m2.

Charges are \$61,740 per m2. After their impact is calculated, the value of the land is \$246,265 per m2. It is explained in the appraisal report that this land is subject to a road encumbrance of 10,782.00 m2. Regulations allow a charge equivalent to 9,656.46 m2 be delivered in kind. The owner of the property will be compensated for the remaining area affected by the road encumbrance by the Urban Development Institute at \$246,465 per m2, the price of the lot after calculating charges and obligations. In this case the land owner does not have to pay the value of the charge into the district's special fund; instead it is delivered to the city in the form of land area. Thus in the summary chart below the payment of the charge is entered as income in the form of compensation for the cession of the road encumbrance.

Total charges are calculated to be 20.8% of the expected value of the lot before charges. The property is on offer at a price of \$190,000 per m2 and the owner would be willing to lower the price to \$171,000 per m2 in order to make a sale. This is less than the appraised value of the lot after considering charges, obligations, and the road encumbrance. It seems that the owner is poorly informed with regard to his lot's market value and is asking less than it could bring due to inadequate information regarding compensation for road encumbrances.

In this case it can be concluded that the charges, obligations, and even the road encumbrance are being paid by the landowner and not being passed along to the builder or developer.

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<sup>10</sup> See complete appraisal report in Annex 6 and residual method calculations in Annex 3.



**Appraisal 05**  
**Carrera 54 at Calle 151**  
**Decree 327 of 2004**

**SUMMARY OF LOT VALUE WITH CHARGES**

<b>TOTAL OR UNDEVELOPED AREA</b>	<b>57,133.00</b>		
<b>RESULTING CONSTRUCTION RATIO</b>	<b>2</b>		
		AVERAGE VALUE PER M <sup>2</sup>	TOTAL VALUE
<b>TOTAL NET URBANIZABLE AREA</b>	<b>46,351.00</b>		
ANU VIS	9,270.20	\$ 155,298	\$ 1,439,639,960
ANU STRATUM 4	37,080.80	\$ 331,617	\$ 12,296,638,776
TOTAL	46,351.00		\$ 13,736,278,735
AVERAGE PER ANU DISTRIBUTION AREA 2 /M2			
AVERAGE PER ANU DISTRIBUTION AREA 2 /M2 + OTHER CHARGES			
ROAD ENCUMBRANCES	10,782.00		
BASE CHARGE FOR INCREASED CONSTRUCTION RATIO	9,656.46	\$ 296,353	\$ 2,861,724,737
INTERMEDIATE CHARGE			
TOTAL CHARGES		\$ 61,740.30	\$ 2,861,724,737
TOTAL REIMBURSABLE AREA OF ROAD ENCUMBRANCES	10,782.00	\$ 296,353	\$ 3,195,282,892
VALUE OF LOT MINUS CHARGES		\$ 246,265	14,069,836,890.87
OFFERING PRICE OF LOT		\$ 190,000	
OFFERING PRICE AFTER NEGOTIATION		\$ 171,000	
DIFFERENCE TO BE ASSUMED BY OWNER		-\$ 75,265	
CHARGE ON EXPECTED PRICE		20.8%	

TOTAL EXPECTED SALES

97,570,709,040.00

d) Appraisal 15: Carrera 7 at Calle 182-A

This property is located in the north of Bogotá and would best be used for lower-middle stratum housing. The value of the lot stipulating this stratum is \$162,239 per m<sup>2</sup>. With an obligation to use the land for VIS, the value is reduced to \$154,376 per m<sup>2</sup>. The charge that must be paid to allow for an increased construction ratio is \$24,121 per m<sup>2</sup>. With this charge, the lot's value is reduced to \$134,079 per m<sup>2</sup>. The charge is 15.6% of the lot's expected value. The owner is asking \$131,148 per m<sup>2</sup> and could come down to \$118,033 per m<sup>2</sup>. This is lower than the appraisal price, demonstrating that it is the land owner who assumes all charges and obligations. He is selling the lot at a price that makes it suitable for use entirely for low-income or low stratum housing with no admixture of the lower-middle stratum housing that would also be acceptable in the zone. Sales of other properties for lower-middle stratum housing projects are currently under way in the zone.

**Appraisal 15**  
**Avenida Carrera 7 at Calle 182 A**  
**Decree 327 of 2004**  
**SUMMARY OF LOT VALUE WITH CHARGES**

**TOTAL OR UNDEVELOPED AREA** **24,400.00**

<b>RESULTING CONSTRUCTION RATIO</b>	<b>1.75</b>		
		AVERAGE VALUE PER M <sup>2</sup>	TOTAL VALUE
<b>TOTAL NET URBANIZABLE AREA</b>	<b>20,531.00</b>		
ANU VIS	41,06.20	\$ 122,924	\$ 504,750,755
ANU STRATUM 3	16,424.80	\$ 162,239	\$ 2,664,741,139
TOTAL	20,531.00		\$ 3,169,491,894
AVERAGE PER ANU DISTRIBUTION AREA 2 /M2			
AVERAGE PER ANU DISTRIBUTION AREA 2 /M2 + OTHER CHARGES			
CHARGE	3,207.97	\$ 154,376	\$ 495,233,108
INTERMEDIATE CHARGE			
TOTAL CHARGES		\$ 24,121	\$ 495,233,108
TOTAL REIMBURSABLE AREA OF ROAD ENCUMBRANCES	3,869.00	\$ 154,376	\$ 597,280,412
VALUE OF THE LOT MINUS CHARGES		\$ 134,079	3,271,539,197.66
OFFERING PRICE OF LOT		\$ 131,148	
OFFERING PRICE AFTER NEGOTIATION		\$ 118,033	
DIFFERENCE TO BE ASSUMED BY OWNER		-\$ 16,046	

TOTAL EXPECTED SALES

31,047,914,926.88

**TABLE 1: Summary of lot appraisals with the application of Decree 327/04 (LOTS that require neither land readjustment nor partial plans)**

NAME	ZONE	NEIGHBORHOOD	ADDRESS	AREA M2	VALUE M2	APPRAISAL
					Asking	With charges
2	WEST	Fontibón	Calle 31 Carrera 114	21,000	200,000	177,000
5	NORTHWEST	Britalia - Cantagallo	Carrera 54 Calle 151	57,133	190,000	<b>246,000</b>
7	NORTHWEST	Engativa Urbano 345-169	Carrera 119A Calle 63 corner	14,735	159,959	<b>148,000</b>
10	SOUTHEAST	Villabel	Calle 48 Sur Av. Carrera 4 East	25,697	40,587	<b>41,000</b>
13	SOUTHWEST	Bosa_101276	Carrera 93 Calle 54B South	28,791	50,002	<b>63,000</b>
14	SOUTHWEST	DINA Turbay_328-M24135	Calle 48 p South 5-99	10,471	27,505	<b>27,000</b>
15	NORTH	346-161Codito	Av 7 at Calle 183A	24,400	131,148	134,000
17	SOUTH	Isla del Sol	Calle 69A South Carrera 55	23,814	188,964	128,000
19	NORTH	San Antonio North	Calle 183 Transversal 33A	17,234	203,087	199,000
20	EAST	Chapinero	Avenida Circunvalar between Calles 57 and 57A	12,960	424,383	372,000
21	NORTH	Los Molinos	Calle 106 Carrera 9A (south side)	16,287	1,000,000	645,000
22	SOUTH	El Playón	Avenida Caracas (Calle 51) Carrera 11 South	9,200	450,000	232,000
25	WEST	El Refugio - Fontibón	Av. Esperanza at Carrera 122A	14,736	220,548	216,000

Appraisal	Negotiation Possible	Difference From appraisal %	Appraisal without Negotiation	
			Neither charges nor VIS obligation	Vs. appraisal without charges %
177,000	180,000	1.7	215,000	-16.3
246,000	171,000	-30.5	331,000	-48.3
148,000	143,963	-2.7	186,000	-22.6
41,000	36,529	-10.9	41,000	-10.9
63,000	45,002	-28.6	70,768	-36.4
27,000	24,754	-8.3	27,000	-8.3
134,000	118,033	-11.9	162,000	-27.1
128,000	160,620	25.5	167,000	-3.8
199,000	182,778	-8.2	251,000	-27.2
372,000	360,725	-3.0	488,000	-26.1
645,000	850,000	31.8	959,000	-11.4
232,000	382,500	64.9	350,000	9.3
216,000	198,493	-8.1	309,000	-35.8

Table 1 above is reproduced from Annex 1. In it we summarize the 13 lots that were studied, each of them liable to development and not subject to land readjustment. They are subject to two principal levies and obligations: to use 20 % of the land for VIS and to contribute some of their area to the road system, a charge compensated with revised regulations allowing an increased construction ratio.

In the case of Lot 2 the value with neither charges nor a VIS obligation is \$215,000 per m<sup>2</sup>. The appraisal for purchase after the land owner assumes charges would be \$177,000 per m<sup>2</sup>. This owner is asking \$200,000 per m<sup>2</sup> and after our contact with him he is inclined to agree to a negotiated price of \$180,000 per m<sup>2</sup> for a transaction with a builder, a reduction of 10 %. Observe in Table 1 that the price accepted by the owner is equal to the appraisal of the lot after charges, and is less than the price expectation without charges or obligations. This would be assuming a discount of 16 % in relation to the price expectation for the land without charges. Thus the land owner assumes the general charges and obligations and they are not passed along to the buyer-developer.

If we look at all 13 data sets on Table 1 we see that Lot 22 is unique. The minimum price acceptable to the seller or owners exceeds the value of the lot without charges by 9% and exceeds the appraisal of the lot after charges by 64 %. Although possible buyers considered the purchase of this lot, no transaction was reached because builder-developers are unwilling to pay the asking price. The owner thinks that the lot is more valuable because it can be put to commercial use but appraisers do not believe that its transaction value will reach the level expected by the owner due to its location in a low-income area.

The builders studied insist on paying no more than the appraised amount after charges. No transaction will result and in keeping with the definition of commercial value no agreement between the parties will be possible.<sup>11</sup>

In the case of the other 12 lots, we find that the value that the seller or owner is willing to negotiate is below the value of the lot without charges and without obligations for VIS. Between -10 and -48 % of this value is accepted, with a simple average of -23 % below expected value. When the negotiable value is compared to the appraisal value after charges, 10 of the 13 data are similar to or below the appraisal performed after charges were paid. If data set 22 is not considered, the average is -4.4 %.

Lot 21 is an interesting case. It is located in the northern part of the city in the area of greatest demand for upper strata housing. It is one of the few lots in the city of this size for this social stratum. The appraisal without charges is \$959,000 per m<sup>2</sup> and the owner is asking \$1,000,000 per m<sup>2</sup>. He states that he will not sell it for less than \$850,000 per m<sup>2</sup>. If charges are applied the lot should be worth \$645,000 per m<sup>2</sup>. It has been on the market for six months and no developer or builder has acquired it, as they consider it very expensive. Given the scarcity of lots for this stratum and the strong demand for property, it may sell for more than the value of the lot with charges; that is, for about \$750,000 per m<sup>2</sup>. In this case, the charges and obligation would be shared between the owner and the buyer.

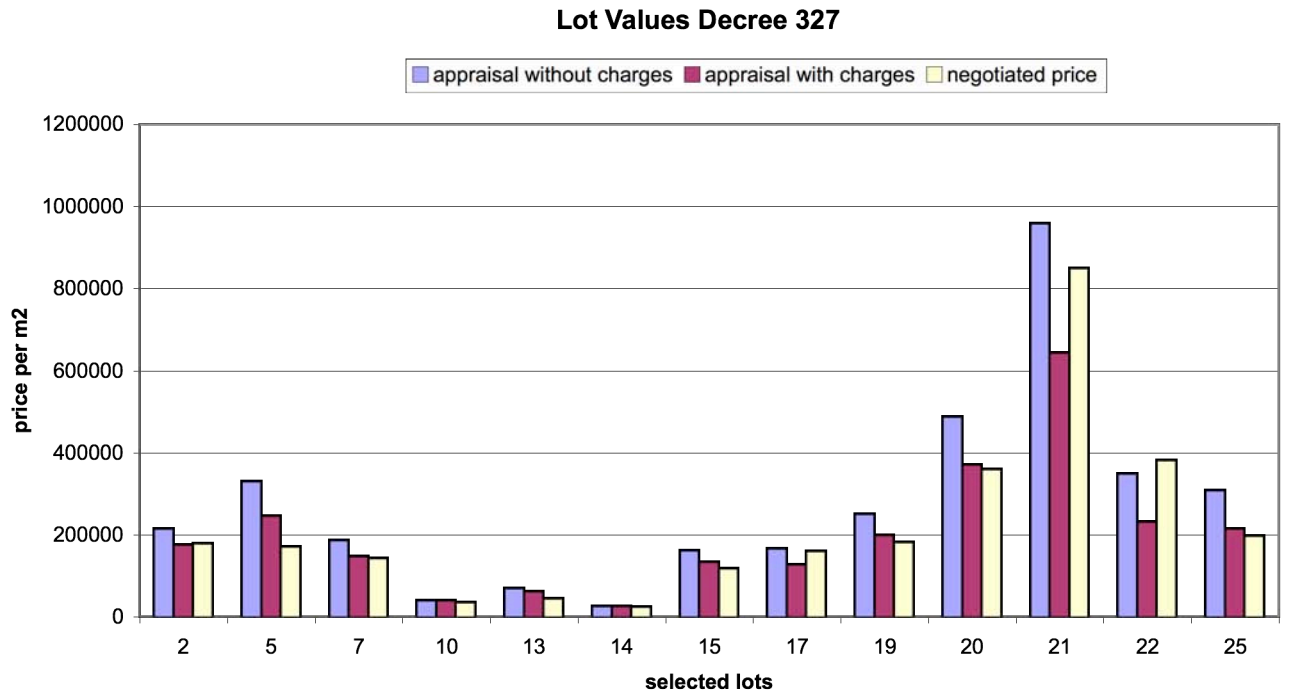
To summarize, the owner is willing to assume the costs of charges and obligations for 11 of the 13 lots studied, discounting these expenses from the price.

On the following graph we can compare sellers' initial price expectations with appraisals after charges and possible negotiated prices deemed acceptable by sellers up to this time. It is certainly true that once sellers and buyers sit down to negotiate, even further reductions are possible.

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<sup>11</sup> Commercial or market value is defined as “the most probable transaction price between a seller and the buyer acting freely and without pressure, cognizant of the physical and juridical conditions that affect the real property” (Article 2 of Decree 1420/98). This definition also adheres to the parameters set out by the International Valuation Standard Committee and the Union of Pan-American Valuation Organizations.

**Graph 2**



**2.2. Undeveloped urban properties with obligations for partial plans or land readjustments (greater than 10 hectares, Decree 436/06)**

The appraisals for nine lots are presented in Annex 4. These lots are selected from undeveloped areas in Bogotá subject to Decree 436/06. In these areas, development and construction licenses are available subject to partial plans or land readjustment among landowners. Development may not take place property by property; an agreement among property owners is required.

Regulations permit a floor area ratio under 1.0 of ANU (net urbanizable area) depending on the social stratum. The owner has no right to basic construction. He must pay a minimum charge in order to develop the principal infrastructure of the zone and in return will receive a base ratio or requirement for the development of his land. Even if he wishes to build at less than that ratio he must still pay this charge to develop the land as a component of the partial plan.

Beyond this basic or required density, if owners wish to build at a greater height, density or floor area ratio, they must pay a charge for a greater construction ratio up to a limit set by the zonal planning unit (*Unidad de Planeamiento Zonal - UPZ*) or the land-use plan (*Plan de Ordenamiento Territorial – POT*), similar to the requirement under Decree 327/04. In general, and depending on the location within the city, the maximum density

may reach as high as 1.75 times ANU in almost all residential areas, or up to 2.0 in residential areas that are better located and better served by streets and roads. In multiple-use areas that include office and commercial space the ceiling may reach 2.5 times ANU. In this research we work only with ceilings of 1.75 and 2.0 times ANU, depending on circumstances.

This decree also sets a standard of cessions for green areas and public parks equivalent to 4 m<sup>2</sup> per inhabitant, or a minimum 17 % of ANU. The decree also determines how population density will be calculated depending on social stratum and the size of apartments for different strata.<sup>12</sup> When the cession exceeds 17 % of ANU in order to reach the required 4 m<sup>2</sup> per inhabitant, the additional area is accepted as a charge and compensated with an increase in the allowable construction ratio. This charge laid out in Decree 327/04 also guarantees the presence of road infrastructure by setting a ratio of 4.8 m<sup>2</sup> of building construction for every m<sup>2</sup> of major roadway in the zone. Decree 436/06 regarding partial plans also accepts both the base charge and the marginal charge for increased allowable density or floor area ratio. But if more public space or green areas are authorized in a place in order to meet the requirement of 4 m<sup>2</sup> per inhabitant, the area exceeding 17 % of ANU will be considered a contribution to the base charge or the marginal charge for an increased construction ratio. Four lots that appear in Annex 4 are analyzed below.

a) Appraisal 12: Lot on Transversal 17 East at Calle 46E

This lot is to be used for VIS or an even more highly prioritized category of housing for the poorest population sectors (*Vivienda de Interés Social Prioritaria* – VIP), the cost of which may not exceed 50 minimum monthly salaries, or about US\$ (United States Dollars) 10,000. It is located in southeastern Bogotá on steep land that is difficult to service, with poor roads and public transportation. Participation in a partial plan or land readjustment is required given the size of undeveloped lots in the zone and the need to increase service coverage. Nevertheless it is within the urban perimeter.<sup>13</sup>

As land for VIS, no charges are collected. Due to its low value, it is not suitable for multifamily habitation and therefore does not require an increased construction ratio; no marginal charge for increased density need be paid. The property was appraised at \$27,557 per m<sup>2</sup>. The owner is asking a similar figure of \$27,000 per m<sup>2</sup>, and a reduction of 10% could probably be negotiated. This is close to the minimum value of urban lands for use by low-income strata in Bogotá, whose current average value is no lower than \$25,000 per m<sup>2</sup>.

The appraisal results are presented in the table below.

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<sup>12</sup> See Note 9.

<sup>13</sup> See complete appraisal in Annex 6.

**Appraisal 12**

**Transversal 17 East at Calle 47 E**

**Decree 436 of 2006**

**SUMMARY OF LOT VALUE WITH CHARGES**

<b>TOTAL OR UNDEVELOPED AREA</b>	147,319.00		
<b>RESULTING CONSTRUCTION RATIO</b>	<b>0</b>		
<b>TOTAL NET URBANIZABLE AREA</b>	<b>1,650.00</b>	AVERAGE VALUE PER M <sup>2</sup>	TOTAL VALUE
ANU VIS	145,669.00	\$ 27,557	\$ 4,014,203,788
ANU STRATUM 5		\$ 0	\$ 0
<b>TOTAL</b>	145,669.00		\$ 4,014,203,788
AVERAGE PER ANU DISTRIBUTION AREA 2 /M2			
AVERAGE PER ANU DISTRIBUTION AREA 2 /M2 + OTHER CHARGES			
TOTAL GENERAL CHARGE	0.00	\$ 27,557	\$ 0
STANDARD INTERMEDIATE CHARGE	0.00	\$ 0	\$ 0
TOTAL CHARGES		\$ 0.00	\$ 0
AREA REIMBURSABLE AS ROAD ENCUMBRANCE	1,650.00	\$ 27,557.02	\$ 45,469,086
VALUE OF LOT MINUS CHARGES		\$ 27,557	4,059,672,873.44
OFFERING PRICE		\$ 27,000	
NEGOTIATED PRICE		\$ 24,300	
DIFFERENCE TO BE ASSUMED BY OWNER		-\$ 3,257	
<b>TOTAL EXPECTED SALES</b>			<b>\$ 66,189,138,294</b>

b) Appraisal 1: Lot on Avenida Ciudad de Cali at Calle 10

This lot is in western Bogotá. It is well serviced by roads, with good local infrastructure, and close to the Tintal library and mall. The area is home to single-family and apartment developments for the lower-middle stratum. Sales are good for this stratum. See Annex 6 for a detailed appraisal with photographs and location.

The land value before charges and obligations is \$237,426 per m2. After applying the obligation for VIS, the value is reduced to 226,979 per m2. Charges are \$8,322.55 per m2, only 3.67 % of the value of the lot with respect to the initial price expectation, i.e. without charges.

The value of the lot minus charges and VIS obligations, then, is \$219,629 per m2. This would be the maximum price that a developer would pay knowing the location, social stratum, market conditions and regulatory status of the lot, i.e. knowing the associated charges and obligations. Nevertheless, the owner is asking \$125,000 per m2 and indicates that he is asking a minimal price for negotiating purposes. He is



aware that he is selling cheap. During the period of the study the property was offered to several builders and at this writing negotiations based on the price asked by the owner are possible.

The owner is asking 43 % below the appraised value of the lot after discounting charges. The owner is not only assuming responsibility for associated charges and obligations but is also further discounting the property because he needs to sell it. Once he becomes aware of the appraised value of the lot and the interest and expectations aroused in buyers by the situation he may increase the asking price, but it appears that his haste to acquire liquidity is motivating him to sell at the above-mentioned price.

### Appraisal 1

Avenida Ciudad de Cali at Calle 10  
Decree 436 of 2006

#### SUMMARY OF LOT VALUE WITH CHARGES

<b>TOTAL OR UNDEVELOPED AREA</b>	24,000.00		
<b>RESULTING CONSTRUCTION RATIO</b>	1.23		
<b>TOTAL NET URBANIZABLE AREA</b>	<b>21,196.00</b>	AVERAGE VALUE PER M <sup>2</sup>	TOTAL VALUE
ANU VIS	4,239.20	\$ 185,189	\$ 785,053,896
ANU STRATUM 3	16,956.80	\$ 237,426	\$ 4,025,987,056
TOTAL	21,196.00		\$ 4,811,040,952
AVERAGE PER ANU DISTRIBUTION AREA 2 /M2			
AVERAGE PER ANU DISTRIBUTION AREA 2 /M2 + OTHER CHARGES			
TOTAL GENERAL CHARGE	777.19	\$ 226,979	\$ 176,404,835
INTERMEDIATE STANDARD CHARGE	3,410.99	\$ 0	\$ 0
TOTAL CHARGES		\$ 8,322.55	\$ 176,404,835
AREA REIMBURSABLE AS ROAD ENCUMBRANCE	2,804.00	\$ 226,978.72	\$ 636,448,331
VALUE OF LOT MINUS CHARGES		\$ 219,629	5,271,084,448.54
OFFERING PRICE		\$ 125,000	
NEGOTIATED PRICE		\$ 112,500	
DIFFERENCE TO BE ASSUMED BY OWNER		-\$ 107,129	
CHARGES AS PERCENTAGE OF EXPECTED PRICE		3.7%	
TOTAL EXPECTED SALES			\$ 33,813,736,560

c) Appraisal 4: Calle 153 at Carrera 54 A

Situated in northwestern Bogotá, this lot is very well served by roads and public transportation. There are several large stores and malls in the area. It is an area of middle income apartments and houses. Demand is currently strong.

Land values before charges and obligations were \$399,061 per m<sup>2</sup>, or \$361,300 per m<sup>2</sup> after applying VIS obligations. Charges were \$35,052.94 per m<sup>2</sup>, just 9.7 % of the owner's initial price expectation without charges.

The value of the lot without charges and VIS obligations was \$326,247 per m<sup>2</sup>. This would be the maximum price that a developer aware of the location, social stratum, market and regulatory status of the lot would pay, i.e. if he were aware of associated charges and obligations. Nevertheless, the owner is asking \$600,000 and probably expecting \$540,000 per m<sup>2</sup> after a discount of 10 %. In conversations with the real estate agent collecting this research data, the owner stated that given the qualities of his property he would not go below \$500,000 per m<sup>2</sup>, which he considered a good price. This is far from the \$399,000 per m<sup>2</sup> figure for the lot without charges. The owner is out of touch with market reality and will probably not sell the lot. In our conversations with builders they indicated that they considered the lot very good but they would not pay more than the appraised value and would not assume responsibility for the charges. The owner expects that the lot could be used for upper-middle strata and for commercial uses, but demand in the area does not correspond to these expectations. In conclusion, there will not be any transaction at this time. The owner will have to wait until he needs to sell the lot, at which time developers will pay him a figure similar to that of the appraisal value.

The owner is asking 65 % more than the lot's value and 35 % more than the \$399,061 per m<sup>2</sup> that it would be worth without charges or obligations. Not only does he wish to transfer responsibility for charges and obligations to the developer but his price expectations are very much higher than the expected transaction price.

**Appraisal 4**  
**Calle 153 at Carrera 54 A**  
**Decree 436 of 2006**  
**SUMMARY OF LOT VALUE WITH CHARGES**

<b>TOTAL OR UNDEVELOPED AREA</b>	40,000.00		
<b>RESULTING CONSTRUCTION RATIO</b>	1.414		
<b>TOTAL NET URBANIZABLE AREA</b>	<b>40,000.00</b>	AVERAGE VALUE PER M <sup>2</sup>	TOTAL VALUE
ANU VIS	8,000.00	\$ 210,255	\$ 1,682,041,412
ANU STRATUM 4	32,000.00	\$ 399,061	\$ 12,769,964,884
<b>TOTAL</b>	<b>40,000.00</b>		<b>\$ 14,452,006,296</b>
AVERAGE PER ANU DISTRIBUTION AREA 2 /M2			
AVERAGE PER ANU DISTRIBUTION AREA 2 /M2 + OTHER CHARGES			
<b>TOTAL GENERAL CHARGE</b>	3,880.76	\$ 361,300	<b>\$ 1,402,117,593</b>
INTERMEDIATE STANDARD CHARGE	5,369.24	\$ 0	\$ 0
<b>TOTAL CHARGES</b>		\$ 35,052.94	\$ 1,402,117,593
AREA REIMBURSABLE AS ROAD ENCUMBRANCE	0.00	\$ 361,300.16	\$ 0
<b>VALUE OF LOT MINUS CHARGES</b>		\$ 326,247	13,049,888,702.63
OFFERING PRICE		\$ 600,000	
NEGOTIATED PRICE		\$ 540,000	
DIFFERENCE TO BE ASSUMED BY OWNER		\$ 213,753	
CHARGES AS PERCENTAGE OF EXPECTED PRICE		9.7%	
<b>TOTAL EXPECTED SALES</b>			<b>\$ 101,332,341,818</b>

d) Appraisal 8: Calle 170 at Carrera 70 (Partial Plan Carrascal)

Situated in the city's north, this lot is well served by roads and public transportation. The area includes several large stores and malls. It is a middle stratum area of single-family houses and apartments. Demand is currently strong. The complete appraisal report can be seen in Annex 6 and the applied residual method is detailed in Annex 5.

Land value before charges and obligations is \$362,297 per m2, reduced to \$330,576 per m2 after applying the VIS obligation. Charges are \$32,072.15 per m2. These charges are only 9.7 % of the initial expected price, i.e. without charges.

The value of the lot minus charges and VIS obligations is \$301,367 per m2. This would be the maximum price that a developer would pay, knowing the location, social stratum, market conditions, and regulatory status of the lot, i.e. being aware of the associated charges and obligations. Nevertheless, the owner is asking \$376,109 and it is probable that he supposes a 10% discount, reducing the price to \$338,498 per m2. In the course of this study he indicated that for negotiating purposes he could lower the price as much as

15 %, i.e. to \$320,000 per m<sup>2</sup>. This is a figure very similar to the appraised value after charges. We are sure that a deal can be negotiated.

The owner is asking 12 % over the value of the lot and 7 % below the \$362,297 per m<sup>2</sup> that the lot would be worth without charges or obligations. This is a realistic and down-to-earth landowner who believes that charges and obligations should be shared between the land owner and the developer. He has passed along part of the charge but is aware that he should assume part of it as well.

This property is subject to a partial plan currently being developed by the district planning authority. In the meanwhile, the owner has a part of this property for sale but he knows that once the new decree is issued, there will be additional charges and obligations. It is possible that in the process of a sale to a builder all charges may revert to the property owner making for a discount of 15 to 20 % over the asking price rather than the customary 10 %. On properties subject to charges and encumbrances, negotiated prices often diverge significantly from the original asking price.

We can conclude that in this case the property owner could easily assume the value of associated charges and obligations.

**Appraisal 8**

**CALLE 170 at CARRERA 70 (Charrascal Partial Plan)**

**Decree 436 of 2006**

**SUMMARY OF LOT VALUE WITH CHARGES**

<b>TOTAL OR UNDEVELOPED AREA</b>	31,413.00		
<b>RESULTING CONSTRUCTION RATIO</b>	<b>1.414</b>		
<b>TOTAL NET URBANIZABLE AREA</b>	<b>28,609.00</b>	<b>AVERAGE VALUE PER M<sup>2</sup></b>	<b>TOTAL VALUE</b>
ANU VIS	5,721.80	\$ 203,693	\$ 1,165,488,538
ANU STRATUM 4	22,887.20	\$ 362,297	\$ 8,291,971,313
<b>TOTAL</b>	<b>28,609.00</b>		<b>\$ 9,457,459,851</b>
AVERAGE PER ANU DISTRIBUTION AREA 2 /M2			
AVERAGE PER ANU DISTRIBUTION AREA 2 /M2 + OTHER CHARGES			
<b>TOTAL GENERAL CHARGE</b>	<b>2,775.61</b>	<b>\$ 330,576</b>	<b>\$ 917,552,246</b>
INTERMEDIATE STANDARD CHARGE	3,840.22	\$ 0	\$ 0
<b>TOTAL CHARGES</b>		<b>\$ 32,072.15</b>	<b>\$ 917,552,246</b>
AREA REIMBURSABLE AS ROAD ENCUMBRANCE	2,804.00	\$ 330,576.39	\$ 926,936,189
<b>VALUE OF LOT MINUS CHARGES</b>		<b>\$ 301,367</b>	<b>9,466,843,793.49</b>
ASKING PRICE		\$ 376,109	
NEGOTIATED PRICE		\$ 338,498	
DIFFERENCE TO BE ASSUMED BY OWNER		\$ 37,131	
CHARGES AS A PERCENTAGE OF EXPECTED PRICE		9.7%	
<b>TOTAL EXPECTED SALES</b>			<b>\$ 68,850,091,697</b>

**Table 2: Summary of appraisals of lots covered by Decree 436/06, which do require land readjustment or partial plan**

NAME	ZONE	NEIGHBORHOOD	ADDRESS	AREA M2	PRICE M2	APPRAISAL
					ASKING	WITH CHARGES
1	WEST	Castilla	Avenida Ciudad de Cali, Calle 10	24,000	125,000	219,000
3	WEST	near Ciudadela Colsubsidio	Avenida Calle 80 (west side) Carrera 119	23,300	309,013	198,000
4	NORTHWEST	Mazuren 76-2595	Calle 153 Carrera 54A	84,000	600,000	326,000
6	NORTHWEST	Colina de Suba	Calle 164 Carrera 78 (old Carrera 56 and 54)	84,000	297,619	254,000
8	NORTHWEST	118-642 San Jose V sector	Avenida Calle 170, Carrera 70	31,413	376,109	301,000
12	SOUTHWEST	Usme - Altos del Virrey	Transversal 17 East, Calle 47	147,319	27,000	27,500
18	NORTH	Autopista Norte	Calle 170 between 7 and 8 (south side of Calle 170)	40,000	250,000	280,000
23	WEST	Alamos 343-58	Transversal 93 North 62-51	27,179	400,015	207,000
24	SOUTH	345-199 Olarte	Autopista Sur with Transversal 73 B (Transversal 73 B 57R -24 South	10,040	450,000	177,000

APPRAISAL	NEGOCIATION	DIFFERENCE	APPRAISAL WITHOUT NEGOCIATION		OBSERVATION
WITH CHARGES	POSSIBLE	WITH APPRAISAL	NEITHER CHARGES NOR VALUE INCREMENTS	VS. APPRAISAL WITHOUT CHARGES	
219,000	125,000	-42.9%	237,000	-47.3%	
198,000	262,661	32.7%	211,000	24.5%	
326,000	510,000	56.4%	399,000	27.8%	
254,000	252,976	-0.4%	300,000	-15.7%	
301,000	319,693	6.2%	362,000	-11.7%	
27,500	24,300	-11.6%	27,500	-11.6%	
280,000	225,000	-19.6%	335,000	-32.8%	
207,000	340,013	64.3%	259,000	31.3%	INDUSTRIAL USE
177,000	360,000	103.4%	234,000	53.8%	INDUSTRIAL USE

It can be concluded from the table above that 4 of the 9 lots appraised are not apt to be sold even for the maximum price expected without charges, much less for their value without charges. Lots 23 and 24 are for industrial use and thus less valuable, but their owner insists that regulatory change is possible to allow for their residential use. However, these zoning regulations can not be changed and the owner is asking a price that he will never obtain on the market. These lots were rejected by the builders who were consulted.

The asking price for Lots 3 and 4 is also inflated, even considering charges and obligations. Their location is good but no buyer will be willing to meet the seller's price expectations. The use of this land could be commercial or it could be used for a higher stratum, thus the elevated asking price. Builders and developers who were consulted indicated that they would not pay the price that the seller expects to receive. They accepted the appraisal after charges and sent messages to the land owner through the realty agents conducting this research saying that they would be willing to negotiate and to assume the charges and obligations as described in the appraisal. One of the sellers of Lot 3 indicated that he would study the appraisal and could revise his price expectations on that lot. On the other hand, it is being sold through an intermediary firm that has had it on the market for six months without receiving any offers. We don't believe that there will be negotiations in this case and in our opinion the owner's asking price does not represent the property's commercial value; he is misinformed.

In all remaining cases, landowners are willing to sell their properties at prices under the maximum price originally expected without charges, at a price similar to that of the lot appraisal after paying charges and VIS obligations.

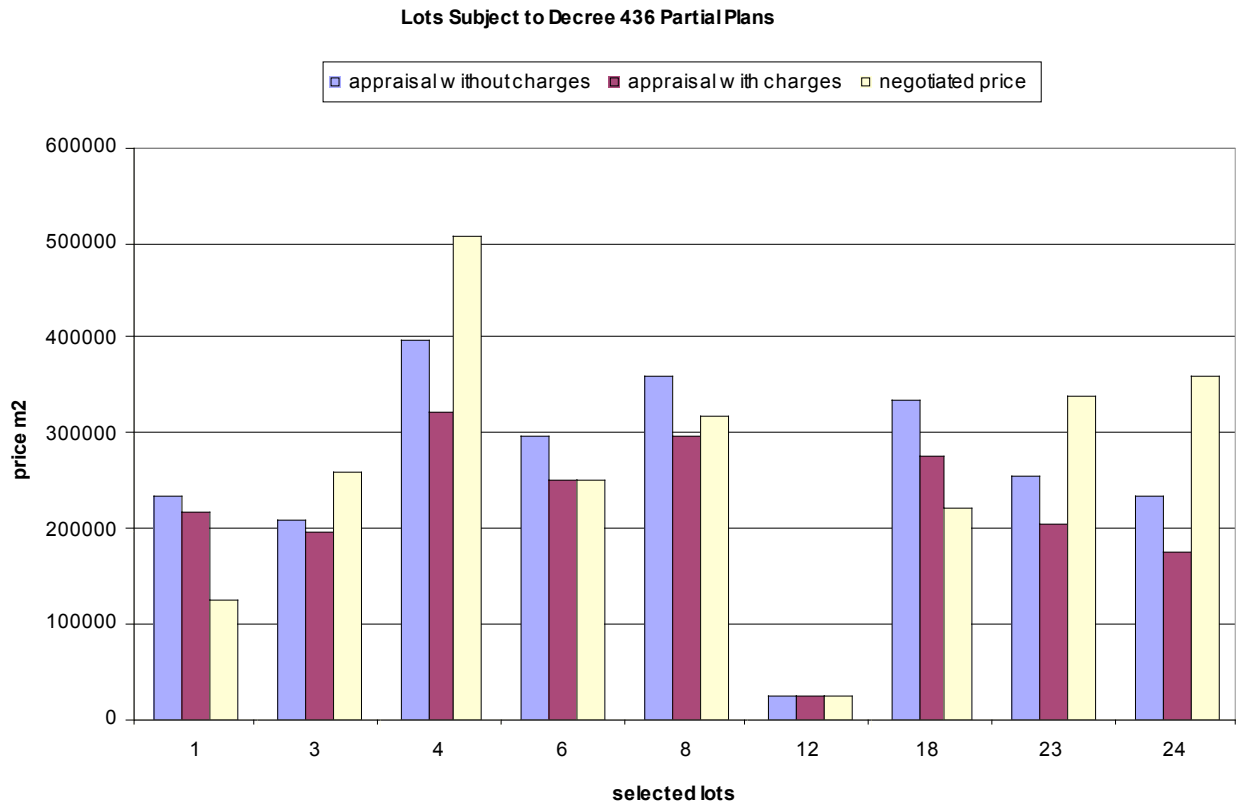
In the following graph we can compare expected selling prices with appraisal prices after charges and negotiated prices that may be acceptable to sellers. Certainly once negotiations are opened between sellers and buyers even greater reductions are possible.

The study of 9 lots subject to partial plans indicated that in lots for residential use there was a tendency for land owners to accept the idea that they would pay charges and VIS obligations. They accepted responsibility for charges in five of the seven residential lots. In commercial lots and residential lots for higher social strata, on the other hand, they indicated that the developer or buyers should assume this responsibility and the land price was not reduced by an amount similar to that of the charges and obligations. These land owners attempt to pass along to the buyer the costs of charges and obligations associated with the partial plan.

We believe that this behavior can be explained by the fact that property owners maintain their original expectations. They compare their land with consolidated areas and remain unaware of or don't accept the fact that partial plans burden them with new charges and obligations. Consultations with property owners by researchers and real estate agents demonstrated the owners' complete ignorance of new regulations. Decree 436/06 was issued only in October 2006. Little time has passed for it to be publicized and accepted in practice. Appraisers and assessors have just recently begun to understand and apply it,

and real estate agents are gradually coming to understand it well enough to explain it to their clients.

**Graph 3**



This behavior is different from that associated with lands discussed above subject to Decree 327/04, which does not require partial plans. This decree was issued in July 2004 and already had two years to be understood and applied by appraisers and assessors, real estate agents, builders, and property owners. Thus the owners of these properties integrate their responsibility for charges and obligations into their price expectations.

Opinion of the LPRB and Bogotá assessors: It is important to note that since Decree 327/04 was issued in 2004, stipulating charges and obligations for properties to be developed, the LPRB has established a methodology that discounts charges in order to determine expected commercial prices. In Annex 1, Table 3, we present a sample of 15 appraisals carried out by the LPRB in 2005 and 2006 in which charges were applied and the residual method was used in order to determine expected market value.



### 2.3. Charges and obligations associated with undeveloped properties in the Bogotá urban area

Undeveloped properties under 10 hectares are regulated by Decree 327/04.<sup>14</sup> Properties larger than 10 hectares that require partial plans or land readjustment are subject to Decree 436/06. From the appraisals studied corresponding to the two types of regulation, we produced an analysis of the weight or percentage of the charge with respect to the value of the lot without charges and with respect to the value of property sales on the proposed project. Table 2 of Annex 1 presents the results for the lots studied. Results for both types of regulation are presented on the following graphs.

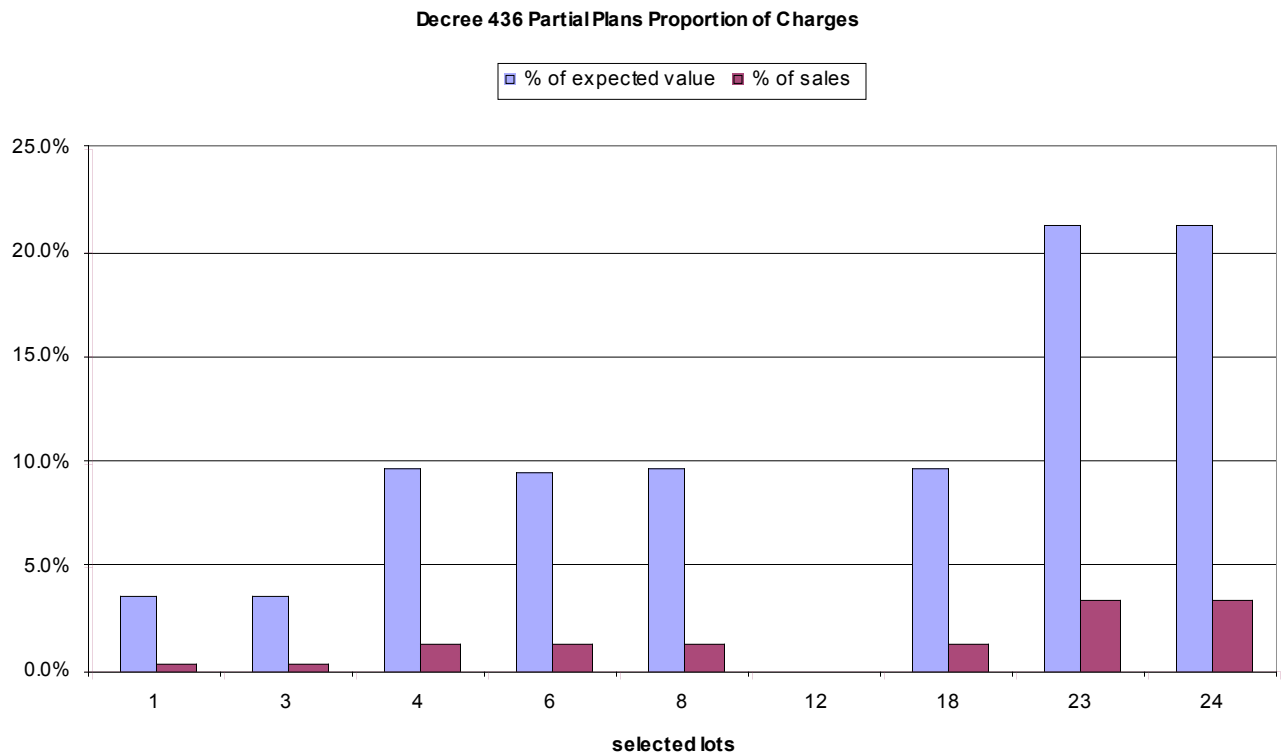
On the model for Decree 327/04, required charges vary between 20 and 25 % of the price expectation for the lot without charges. That is to say that the property owner is losing this percentage because if he wants to sell his property he must lower his price by at least 20 % with respect to what his lot was considered to be worth before charges were established in 2004. If the developer assumes these charges, they average 3 % of sales on the project. This explains why developers demand that charges be assumed by property owners. Since their profits range between 10 and 12 % of sales, charges would be equal to a fourth of expected profits if they did not increase sale prices to final buyers, and the latter option is not very viable in a competitive market.

**Graph 4**



<sup>14</sup> This refers to zones, not to the size of lots. A lot may be only 3 hectares but if it is located in a 15 hectare zone then it will be subject to a partial plan.

## Graph 5



With Decree 436/06 on partial plans, on the other hand, charges for housing projects vary between 5 and 10 % of the value of the lot without charges or the land owners' price expectations. Their discount should be no more than 10 %. Only lots for commercial or industrial use (Lots 23 and 24) had a charge of 20 %. If charges were assumed by builder-purchasers on housing projects, they would only amount to between 1 and 1.5 % of sales. Thus charges can be assumed by developers in cases where lots are very well located and owners are not willing to assume them.

It should be noted that VIS projects have a marginal rather than a base charge that increases in proportion to construction density, but is very low compared to the price of the lot. While under Decree 327/04 charges and obligations come to between 20 and 25 % of the expected value of the lot without charges, under the new Decree 436/06 these VIS charges and obligations come to between 5 and 10 % for housing projects, depending upon the social stratum. While under Decree 327/04 charges for middle class housing reach between 15 and 25 %, charges for the same stratum under Decree 436/06 come to half that, about 9.5 %.

It was expected that Decree 436/06 would entail greater obligations or charges for land owners, given that it applies to properties with less infrastructure, and that require partial plans. However, in their discussions with us, builders associated with CAMACOL<sup>15</sup> (the

<sup>15</sup> The Colombian Chamber of Construction (*La Cámara Colombiana de la Construcción – CAMACOL*) is an association of land developers and builders of subdivisions.

Colombian Chamber of Construction (*La Cámara Colombiana de la Construcción – CAMACOL*) accepted the idea that if the area they were required to contribute for green space (4 m<sup>2</sup> per inhabitant) exceeded 17 %, the minimum under the requirements of the Land-use Plan (POT), they would be proportionally compensated in the calculation of general charges under the partial plan. This procedure was explained in the assessment methodology mandated by the decree.<sup>16</sup>

Since the construction ratio is not reduced, the builder will erect 10 to 12 story towers with a low land occupation ratio, allowing more space for infrastructure and green areas. Garages will be located in basements or on the first floor, and the construction ratio will not be affected by the standard set out in the new Decree 436/06. Nevertheless, the base charge and a marginal charge for increased building density will be fulfilled by setting aside more land for green space. This obligation to provide more park area is not expensive for the builder since he does not lose construction density. Only the basement and the building height have additional costs. That's why this kind of project is only feasible for middle and high strata.

In conclusion, the charges associated with the new Decree 436/06 are lower than those in previously existing Decree 327/04, which did not require partial plans and which supposedly provided for greater development and infrastructure. It is not logical that the two norms are so different for properties greater and lesser than 10 hectares.

#### **2.4. Properties on the northern urban periphery**

In Reports 1 and 2 of this research we provided an analysis of the charges expected within the area of the Northern Zonal Plan (*Plan Zonal del Norte – ZPN*) and data regarding the appraisals of certain of these properties performed by the LPRB (see Annex 1, Table 3). For example, the lot belonging to the government's National Investment Center (*Central de Inversiones - CISA*) designated as Tibabita and *Millonarios* (Bogotá's most prominent football team), which was appraised at 50 % under the owners' expectations. These transactions are in process and the owners have agreed to accept responsibility for the charges. Only the mayor's signature is now required on a decree to finalize this transaction, and that is expected in July 2007.

Four other transactions between land owners, builders, and developers that stipulated discounting expected charges and levies from price expectations were presented in Report 1.

During research for this study we again found many lots on the city's northern periphery, a zone of urban expansion, where property owners' price expectations were still high because they were unaware of the value increments and other charges they would have to pay. This decree has still not been approved by District Planning and is still being debated by professional organizations and district officials. It will probably be approved by the middle of the year. Negotiations will get more serious at that time, because for now the discussion can only refer to options or provisional land purchases that will not be finalized until the northern zonal plan is established, defining the betterment levies and other charges that will have to be paid.

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<sup>16</sup> See Note 8.

In Annex 1 of this report we present a table with 32 lots that went on sale between June 2005 and December 2006. Thirteen of them were in the area of the northern zonal plan. In March 2007, five of these 13 lots had been sold, specifically those that were suitable for commercial use due to their location on the Autopista Norte, a major urban thoroughfare. These sales were generally negotiated as options to buy, contingent on the approval of the zonal plan that would define the charges and levies on value increments that would be due. Prices for most of these options were as yet to be determined, dependent as they were on a percentage of the sales or land uses permitted or prices to be determined once charges and levies were quantified.

In Report 1 we concluded that land owners assume responsibility for charges and levies in zones of expansion. This was attested by real estate agents, CAMACOL builders, and LPRB appraisers.

In Annex 1, Table 1 of this report we present 6 large lots that have been appraised by our researchers or by the LPRB or that are in the course of being transacted between large landowners and large developers.

In Annex 5 of this report we present Appraisals 9 and 16 of the northern zonal plan conducted by the residual method. Appraisal reports on these lots appear in Annex 6. Due to its size, Lot 9, with 172,000 m<sup>2</sup>, must be approved through the partial plan for larger properties once the northern zonal plan is approved. It will be used for office and commercial purposes due to its good location on the Autopista Norte at Calle 194 on the city's northern periphery. It is in an area of expansion and will be subject to all charges relevant to the city's major northern expansion, estimated at \$60,000 per gross square meter. Another 50 % of the value increment or greater value of the lot compared to the original rural price of the land must also be paid, although no land owner today would sell this property at its rural price (estimated between \$12,000 and \$15,000 per m<sup>2</sup>).

In the appraisal model presented the potential development of the affected area or lot is considered, reaching the conclusion that it could be worth \$310,000 per m<sup>2</sup> without taking charges or value increments into account. Discounting \$60,000 per m<sup>2</sup> for charges and \$97,000 per m<sup>2</sup> for the expected value increment, the property owner receives \$142,000 per m<sup>2</sup>, which is the value of our appraisal.

We used the same procedure to appraise Lot 16, located in the Tibabita sector on Carrera 9 at Calle 200. This is an area of middle stratum housing where, however, a charge of 20% for VIS must be assumed. The results of the appraisal can be seen in the annexes: prices of \$215,000 per m<sup>2</sup> without charges. Discounting \$59,000 per m<sup>2</sup> for charges and \$66,000 per m<sup>2</sup> for value increments, the landowner will receive \$490,000 per m<sup>2</sup>.

The LPRB performed appraisals 26 and 27 by the same procedure for CISA and *Millonarios*. These values were \$70,000 per m<sup>2</sup> and \$85,000 per m<sup>2</sup> respectively at the end of 2006. They were accepted by the land owners and placed on sale to the public. Offers were made and the transactions were carried out.

Lots 29 and 30 have also been subject to transactions between their owners and large developers, expert appraisals having been carried out and the results analyzed by the latter. They await the approval of the zonal plan and the partial plan, respectively.

The following chart presents initial price expectations, appraisals with charges and levies on value increments and transaction prices

A. Northern Zonal Plan						
NAME	ZONE	NEIGHBORHOOD	ADDRESS	AREA M2	PRICE M2	APPRAISAL
9	NORTH	76-2309 Canaima	Autopista Norte with Calle 194	172,000	300,000	142,000
16	NORTH	Tibabita - Floresta de La Sabana	Calle 201 Avenida Carrera 9	16,700	132,156	90,000
26	NORTH	Tibabita (CISA)	Carrera 7 at Calle 200	183,869	150,000	70,000
27	NORTH	Millonarios	Autopista Norte	121,784	150,000	85,000
29	NORTH	Mazuren Sector	Carmel Partial Plan	200,000	130,000	60,000
30	NORTH	Autopista Norte	Partial Plan in process	300,000	120,000	70,000

B. Usme Zonal Plan						
11	SOUTHEAST	Central Usme	Calle 138 South Carrera 3 (at Avenida Caracas)		18,000	15,000
28	SOUTHEAST	Usme	Villavicencio Road	1,540,000	25,000	15,000

APPRAISAL	NEGOTIATION	DIFFERENCE	APPRAISAL WITHOUT NEGOTIATION		COMMENT
142,000	240,000	69.0%	310,000	-22.6%	Commercial use
90,000	105,725	17.5%	215,000	-50.8%	
70,000	70,000	0.0%	175,000	-60.0%	Transaction
85,000	85,000	0.0%	201,000	-57.7%	Transaction
60,000	60,000	0.0%	180,000	-66.7%	Transaction
70,000	70,000	0.0%	180,000	-61.1%	Transaction
15,000	15,000	0.0%	60,000	-75.0%	Transaction
15,000	22,500	50.0%	60,000	-62.5%	

Only on Appraisal 9 is the land owner asking the price of the lot without charges. If he assumes the charges the price should be reduced by half but he told our researcher-appraisers that he would not go any lower than \$240,000 per m2, assuming the charges but not the value increments. Developers who were asked stated that despite its good location they were not interested in purchasing the property at that price because then

they would have to pay the value increments. Thus this is NOT the commercial value of the property because it will not lead to any transaction. The price being asked by the property owner is strictly in his mind; it bears no relation to the market.

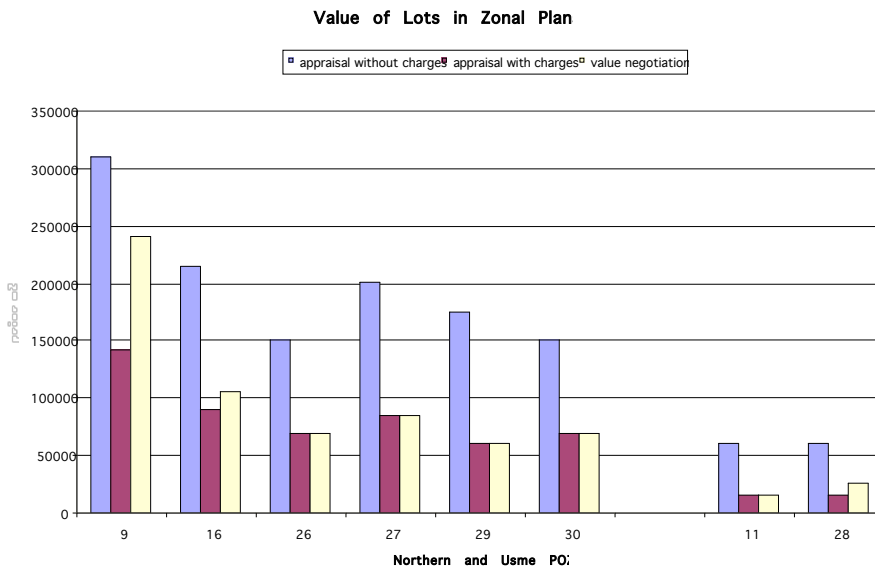
The owner of Lot 16 is willing to lower his price to the extent necessary to absorb all the charges and part of the value increments. There is a buyer interested in purchasing the property at that price, but there will be no transaction until the northern zonal plan is approved.

Sales of Lots 26, 27, 29, and 30 have been or are in the process of being transacted. In each case the seller or property owner has agreed to assume all charges and value increments and is selling the property at the appraisal value minus the cost of these obligations. These are transaction prices and thus commercial or market values that will serve as reference points for future transactions once the zonal plan is approved for the city's northern periphery.

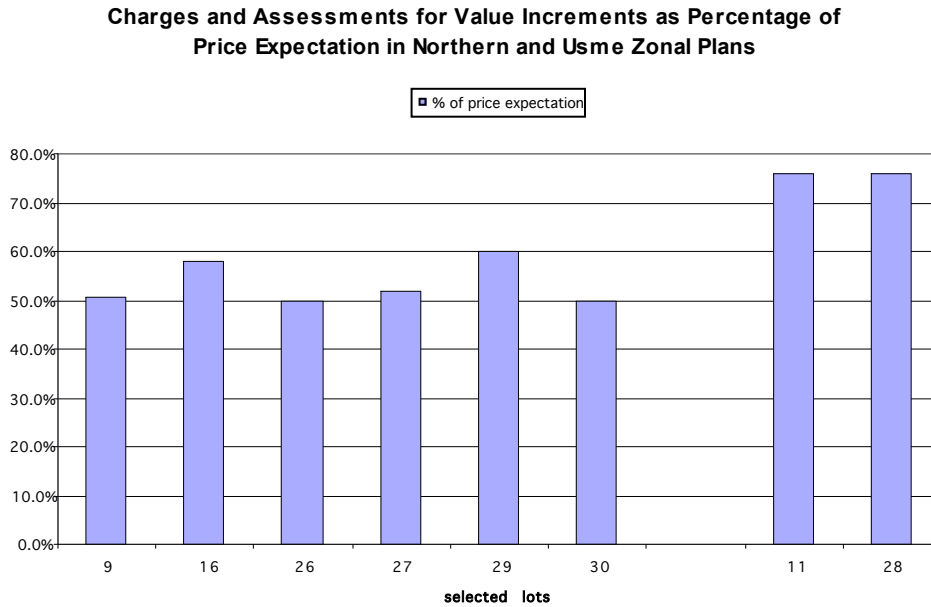
The graph below illustrates in proportional terms the obligations assumed by property owners in these negotiations.

With regard to the value of the charges and value increments assumed in peripheral area zonal plans, the following graph indicates a proportion greater than 50 % on the northern periphery and near 75 % on the southern periphery. Although the charges are much greater in the north, their proportion in relation to values is smaller since these middle and high strata lots are so costly. Charges and value increments are nominally lower in the south but they represent a large proportion of values because these are VIS properties.

**Graph 6**



## Graph 7



### 2.5. Properties on the southern urban periphery

In an earlier report we presented an analysis of the impact of the decision on charges and obligations of the Usme zone on the area's zonal plan. The LPRB appraised a 154 hectare property for the largest land owner in the area, applying known charges. The property owner did not accept the appraisal and stated that he could assume some of the charges, but not the value increments. This is an ongoing discussion because some land owners in the area do not accept the charges.

The new decree approving the Usme Zonal Plan is awaiting the mayor's signature. It defines the charges and therefore provides the parameters for appraisals and transactions in this entire area of expansion on Bogotá's southern periphery.

As part of this study we appraised Lot 11, for which the owner is asking \$18,000 per m<sup>2</sup> and would lower his expectations to the \$15,000 per m<sup>2</sup> of our appraisal, which discounted charges and value increments. In this case the land owner would assume the property taxes.

In another case, the owner of Lot 28 thinks that it is worth between \$25,000 and \$30,000 per m<sup>2</sup>. Without charges and assuming additional value due to the multiple uses (multifamily and commercial) provided for in the Zonal Plan, its price could be as much as \$60,000 per m<sup>2</sup>. Thus, the asking price is less than the possible maximum transaction price. But the owner will not lower his price below \$22,500 per m<sup>2</sup>, since the value after charges and value increments is \$15,000 per m<sup>2</sup>. Since this property belongs to the largest land owner in the area, there is a great deal of curiosity about what price will be arrived at. Low-income housing developers have indicated that they will not pay more than \$15,000 per m<sup>2</sup> for these properties because they are to be used for very basic VIS

and it would be impossible to pay more if they are also responsible for charges and value increments.

The LPRB's other appraisals in the Usme area (see Annex 1) have completely discounted the charges associated with the zonal plan and expected value increments. Three other lots that were appraised in the area of the Usme Zonal Plan can be seen on this table. Their values range between \$6,000 and \$13,500 per m<sup>2</sup> since they are in areas of expansion. Clearly, these values have already discounted the expected charges and value increments.

### **3. Evolution of the market for undeveloped and peripheral land in 2005-2007**<sup>17</sup>

A new sampling of lots for sale was selected in order to conduct this analysis. They replace the properties from our initial sample of 25 lots that are no longer on the market. Each of the properties was categorized according to its corresponding regulatory status with regard to usage and construction ratio. This information was provided to the appraisers for their consideration. In addition, the status of the 133 properties initially recorded as being on offer in 2005-2006 was confirmed as of March 20, 2007.

#### **3.1. The state of property offers as of March 20, 2007**

As was noted the study used a sample consisting of the undeveloped lots and lots in the peripheral zone or area of expansion that were put on sale and advertised or listed with realtors in Bogotá from June 2005 to November 2006. Our sample consisted of 133 lots with a total area of 428 hectares.

The following basic statistics were presented in the previous report:

Period analyzed:	June 2005 to November 2006
As of:	November 22, 2006
Properties on offer:	133
Sold:	26
Information not available:	18
Total sold or no information available:	44

Below we present a comparison of the behavior of properties on offer as of two dates (November 2006 and March 2007).

Between June 2005 and November 2006, 19.5% of the lots on offer had been sold. By March 2007 this percentage had increased to 41% (55 lots sold compared to 26, an increase of 29 lots). That is to say that in four months the percentage of monthly sales surpassed average monthly sales reported for the immediately previous year from two to seven lots per month. The year 2007 began with very dynamic sales due to the October 2006 approval of Decree 436/06 for partial plans, which allowed numerous lot sales to go forward after waiting for the final regulatory language.

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<sup>17</sup> This chapter was produced under the direction of economist Johanna Ramírez with the assistance of the research director in the analytical section.



The state of properties on offer for the two time periods in different areas are detailed in Tables 3 and 4. As can be observed, there have been greater sales in the beginning of the year in the western part of the city, comprising the neighborhoods of Fontibón, Castilla, Engativa, Álamos, and Puente Aranda.

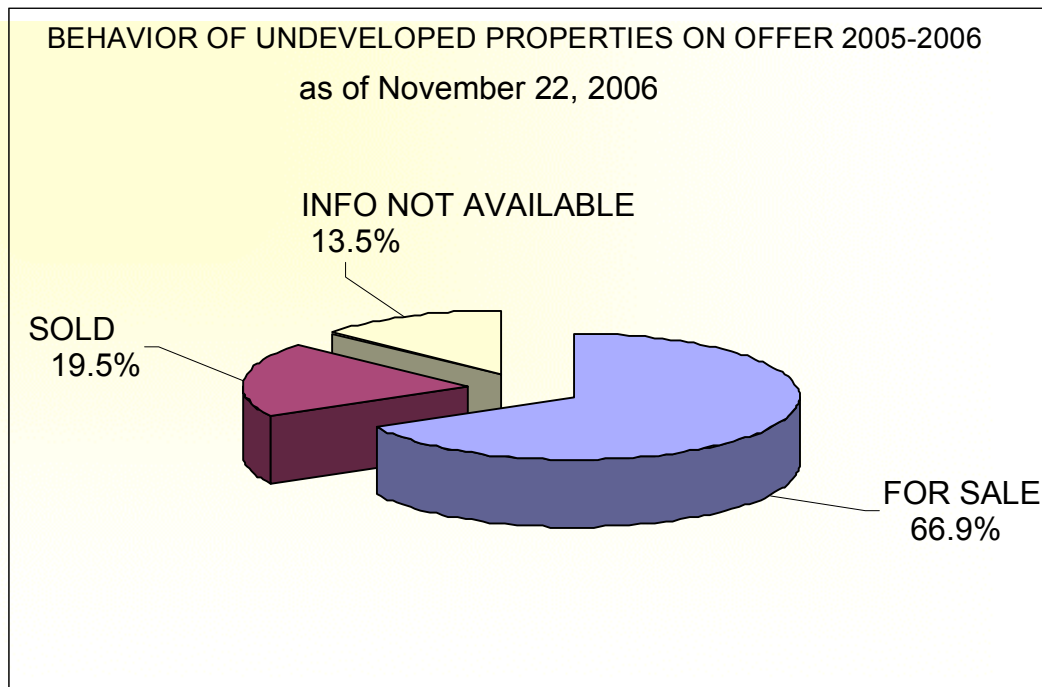
**Table 3**

SUMMARY OF BEHAVIOR OF PROPERTIES ON OFFER BY ZONE November 2006 – March 2007					
ZONE	PERIOD	FOR SALE	SOLD	INFO NA	TOTAL PROPS ON OFFER
WEST	AS OF NOV 06	33	12	7	52
	AS OF MAR 07	23	24	5	52
NORTHWEST	AS OF NOV 06	19	5	3	27
	AS OF MAR 07	9	11	7	27
SOUTHEAST	AS OF NOV 06	8	1	1	10
	AS OF MAR 07	5	4	1	10
SOUTH	AS OF NOV 06	6	-	-	6
	AS OF MAR 07	2	1	3	6
SOUTHWEST	AS OF NOV 06	6	-	-	6
	AS OF MAR 07	6	-	-	6
NORTH	AS OF NOV 06	17	8	7	32
	AS OF MAR 07	12	15	5	32
TOTAL	AS OF NOV 06	89	26	18	133
	AS OF MAR 07	57	55	21	133

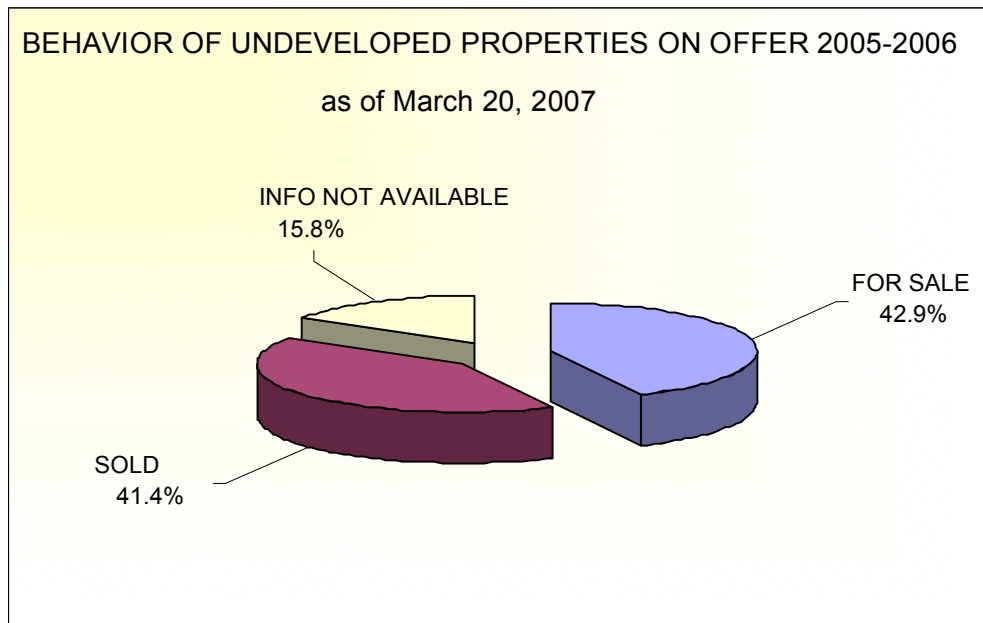
**Table 4**

Monthly Sales		
Turnover	Nov/05 to Nov/06	Nov/06 to Mar/07
West	1.0	3.0
Northwest	0.4	1.5
Southeast	0.1	0.8
South	-	0.3
Southwest	-	-
North	0.7	1.8
<b>Total</b>	<b>2.2</b>	<b>7.3</b>

**Graph 8**



**Graph 9**



As the two tables above indicate, the greatest turnover of the property inventory took place in the northern, northwestern, and western areas of Bogotá. These areas are middle and high strata and contain large amounts of land available for development. The southern, southwestern, and southeastern areas, on the other hand, are oriented more toward lower strata and low cost housing. They contain little unoccupied urban land. At this time, the approval of the Usme Zonal Plan was pending. Once it was approved, there would be 800 to 1,000 new hectares of land available for lower strata use. The market was slow, awaiting this new regulatory framework.

### **3.2. Summary of properties on offer and the regulatory frameworks to which they were subject**

Tables 5 to 10 below summarize the condition of properties on offer as of March 20, 2007, georeferencing to the extent possible the regulatory status of each of them.

In the previous report it was stated with regard to certain properties on offer that it was impossible to determine their regulatory status when either their location in areas of consolidation regulated according to the provisions of zonal planning units<sup>18</sup> or the *ArcView* coverage that was accessible from the Bogotá Planning Secretariat according to Decree 327/04 was completely out of date.

For all properties on offer that were not within areas defined by partial plans in the process of being developed and/or delimited in November 2006, and could not be

<sup>18</sup> *Unidad de Planeamiento Zonal*, Zonal Planning Unit, the area used for regulatory purposes in Bogotá.

associated with the cartographic provisions of Decree 327/04, it was assumed that they would be developed in keeping with the provisions of Decree 327/04 because they were larger than 10,000 m<sup>2</sup> and were located on land slated for development in keeping with Agreement 6 of 1990 (Bogotá's development plan) and Plate 25 of the Land-use Plan.

As can be appreciated from Tables 5-10 below, the majority of properties on offer correspond to Decree 327/04; this is conclusive and most market activity (turnover of properties as of March 2007) corresponds to this instrument. This can be demonstrated through the appraisals carried out by the LPRB and those acting under its auspices in 2005-2006 that we presented in the first report to Lincoln. It may be recalled that the regulatory instrument for Decree 327/04 was approved in July 2004, allowing for the development of areas smaller than 10 hectares.

This allowed land owners and developers at least two years to come into compliance with the provisions of Decree 327/04. The results of our research carried out through appraisals and the analysis of offers as presented in the previous chapter indicated that charges and obligations associated with the lots studied that corresponded to this regulatory instrument were almost completely assumed by land owners and not passed along to buyer-developers.

At the time of the appraisals and analysis of offers in March 2007, on the other hand, land owners had not come into compliance with the regulatory provisions for partial plans under Decree 436/06, approved in October, so land owners were able to assume charges for only half of the lots studied.

Decree 327/04 regulated only about 800 hectares within the urban periphery. It was necessary to wait until October 2006 for areas greater than 10 undeveloped hectares slated to be developed through land readjustment in partial plans to be regulated through Decree 436/06. Within the urban periphery, these areas totaled 2,300 hectares.

At this point the northern and southern Zonal Plans, incorporating 2,500 hectares of land on the urban periphery, remained to be regulated.

**Table 5**

Properties on offer in western zone by applicable regulation (March 20)									
	ON SALE		SOLD		INFORMATION NA		ALL PROPERTIES AVAIL		
	Number	%	Number	%	Number	%	Number	%	
DECRETE 327	20	87%	15	63%	1	20%	36	69%	
PARTIAL	3	13%		0%	1	20%	4	8%	
INFORMATION NA		0%	9	38%	3	60%	12	23%	
ALL PROPERTIES AVAIL	23	100%	24	100%	5	100%	52	100%	

**Table 6**

Properties on offer in northwestern zone by applicable norm (March 20)									
	ON SALE		SOLD		INFORMATION NA		ALL PROPERTIES AVAIL		
	Number	%	Number	%	Number	%	Number	%	
DECRETO 327	3	33%	5	45%	2	29%	10	37%	
PARTIAL	5	56%	3	27%	3	43%	11	41%	
PLAN NORTH	1	11%		0%		0%	1	4%	
INFO NA		0%	3	27%	2	29%	5	19%	
ALL PROPERTIES AVAIL	9	100%	11	100%	7	100%	27	100%	

**Table 7**

	Properties on offer in southeastern zone by applicable regulation (March 20)							
	ON SALE		SOLD		INFORMATION NA		ALL PROPERTIES AVAIL	
	Number	%	Number	%	Number	%	Number	%
DECREE 327	1	20%	2	50%	1	100%	4	40%
PARTIAL	-	0%	1	25%		0%	1	10%
POZ USME	1	20%		0%		0%	1	10%
INFORMATION NA	3	60%	1	25%		0%	4	40%
ALL PROPERTIES AVAIL	5	100%	4	100%	1	100%	10	100%

**Table 8**

	Properties on offer in southern zone by applicable regulation (March 20)							
	ON SALE		SOLD		INFORMATION NA		ALL PROPERTIES AVAIL	
	Number	%	Number	%	Number	%	Number	%
DECREE 327	1	50%	1	100%	3	100%	5	83%
PARTIAL PLAN	1	50%		0%		0%	1	17%
POZ USME		0%		0%		0%	0	0%
INFORMATION NA		0%		0%		0%	0	0%
ALL PROPERTIES AVAIL	2	100%	1	100%	3	100%	6	100%

**Table 9**

	Properties on offer in southwestern zone by applicable regulation (March 20)							
	ON SALE		SOLD		INFORMATION NA		ALL PROPERTIES AVAIL	
	Number	%	Number	%	Number	%	Number	%
DECREE 327	4	67%					4	67%
PARTIAL PLAN		0%						0%
POZ USME		0%						0%
INFORMATION NA	2	33%					2	33%
ALL PROPERTIES AVAIL	6	100%					6	100%

**Table 10**

	Properties on offer in northern zone by applicable regulation (March 20)							
	ON SALE		SOLD		INFORMATION NA		ALL PROPERTIES AVAIL	
	Number	%	Number	%	Number	%	Number	%
DECREE 327	5	42%	7	47%	2	40%	14	44%
PARTIAL PLAN	1	8%		0%		0%	1	3%
POZ NORTH	4	33%	7	47%	1	20%	12	38%
INFO NA	2	17%	1	7%	2	40%	5	16%
ALL PROPERTIES AVAIL	12	100%	15	100%	5	100%	32	100%

Despite the fact that the majority of properties on offer are subject to Decree 327/04, Table 10 regarding the northern zone provides overwhelming evidence to contradict the contention of CAMACOL, the professional organization of builders and developers, that the market for land subject to partial plans is stalled. In the northern zone, sales of properties subject to partial plans pertaining to the Northern Zonal Plan are comparable with sales of properties subject to Decree 327/04, which have been negotiated in advance of the zonal plan’s approval. Most of these negotiations within the area of the Northern POZ lead not to registered deeds but to sales contracts conditioned on the approval of expected regulations. If the expected legislation is not approved, the agreement between the buyer and seller is voided.

Another situation is characteristic of the northwestern and southeastern zones. Note in Tables 6 and 7 that the sale of properties regulated by the partial plan is substantial in

comparison to the sale of lots regulated by Decree 327/04. The turnover of lots seems to be homogeneous, independent of the regulatory instrument. It must be taken into account that more lots are subject to Decree 327/04 than to the partial plan, at least in our sample.

To summarize, data on the lands on offer in the June 2005 to March 2007 period (Table 11) illustrates that the greatest number of properties were subject to Decree 327/04 (73 of 133 lots studied). Of these lots, 41% (30 lots) were sold. It almost all of these transactions, charges and VIS obligations were assumed by the land owners, in keeping with the conclusions we presented in the previous chapter of this report.

Of the 133 lots on offer, 18 lots or 14% of the sample are subject to an urban partial plan (Decree 436/06). In March 2007, only four lots (22 %) had been sold. The behavior of the parties was very evenly divided in these sales. In about half the cases, the land owner absorbed the charges and VIS obligation. In the rest of the cases they were passed along to the developer. As we stated in the previous chapter, however, the charges can be assumed by the developer because they are not as high as those associated with Decree 327/04. For a more conclusive study of behavior in associated transactions, more time must be given for this instrument, in effect for only six months, to be integrated.

Of the thirteen lots for sale in fringe areas that were subject to the northern POZ, five were sold, indicating the great demand and expectations for the approval of this new zone that will provide the city with 1,500 hectares for commerce and middle and high strata housing. As we have mentioned above, all of these transactions are carried out as promissory documents subject to the approval of the regulatory instrument. But as far as we have been able to determine, all these transactions were carried out based on the expectation that the land owner would assume general charges, VIS obligations, and levies on value increments.

We were able to find only one lot for sale in the area of the Usme Zonal Plan. There are many lots whose owners could put them on the market, but they are not doing so before the approval of the zonal plan. Also, three large land owners who are not developers own most of this land. One land owner in particular owns 150 of the 800 hectares that make up the entire zonal plan.

Of the 28 lots on offer for which the relevant regulatory legislation could not be determined, 14 were sold. These lots are not located in areas subject to peripheral zonal plans. The difficulty was in determining if their development would be subject to Decree 327/04 or to urban partial plans, Decree 436/06. Based on their location, we believe that the majority of the lots sold are covered by Decree 327/04.

**Table 11: Consolidated data on the market turnover of the 133 lots on offer identified in 2005-2006**

	SUMMARY OF OFFERS IN BOGOTÁ BY APPLICABLE NORM (MARCH 20)							
	FOR SALE		SOLD		INFORMATION NA		TOTAL PROPERTIES ON OFFER	
	Number	%	Number	%	Number	%	Number	%
DECREE 327	34	60%	30	55%	9	43%	73	55%
PARTIAL PLAN	10	18%	4	7%	4	19%	18	14%
POZ NORTH	5	9%	7	13%	1	5%	13	10%
POZ USME	5	2%	0	0%	0	0%	1	1%
INFO NA	7	12%	14	25%	7	33%	28	21%
<b>TOTAL OFFERS</b>	<b>57</b>	<b>100%</b>	<b>55</b>	<b>100%</b>	<b>21</b>	<b>100%</b>	<b>133</b>	<b>100%</b>

### 3.3. Econometric model to analyze the impact on consolidated land<sup>19</sup>

As a complement to the econometric analysis presented, we have developed a first econometric approximation to the impact of regulations newly developed in a Land Use Plan on the value of land in consolidated areas of the city. This first approximation is based on cadastral land values corresponding to 2006 value assessments reported by the Administrative Department of the District Cadastre (*Departamento Administrativo de Catastro Distrital* – DACD) in three ZPUs that were representative of the different social strata in the city: high, middle, and lower-middle. Some of the conclusions drawn from this analysis indicate for example that recent price increases in some sectors of the city such as Cedritos<sup>20</sup> could be due solely to the strong property market in that area and not to the integration of value increments resulting from regulatory change.

It was also concluded, however, *pari passu* with a complimentary analysis by architect Esperanza Durán, that in some cases the DACD values were lower than one would be led to expect in that expanding market, with marked differences between land values as reported by the DACD and those reported by the LPRB, with no reasonable explanation and no data that would lend itself to an informed analysis of the cause.

Logically, this evidence leads to a certain doubt regarding the credibility of the data used in our econometric analysis despite the fact that the results had some statistical validity and some of them conformed to our economic intuition.

In order to test some of the preliminary conclusions and conjectures and to have another source of information useful to our econometrics, below we present new land price

<sup>19</sup> In Annex 7 we reproduce the econometric analysis of consolidated land subject to regulatory change and levies on value increments in order to provide a basis for the conclusions of the analysis presented here.

<sup>20</sup> This is a particularly interesting area in this analysis due to information in the hands of the LPRB and the appraisal team of the study with regard to growing price increases and their hypothesis concerning the transfer of value increments to builders. See chapter 5.

estimates by ordinary least squares (OLS), this time corresponding to a sample of lots on offer during January-February 2007 in an area of northern Bogotá comprising the neighborhoods of Chicó, Country, Cedritos, and Santa Bárbara. These are all middle and high strata neighborhoods with a strong demand for housing.

We used a sample of 100 lots offered on the Web at [www.metrocuadrado.com](http://www.metrocuadrado.com). They were fully georeferenced in order to identify the regulatory regime that covered the area in which each lot on offer was located.

For each offer it was possible to determine the size of the property, the predominant land use established through regulation (not based on the claims or intentions of property owners), the socioeconomic stratum, the identity of the offering party, and of course whether or not there was a change in urban regulations covering the area where the property was located.

For only 67 % of the lots were we able to determine the linear frontage of the lot. It should be noted that the variable of lot frontage is very significant in responding to an offer since regulatory codes in Bogotá assign construction ratios as a function of lot frontage and area. Obviously the consolidation of properties is a procedure that increases allowable construction ratios.

As has been explained (see Annex 7), estimates are based on a cross-section of the sample (a transversal or cross-sectional analysis), this time considering all those properties on offer on a given date, producing a very small sample.

Again, the idea is principally to confirm the impact of regulations, this time on the market for this year of 2007, but in a specific area of the city suggested by the director of the study and by the LPRB: northern Bogotá, where property turnover is greatest. Following the syntax of previous econometric analyses, a dichotomous variable was constructed and assigned the value of 1, consisting of those properties in an area<sup>21</sup> where regulations were changed to allow for intensified use or building construction, and 0 for all other properties. This analysis refers to consolidated properties, not undeveloped ones. Generally they were lots occupied by single-family houses where regulations permitted property rehabilitation or zonal redevelopment with greater building density or height.

In order to incorporate additional information regarding the urban environment, the socioeconomic status, and the use of properties, other variables such as the principal use of land in the area, the social stratum, and characteristics of the offering entity were incorporated into the OLS in order to have another set of independent variables that together with the influence of regulations could help explain land values in the area.

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<sup>21</sup> Areas defined by UPZ regulations and boundaries.

This is the basic equation that was presented following the linear regression model via OLS.:

Equation 1

$LVLR\_M2_i = a_0 + a_1*LA\_PROP_i + a_2*FRONTAGE_i + a_3*MARKET\_CONTROL_i + a_4*STRATUM_i + a_5*REG\_CHANGE_i + a_6*COMMERCIAL\_USE_i + a_7*RATING\_LOCATION_i + \mu_i$
---

Figure 1

where:  $i = 1, 2, \dots, N$        $N =$  number of units of the transversal sample (lots on offer =67), and

<b><i>LVLR_M2:</i></b>	<i>Logarithm of the value of the lot on offer per m2</i>
<b><i>LA_PROP:</i></b>	<i>Logarithm of the area of the lot</i>
<b><i>MARKET_CONTROL:</i></b>	<i>Percentage of lots offered by entity X offering lot “i”</i>
<b><i>STRATUM:</i></b>	<i>Socioeconomic classification of each property assigned by the district administration on a scale of 1 to 6, with 1 being the lowest socioeconomic stratum and 6 the highest.</i>
<b><i>REG_CHANGE:</i></b>	<i>Binary dummy variable that takes the value of 1 when there is regulatory change in the area where the property on offer is located and 0 in any other case.</i>
<b><i>COMMERCIAL_USE:</i></b>	<i>Binary dummy variable that takes the value of 1 when it is assumed that the use of the property is commercial since regulations indicate that that is the predominant use, and 0 in any other case.</i>
<b><i>RATING/LOCATION:</i></b>	<i>Variable category from 1 to 4 that rates the lot in keeping with its location, with 1 being a bad location, unattractive to a developer, and 4 an excellent location, attractive to any developer. These ratings were assigned by appraiser Oscar Borrero based on his knowledge of the market and the areas being analyzed.</i>
Note: Real variables (area of the lot and its value per m2) are expressed as logarithms in order to provide an interpretation of price elasticity.	

Equation 1 was estimated through the use of the statistical package STATA 8.2 using robust estimators due to evidence of the heteroscedasticity and abnormality in the error process that are characteristic of these kind of data. Robust estimators are also known as nonparametric estimators because they are free of any assumption of a given form of distribution of the population from which the sample is extracted. Classical or “parametric” estimators are associated with a probable distribution of the population, for example the arithmetic mean, which associates a “normal” distribution with minimal variance. Unlike these classical estimators, robust estimators are not subject to established optimal criteria such as minimal variance, and thus are constructed assuming the presence of heteroscedasticity.



The robust estimate implemented through STATA differs from the linear method of order statistics.<sup>22</sup> Here the statistics or estimators are constructed on the basis of ascending series of observations of the random variable X (independent). This ordering leads to the formation of clusters or groupings of observations and then the construction of statistics in each one of these clusters that will later be weighted in the construction of a general estimator without assuming any probable distribution.

For these reasons, it is useful to use robust methods when analyzing highly dispersed data such as these cross-sectional data because such methods guarantee consistency within the dispersion, i.e. the estimates approach the true value within the population.

Note, for example, that in the case of the arithmetic mean (the classical parametric estimator) a high dispersion obscures the central tendency or pattern of the data if we don't have previous knowledge of the actual distribution of the population; non-parametric or robust methods, on the other hand, allow us to see reality more clearly through observable data clusters and data distribution, avoiding the use and abuse that researchers sometimes make of a measurement such as the arithmetic mean, and likewise avoid the arbitrary rejection of certain results that diverge from the majority of results although they can provide relevant information that is lost if they are eliminated.<sup>23</sup>

### **3.4 Results of the econometric analysis of consolidated land**

Of the group of variables incorporated in the model, only one turned out not to be statistically significant (The p-value of statistic t is greater at 5 and at 10 %), the variable that we call "MARKET\_CONTROL," thus disproving certain hypotheses that have been formulated regarding price manipulation on the property market resulting from monopolistic practices.

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<sup>22</sup> There are also other methods for constructing robust estimators in addition to that used here: the Maximum Likelihood and Rank Ordering methods. *See any relevant econometric literature.*

<sup>23</sup> See F. R. Hampel (1973). "Robust Estimation, a Condensed Partial Survey."

**Table 12:**

Regression with robust standard errors		Number of obs = 67			
F( 7, 59) = 19.12		Prob > F = 0,0000			
R-squared = 0.6836		Root MSE = .20585			
-----					
LVR_M2		Robust			
		Coef.	Std. Err.	t P> t  [95 % conf. Interval]	
-----					
LA_PROP		-.1271105	.0735178	-1.73 0.089	-.2742193 .0199982
FRONTAGE		.008266	.0039766	2.08 0.042	.0003088 .0162232
MARKET_CONTROL		.1579903	.1459012	1.08 0.283	-.1339573 .4499379
STRATUM		.0754509	.037165	2.03 0.047	.001084 .1498178
REG_CHANGE		-.1231543	.0566013	-2.18 0.034	-.2364132 -.0098954
COMMERCIAL_USE		.1433042	.0557547	2.57 0.013	.0317393 .254869
RATING/LOCATION		.3774477	.0392932	9.61 0,000	.2988222 .4560731
Constant		13.19291	.5125014	25.74 0,000	12.1674 14.21842

We should remember that price is one of the basic pillars used to understand markets in transversal economic theory of whatever ideological persuasion, providing all relevant information to determine their evolution. From this point of view, understanding price formation on the property market allows the central planner to make political-economic decisions for the regulation of land in terms of the typology and intensity of its different uses and their implications for property values.

For this reason, identifying those conducts and behaviors that tend to distort prices, such as monopolistic behaviors, for example, is one of the recurrent concerns of price theory. In this sense the incorporation of the variable MARKET\_CONTROL in our model served to capture the degree of monopoly exercised by bidders and to analyze its impact on price formation.

The variable that we defined as the quotient was the number of lots on offer by entity X divided by the total number of lots on offer that made up our sample.

Apparently there is no evidence, at least from a statistical point of view, that the high concentration of properties on offer in the hands, for example, of two property companies (40% of the properties on offer in the northern zone) translates into monopolistic behavior that could increase prices.

Although the variable of property size was not significant at 5 %, it was significant at 10 %, with an effect consistent with market logic: an increase of 1 % in property size reduced the price per m2 by 0.127 %. Price elasticity is only slightly sensitive to lot size.

The model suggested without a doubt, on the other hand, that one of the current determining factors in the market price of land in the northern zone is location. The categorical variable RATING/LOCATION was significant. Its estimated coefficient

indicated that an improvement of one point in the rating of a property's location translated into a 37.74 % increase in property value when all other explanatory variables were constant.

The factors that were used to determine more or less desirable location in relation to market behavior in these areas were: (i) corner lot; (ii) frontage on major streets or roads, especially commercial ones; (iii) location in neighborhoods or parts of neighborhoods highly sought-after by the demand sector, and (iv) natural settings and forest preserves.

As for the variable FRONTAGE, the results suggest that when this coefficient increases by one meter the additional value of each square meter of the property increases by 0.8 %. This is completely consistent with the reality that with greater frontage the property owner is allowed greater building density, making the lot attractive to buyers.

The coefficient of the variable COMMERCIAL\_USE indicated as expected that there is a land value increment, in this case of 14.3 % when the property is commercial.

In the two scenarios described above with respect to lot frontage and usage, there is an assumption of *ceteris paribus* (measuring the effects of changes in one variable while all others remain constant), and each had a positive impact on land values. However, the impact of the variable REG\_CHANGE is not consistent with those two results: it is negative. This result may seem contradictory, but it is statistically valid, with a probability of under 5 % (3.4 %). We should explain the reason for this negative relationship.

Statistical results indicate that regulatory change in this zone (referring to the fact that the POT permits higher construction ratios or more profitable uses) has been accompanied by a loss of land value for the year 2007 of 12.31 % compared to those properties where there was no regulatory change.

One explanation for the this result is the fact that regulations in these neighborhoods have already been changed since the year 2000 (in 2000 in Santa Bárbara, 2003 in Chicó, and 2005 in Cedritos). Thus the current value in 2007 already incorporates the results of regulatory change and for this reason it is not meaningful to measure value before and after only the most recent regulatory change. On the other hand in a cross section the results may be telling us that in Santa Bárbara the lots where there was no regulatory change already have a better set of regulations than the newest regulations; that's why they are valued 12% less with respect to those where there was no regulatory change. Only in Chicó and Cedritos did regulatory change increase the number of allowable stories and then only for lots with road frontage, a variable that is not apparent in the statistics gathered for this study. These results are inconclusive and do not indicate a tendency.

### **3.5 A market-based explanation of the results**

In addition to the note on differences owing to the time of regulatory change and the conditions being investigated in the year 2007, the research group found other reasons for

the contradictory econometric results regarding the influence of regulatory change on the price of land as described in this report (see Annex 7).

According to cadastral engineers who have participated in calculating the effect of regulatory change on value increments,<sup>24</sup> one frequently finds that there is no apparent increase in value expressed as development potential before and after the regulation of areas cataloged in the UPZ Decree as benefiting from regulatory change with value increments, for example by increasing the number of allowable stories or increased construction or floor area ratios, or changing properties to presumably more profitable uses.<sup>25</sup>

The explanation that is given by experts in the calculation of value increments who work in the cadastre is that other demands for space may also have been increased, such as for parking spaces or spaces between buildings. In addition, regulatory change may have eliminated certain loopholes, such as those that allowed for storage space, space for social infrastructure, etc. to go unaccounted for. In fact, certain exercises were carried out specifically to demonstrate this phenomenon in March 2007 in the Urban Management Laboratory (which emphasizes the calculation and payment of value increments) of the Ministry of the Environment, Housing, and Territorial Development (*Ministerio de Ambiente, Vivienda y Desarrollo Territorial* - MAVDT).

The following was included in the statement of the problem and the instructions to those participating in the exercise:

It was very common for municipalities to define the parameters of construction on a lot taking into consideration the anticipated dimensions of landscaped areas at building frontage, maximum allowable building height, and side and rear separation between buildings and other objects. However, most planning schemes today consider two additional development parameters: the occupation ratio and construction ratio. Thus the total potential space in a building can not be directly determined and the municipal planning office or whatever entity carries out its functions must conduct a careful study of potential building space or spatial use in all areas that have undergone regulatory change, whether or not this change seems at first glance to have benefited property owners. In order to provide examples for the effect described above, please calculate the potential building space for each of the scenarios described and then indicate once more the areas where value increments are generated.

The results of these exercises were surprising. As a result, the recommendation of the Laboratory to the 25 Colombian municipalities that attended the event was that they perform calculations of potential value increments while planning and developing specific regulatory decrees, i.e. before determining that any zone is a generator of value increments. To fail to do so could cost municipalities a great deal of time and money to

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<sup>24</sup> These opinions were gathered by research team member Esperanza Duran.

<sup>25</sup> Cadastral engineers responsible for calculating value increments in Bogotá also state that it is not at all easy to demonstrate which uses of property are most profitable.

perform unnecessary appraisals resulting from regulatory change, since regulatory decrees automatically declare affected areas to be generators of value increments. It could also cause later legal problems resulting from asset impairment if value increments are not assessed where they do exist.<sup>26</sup>

A change to commercial use does not always produce value increments, at least in high strata residential areas that are consolidated and maintained as such. If the area is in demand, for example, due to its peaceful, agreeable urban and environmental atmosphere, the ample presence and accessibility of public space, ease of access and well regulated traffic, etc., then nothing could be less desirable than allowing for intensive or poorly situated commercial uses.

But the principal reason for contradictory econometric evaluations of the effects of regulatory change in these neighborhoods is temporal. The relevant UPZ decrees were issued several years ago and it is quite possible that the new regulations are not as advantageous as previous regulations in light of Agreement 6 of 1990, Bogotá's development plan. The dummy variable that was used assumed the truth of what was stated in the UPZ decrees: "Regulatory sector X will at some point generate value increments due to ...." Nevertheless, the Cadastre of Bogotá was later able to determine that this was not the case in many sectors when properties were assessed in order to determine value increments.

It is logical that as of March 2007 regulations have a disadvantageous effect for those properties where regulations were changed as opposed to those where they were not. In the analysis performed by the cadastre, there was no improvement for individual properties in Chicó and Santa Bárbara (neighborhoods analyzed above). Construction ratios may improve only in the case of eventual land readjustments or partial plans.

Previous regulations (Agreement 6 of 1990 and Agreement 7 of 1979 concerning land use and construction ratios) were very generous, taking into account areas such as storage space and architectural projections and requiring only minimal spaces between buildings unless properties were isolated.

There seem to be problems with the methodology applied by the District Planning Department in calculating value increments in consolidated areas since errors have turned up in volumetric analysis when projecting space in square meters as a function of putative construction ratios.<sup>27</sup>

There have been cases in which the District Planning Department has considered certain areas to be affected by value increments due to changes of use or construction, designating those areas as "eventual generators of value increments," but the cadastre later found that these changes did not in fact produce value increments.

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<sup>26</sup> There are currently a number of lawsuits seeking to force compliance by mayors in such cases.

<sup>27</sup> Aware of this methodological failure, the district the planning department contracted experts in May 2007 to correct the conceptualization and methodology by which value increments are calculated in consolidated areas.

#### 4. Impact of the levy on value increments on urbanized properties and consolidated zones in Bogotá<sup>28</sup>

##### 4.1 High stratum commercial and service zones

###### a) Carrera 11 Corridor: Zones 10, 11, 12, and 13

Zones 10 to 13 comprise four separate and distinct sections of the Carrera 11 corridor. They differ in terms of intensity of commercial use and in terms of services for the high strata population, the development and consolidation of which is relatively recent.

**Table 13: Zone 10**

<b>ZONE 10: CARRERA 11 - SECTION 1 (CALLES 73-76)</b>		
<b>PRICES</b>	<b>LPRB</b>	<b>DAPD/DACD</b>
LAND PRICE PER M2 YEAR 2002 BEFORE REGULATORY CHANGE (V1)	\$ 1,230,730	\$ 994,998
LAND PRICE PER M2 2004, YEAR OF PAYMENT OF VALUE INCREMENT (V2)	\$ 1,095,473	\$ 1,091,003
DIFFERENCE IN VALUE (V2 - V1) OR VALUE INCREMENT PAID	\$ -135,257	\$ 96,005
REAL ANNUAL RATE, PERIOD OF REGULATORY CHANGE	-5.65%	4.71%
LAND PRICE PER M2 2006	\$ 1,000,000	\$ 700,000
REAL ANNUAL RATE SUBSEQUENT TO CHANGE (2004-2006)	-4.46%	

**Table 14: Zone 13**

<b>ZONE 13: CARRERA 11 - SECTION 4 (CALLES 86-92)</b>		
<b>PRICES</b>	<b>LPRB</b>	<b>DAPD/DACD</b>
LAND PRICE PER M2 YEAR 2002 BEFORE REGULATORY CHANGE (V1)	\$ 1,846,095	\$ 1,711,737
LAND PRICE PER M2 2004, YEAR OF PAYMENT OF VALUE INCREMENT (V2)	\$ 1,697,983	\$ 1,752,077
DIFFERENCE IN VALUE (V2 - V1) OR VALUE INCREMENT PAID	\$ -148,112	\$ 40,340
REAL ANNUAL RATE, PERIOD OF REGULATORY CHANGE	-4.10%	1.17%
LAND PRICE PER M2 2006	\$ 1,800,000	\$ 1,800,000
REAL ANNUAL RATE SUBSEQUENT TO CHANGE (2004-2006)	2.96%	\$ 1,500,000

We present land price data provided by the LPRB and the District Cadastre in two areas of the Carrera 11 corridor. The year prior to regulatory change and the levy on value

<sup>28</sup> The analysis presented in this chapter summarizes the results of a study performed by Esperanza Durán de Gámez and coordinated by Oscar Borrero. For further details, please contact the author.

increments is compared with the year when the levy was collected. As can be noted, the collection of value increments per square meter was low. The effect of regulatory change was not felt, illustrating that the regulatory change that was undertaken did not help to compensate for the negative tendency in the zone, and the market did not absorb the impact of the changes. If greater land use meant, as the volume of value increments assessed and collected would indicate, land price increases of \$96,005 per m<sup>2</sup> in Zone 10, this tendency was balanced by the negative structural behavior of the zone given its limited dynamism and low demand pressure. Despite an overall positive real estate cycle since 2002, this zone displayed negative structural behavior and despite regulatory change the value of land did not increase. In fact, prices deteriorated in real peso terms.

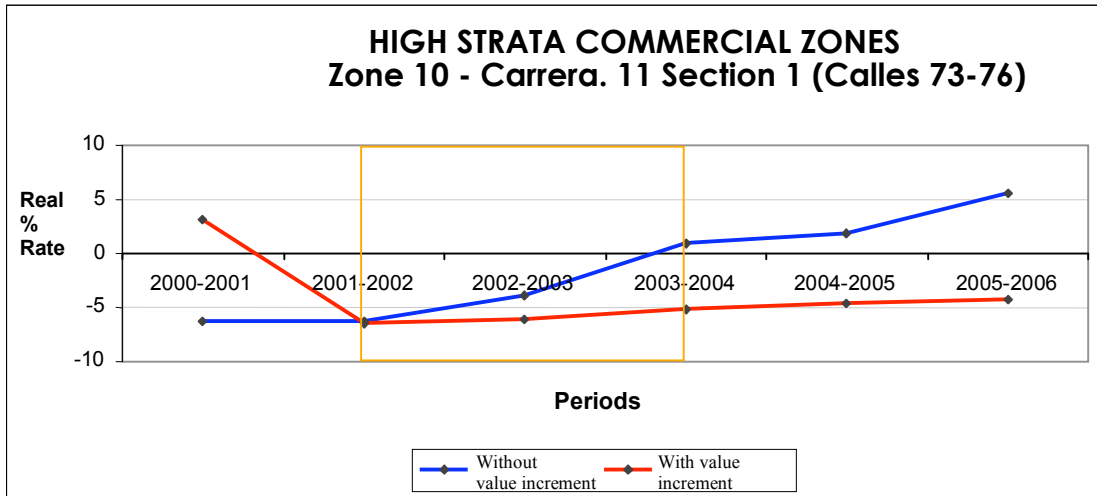
Nor did regulatory change generate increases in land prices in Zone 13 of the Carrera 11 corridor. In fact, market prices fell in the year when value increments were collected and only recovered in 2006.

The highest prices in the Carrera 11 corridor (\$2,800,000 per m<sup>2</sup> in 2006) are found in section 3 (Zone 12), between Calle 82 and Calle 85. This is the area immediately influenced by the *Centro Andino*, perhaps the most successful high stratum mall in the city and the motor for the conformation, development, and commercial consolidation of the sector and contiguous areas informally known as the *Zona T* and the *Zona Rosa*, home to many high-quality and prestigious restaurants and bars. The average value increment levied was \$40,340 per m<sup>2</sup>, as much as in the area immediately to the north, between Calles 86 and 92, where the price per m<sup>2</sup> is lower (\$1,800,000). In any case, this value increment is insignificant in proportion to price levels in these zones. Note the large discrepancy between value increments as estimated by the municipality (\$40,340 per m<sup>2</sup>) and actual value increases experienced during the same period. (\$317,799 per m<sup>2</sup>). All value increments in this area were clearly absorbed by buyers and passed along to the demand sector, as can also be observed in the graph for Zone 12 by comparing real annual rates with those of other properties occupied for the same uses but without the levy on value increments.

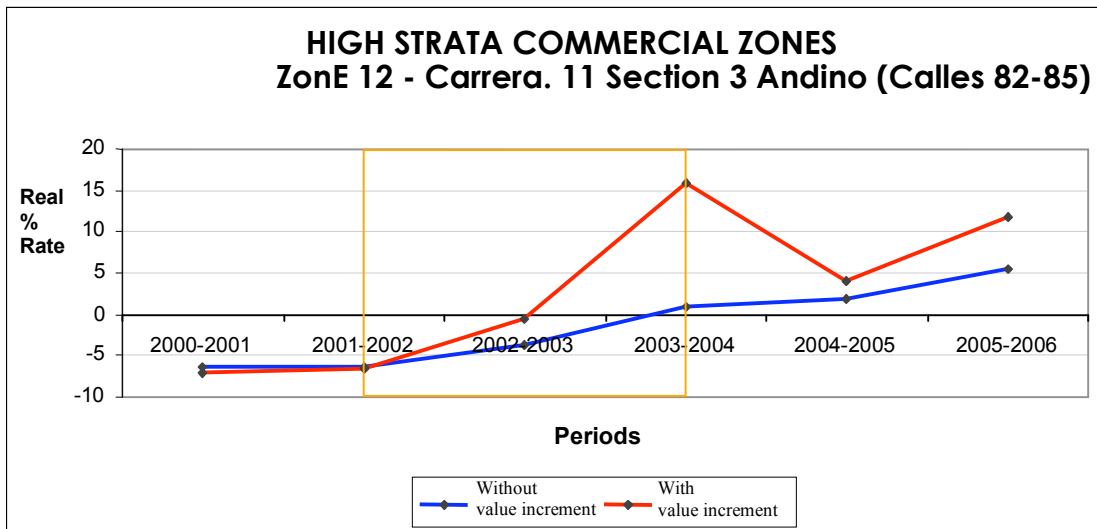
<b>Table 15: Zone 12</b>		
<b>ZONE Andino N.12: CARRERA 11 - SECTION 3 (CALLES 82-85)</b>		
<b>PRICES</b>	<b>LPRB</b>	<b>DAPD/DACD</b>
LAND PRICE PER M2 YEAR 2002 BEFORE REGULATORY CHANGE (V1)	\$ 2,092,241	\$ 1,711,737
LAND PRICE PER M2 2004, YEAR OF PAYMENT OF LEVY ON VALUE INCREMENT (V2)	\$ 2,410,040	\$ 1,752,077
DIFFERENCE IN VALUE (V2 - V1) OR VALUE INCREMENT PAID	\$ 317,799	\$ 40,340
REAL ANNUAL RATE, PERIOD OF REGULATORY CHANGE	7.33%	1.17%
LAND PRICE PER M2 2006	\$ 2,800,000	\$ 2,800,000
REAL ANNUAL RATE SUBSEQUENT TO CHANGE (2004-2006)	7.79%	

In order to better compare the effect of collecting value increments, the study also examined high income commercial areas where this was not done. Graphs were drawn up to compare land price growth rates in zones where there was a levy on value increments and those where there was not.<sup>29</sup> Below we present graphs illustrating the results for the sections of Carrera 11 where land prices did not increase and for the area of the *Centro Andino*, where the increases were verified to have been the greatest. As has been noted, value increments were levied on all sections of Carrera 11.

**Graph 10**



**Graph 11**



<sup>29</sup> The methodology for drawing up these charts is found in Annexes 1 and 4 of the report by Esperanza Duran.



Behavior in section 1 of Carrera 11 was very similar to behavior in sections 3 and 4 of the same avenue. The rate of land price increases was static. In contrast, land prices increased more in high strata commercial areas where there was no levy on value increments than in those areas where there was one. In the area around the *Centro Andino*, on the other hand, appreciation was high, higher than appreciation in high strata areas. This might seem to result from the levy on value increments due to regulatory change, but in fact it was due to a market phenomenon, the great concentration of high strata commerce in the area. In addition to the *Centro Andino*, which has been there since the 1980s, three other high strata malls have been built in the area in the last four years.

To summarize, the 2003 regulatory change in the commercial and service area along the Carrera 11 corridor did not have any effect on land prices. Their increase was due to the increasingly intense and consolidated high strata commercial use of this sector, particularly the influence of the *Andino*, *Atlantis*, and *Retiro* malls, the so-called *Zona T* and *Zona Rosa*, and the growth of the real property sector in the city between 2002 and 2006.

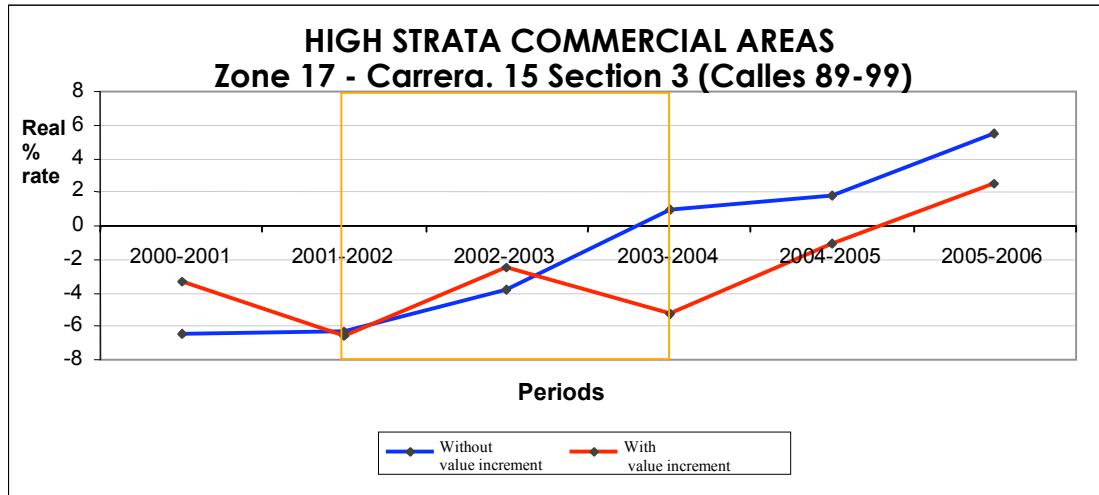
b) Avenida Carrera 15 Corridor: Zone 17

The LPRB study analyzed four sections of the commercial and service corridor on Avenida Carrera 15. However, only in the regulatory sectors between Calles 89 and 99 were value increments found to have been levied.

Note that the value increment as estimated by the municipality does not by any means correspond to reality as expressed by market behavior. The District Cadastre estimated an increase of \$149,220 per m<sup>2</sup> while the market decreased by \$121,061 per m<sup>2</sup>. As the graph corresponding to this zone also seems to indicate, land owners absorbed the impact of the charge. Real rates in the area were lower than those for property used for the same purposes in other areas where there was no levy on value increments.

<b>ZONE 17: CARRERA 15 – SECTION 3 (CALLES 89-99)</b>		
<b>PRICES</b>	<b>LPRB</b>	<b>DAPD/DACD</b>
LAND PRICE PER M2 YEAR 2002 BEFORE REGULATORY CHANGE (V1)	\$ 1,599,949	\$ 913,506
LAND PRICE PER M2 YEAR 2004 PAYMENT OF LEVY ON VALUE INCREMENT (V2)	\$ 1,478,888	\$ 1,062,727
DIFFERENCE IN VALUE (V2 - V1) OR VALUE INCREMENT PAID	\$ -121,061	\$ 149,221
REAL ANNUAL RATE, PERIOD OF REGULATORY CHANGE	-3.86%	7.86%
LAND PRICE PER M2 2006	\$ 1,500,000	\$ 1,500,000
REAL ANNUAL RATE SUBSEQUENT TO CHANGE (2004-2006)	0.71%	

**Graph 12**



It can be seen from the graph for Carrera 15 that the regulatory change and payments for value increments in this zone did not affect prices. Market tendencies were similar to high strata areas with the same property uses where there was no levy on value increments.

c) Zone 27 – Calle 140

This is a high-use commercial and service corridor in an area of middle and upper-middle strata housing, situated between Avenida 7A and Avenida 19 in the north of the city where there are several small malls and one large one, the *Centro Comercial Palatino*, constructed three years ago at Calle 140 and Avenida Carrera 7A. According to LPRB data and calculations for this study the average value increment levied in this zone was \$179,273 per m2 on properties that had an average value of \$1,200,000 per m2 in 2006.

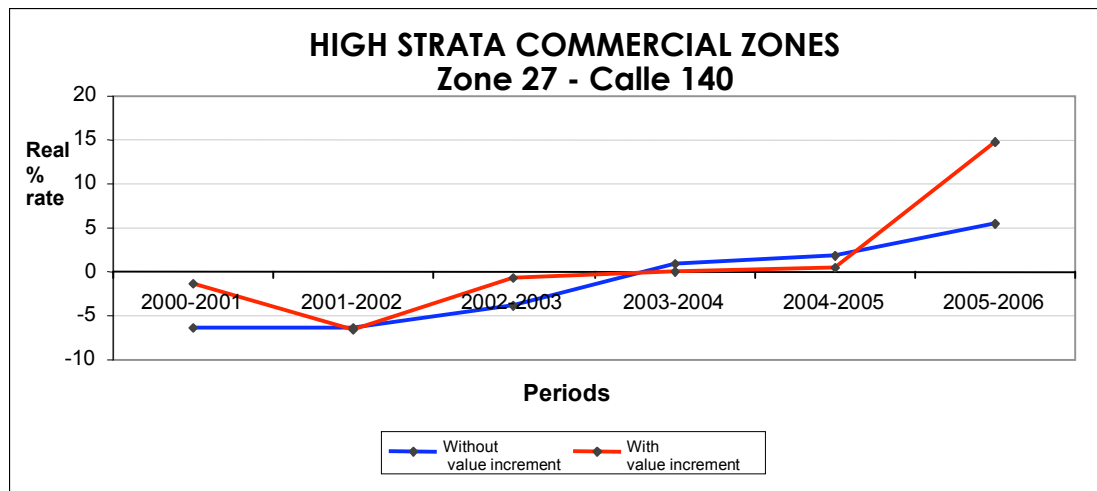
<b>Table 17: Zone 27</b>		
<b>ZONE 27: CALLE 140</b>		
<b>PRICES</b>	<b>LPRB</b>	<b>DAPD/DACD</b>
LAND PRICE PER M2 2004 BEFORE REGULATORY CHANGE (V1)	\$ 1,040,699	\$ 604,293
LAND PRICE PER M2 2006, YEAR OF PAYMENT OF LEVY ON VALUE INCREMENT (V2)	\$ 1,200,000	\$ 783,566
DIFFERENCE IN VALUE (V2 - V1) OR VALUE INCREMENT PAID	\$ 159,301	\$ 179,273
REAL ANNUAL RATE, PERIOD OF REGULATORY CHANGE	7.38%	13.87%
LAND PRICE PER M2 2006	\$ 1,200,000	\$ 1,000,000

Despite their different uses, it seems appropriate to suppose that the profile of value increments and price behavior on Calle 140 can be compared with that in residential areas

that it serves, among them Zone 71 (Nueva Autopista-Contador-Margaritas) and Zone 74 (Cedritos) which are also considered here and are also areas where there was an levy on value increments.

There is a market phenomenon caused by the intensification of the market cycle resulting from regulatory change that translates into land value increments. Despite the fact that significant levies are collected on the highly commercial Calle 140, the data collected for this corridor suggest that land owners would be able to pass the charge along to builders or merchants who would very probably be able to transfer it to the price of resulting real property products.

**Graph 13**



In contrast to Carreras 15 and 11, land values in this zone rose more than they did in control zones where no levy was collected on value increments.

d) Zone 29 – Chicó North

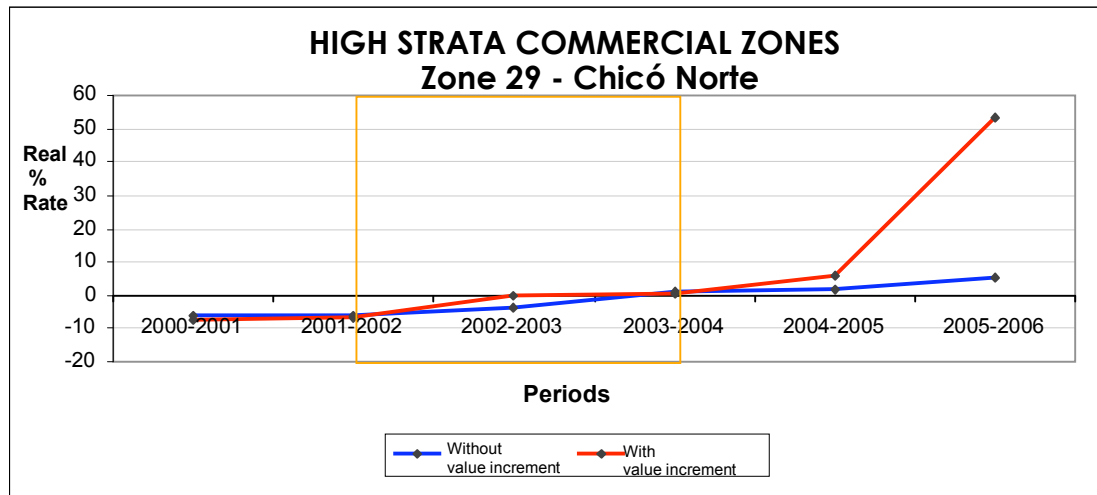
This was at one time a low intensity residential sector occupied by the highest strata of the city in one or two story houses on lots of 700 m2 or more, but was slowly transformed to make way for commercial and office uses, initially in the residential structures themselves, remodeled for their new purposes and later, when regulations permitted, in four to seven story buildings. It is very close to the area of *Parque 93*, home to elegant restaurants and the highest land values in the city.

**Table 18: Zone29**

**ZONE 29: CHICÓ NORTE**

PRICES	LPRB	DAPD/DACD
LAND PRICE PER M2 YEAR 2002 BEFORE REGULATORY CHANGE (V1)	\$ 984,584	\$ 900,587
LAND PRICE PER M2 YEAR 2004 PAYMENT OF LEVY ON VALUE INCREMENT (V2)	\$ 985,926	\$ 1,059,799
DIFFERENCE IN VALUE (V2 - V1) OR VALUE INCREMENT PAID	\$ 1,342	\$ 159,212
REAL ANNUAL RATE, PERIOD OF REGULATORY CHANGE	0.07%	8.48%
LAND PRICE PER M2 2006	\$ 1,600,000	\$ 1,500,000
REAL ANNUAL RATE SUBSEQUENT TO CHANGE (2004-2006)	27.39%	\$ 1,200,000

**Graph 14**



The fact is that after 2005 the market for office space found an excellent location in this zone for the construction of office buildings. Regulations were very favorable for the consolidation of two or more lots and the construction of profitable building projects. Demand is high for this kind of project in 2007, explaining the substantial increase of land prices between 2004 and 2006. Regulations changed in 2003, and value increments were subjected to a levy in 2004. Prices were then stable until 2005. Only in 2006 and 2007 did land prices suddenly rocket when the market reacted to the increase in demand for office space in the city. Regulatory change had a delayed effect when the changes were assimilated by the market.

Based on the behavior observed in previously mentioned high strata commercial and service zones where there were value increments, it can be concluded that when there is a dynamic market in the affected sector, the levy on value increments has no effect on the reduction of prices.

#### **4.2. High stratum residential zones (Stratum 6)**

##### **a) Zone 54 – Rosales**

This zone has maintained its long tradition of exclusivity — despite the intense process of densification and the replacement of older low-profile residences situated on large lots through the construction of countless taller buildings that has been taking place for almost 3 decades. It boasts a central location with a beautiful view close to the mountains east of the city (known in Bogotá as *los cerros orientales*) and to new high strata commercial and office developments. For these reasons, the zone has long been a favorite of the demand sector despite its slowly increasing congestion and the intricate web of streets necessary to navigate its inclined topography.

This is one of the zones where many properties experienced high value increments, calculated to average \$325,237 in constant 2006 values. This was an increase in land prices of 15.6 % annually or slightly more. Increases slowed somewhat but continued growing significantly between 2004 and 2006, when values reached \$1,800,000 per m2.

It can be concluded that the effect of the levy on value increments was not felt, given the zone's market and construction dynamics. In this case it would seem that the market was able to anticipate and absorb the impact of regulatory change, which was long discussed before it was formally decreed.

The accompanying tables can be compared with corresponding data for the zones of Cabrera and Nogal, which can be used as statistical controls. In these two zones the real price increase was also between \$300,000 and \$400,000 per m2, but there was no regulatory change and therefore value increments were not subject to a levy. Cabrera and Nogal are located very close to Rosales and share some of the same characteristics with regard to their strong market, social stratum, location, and local infrastructure. In Rosales, where the district collected a levy on value increments of \$325,000 per m2, the market passed its entire impact along to the buyer or developer, since land values increased by \$412,000 per m2 in the same period. It was not regulatory change that caused the price increases, but the land market or its cyclical behavior. This is a cyclical rather than structural phenomenon with regard to value.

Notice that in the graph for Zone 54 (Rosales), how in the years of regulatory change this zone experienced greater real rates than those experienced by the group of high strata residential zones where no assessment was levied on value increments. Growth in the group where value increments were not assessed exceeded growth in this zone only in 2005 and 2006 and then only slightly.

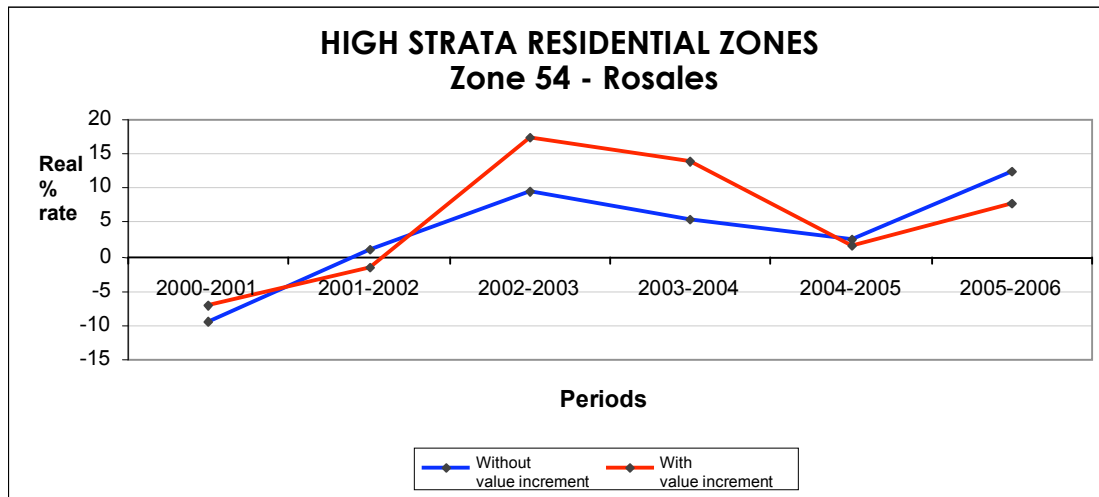
**Table 19: Zone 54**

<b>ZONE 54: ROSALES</b>		
<b>PRICES</b>	<b>LPRB</b>	<b>DAPD/DACD</b>
LAND PRICE PER M2 YEAR 2002 BEFORE REGULATORY CHANGE (V1)	\$ 1,230,730	\$ 957,008
LAND PRICE PER M2 YEAR 2004 PAYMENT OF LEVY ON VALUE INCREMENT (V2)	\$ 1,643,209	\$ 1,282,245
DIFFERENCE IN VALUE (V2 - V1) OR VALUE INCREMENT PAID	\$ 412,479	\$ 325,237
REAL ANNUAL RATE, PERIOD OF REGULATORY CHANGE	15.55%	15.75%
LAND PRICE PER M2 2006	\$ 1,800,000	NA

**Table 20: Cabrera**

<b>ZONE: CABRERA</b>		
<b>PRICES</b>	<b>LPRB</b>	<b>DAPD/DACD</b>
LAND PRICE PER M2 YEAR/DATE BEFORE REGULATORY CHANGE (V1)	\$ 1,846,095	
LAND PRICE PER M2 YEAR/DATE OF PAYMENT OF LEVY ON VALUE INCREMENT (V2)	\$ 2,190,948	
DIFFERENCE IN VALUE (V2 - V1) OR VALUE INCREMENT PAID	\$ 344,853	None
REAL ANNUAL RATE, PERIOD OF REGULATORY CHANGE	8.94%	
LAND PRICE PER M2 2006	\$ 2,700,000	NA

**Graph 15**



b) Zone 57 – Refugio – Chicó Oriental

This is an exclusive residential zone in the northern part of the city at the foot of the mountains (*los cerros orientales*), undergoing a transformation and moderate densification. It has traditionally been occupied by a very high income population.

Average prices between 2002 and 2004 as reported by the LPRB increased in real terms, as did the annual appreciation rate, reaching almost 9 % above inflation. As in Rosales, the estimated price for 2006 indicates that the zone has maintained its tendency to appreciate, increasing from \$738,438 in 2002 to \$1,200,000 in 2006. Nonetheless, this is one of the zones where regulatory change has a limited effect. The value increment of \$42,286 per m<sup>2</sup> can easily be assumed by buyers interested in this exclusive location. Thus the market largely ignores or isn't affected by the charge imposed on properties in the sector that benefit from regulatory change. Also notice by comparing graphs that behavior was comparable during the same period in other zones with the same kind of uses. The tendency to grow after 2004 is similar but growth is at a faster rate in the zone where value increments are levied.

Finally we wish to highlight the case of Zone 55, Chicó Reservado, one of the high strata zones that has been most in demand in recent years. Until the 2000 approval of the POT, tall buildings were not permitted here. Housing was predominantly in single houses on 400 to 600 m<sup>2</sup> lots with frontage of 10 meters or more. With regulatory change in 2003, buildings of six and eight stories were allowed, depending upon the size of the lot and its frontage. Demand absorbed the few buildings initially constructed in 2004 and land prices increased from \$1,169,000 per m<sup>2</sup> to \$1,643,000 per m<sup>2</sup>. The new regulations were assimilated by landowners and builders after 2004, and by 2006 there was a huge amount of activity in the area, generating a value of \$2,200,000 per m<sup>2</sup>. Nevertheless, the Bogotá cadastre determined that there were no value increments in this zone as a result of regulatory change and as a result there was no levy. Even if there had been, builders purchasing lots here would have completely absorbed the charge thanks to real property growth and the strong market in the zone.

<b>Table 21: Zone 57 Chicó Oriental</b>		
<b>ZONE: REFUGIO - CHICÓ ORIENTAL</b>		
<b>BOUNDARIES</b>	<b>Calles 85-93B; Carrera 7 and eastward</b>	
<b>PRICES</b>	<b>LPRB</b>	<b>DAPD/DACD</b>
LAND PRICE PER M2 YEAR 2002 BEFORE REGULATORY CHANGE (V1)	\$ 738,438	\$ 1,083,189
LAND PRICE PER M2 YEAR 2004 PAYMENT OF LEVY ON VALUE INCREMENT (V2)	\$ 876,378	\$ 1,125,675
DIFFERENCE IN VALUE (V2 - V1) OR VALUE INCREMENT PAID	\$ 137,940	\$ 42,486
REAL ANNUAL RATE, PERIOD OF REGULATORY CHANGE	8.94%	1.94%
LAND PRICE PER M2 2006	\$ 1,200,000	NA

Graph 16

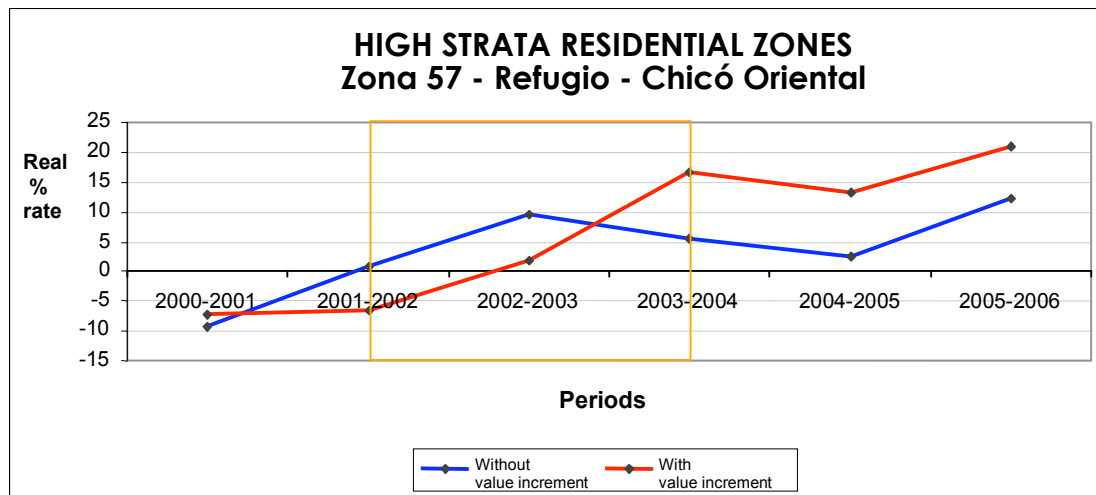


Table 22: Zone 57 Chicó Reservado

<b>ZONE 57: CHICÓ RESERVADO</b>		
<b>BOUNDARIES</b>	<b>Calles 92-94; Carreras 9-10</b>	
<b>PRICES</b>	<b>LPRB</b>	<b>DAPD/DACD</b>
LAND PRICE PER M2YEAR/DATE BEFORE REGULATORY CHANGE (V1)	\$ 1,169,194	
LAND PRICE PER M2YEAR/DATE OF PAYMENT OF LEVY ON VALUE INCREMENT (V2)	\$ 1,643,209	
DIFFERENCE IN VALUE (V2 - V1) OR VALUE INCREMENT PAID	\$ 474,015	None
REAL ANNUAL RATE, PERIOD OF REGULATORY CHANGE	18.55%	
LAND PRICE PER M2 2006	\$ 2,200,000	NA

### 4.3. Upper-middle stratum residential zones (Stratum 5)

#### a) Zone 69 – Puente Largo - Pasadena

The market in this zone has been dynamic in recent years. There have been a considerable number of small and medium projects for the construction of apartments from approximately 60 to 120 m2 in size, oriented to the needs of stratum 5 families. There was regulatory change in 2004 and 2005, which generated value increments on some properties, primarily on the Calle 106 corridor, some of them with commercial uses. However, these value increments were not very high at a real annual rate of 3.32 %.

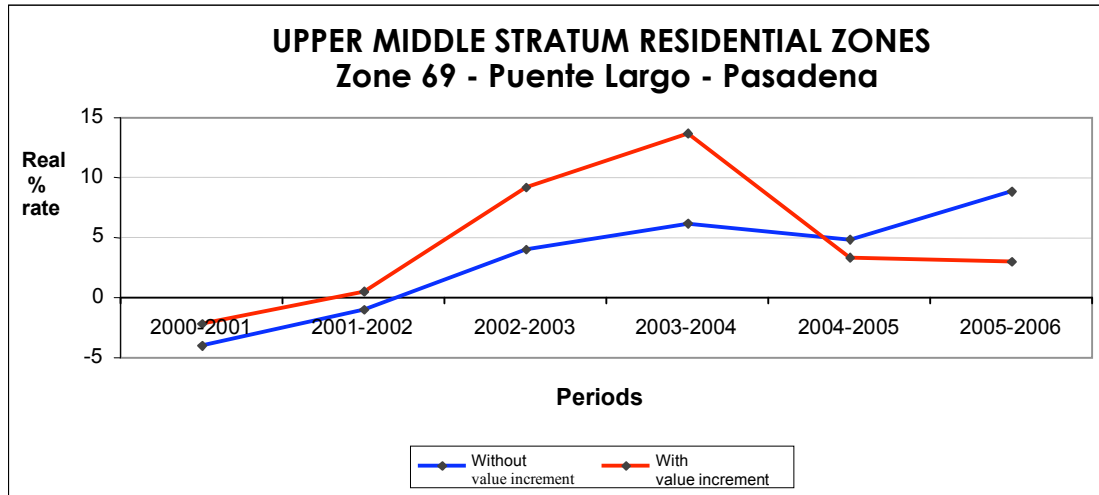
<b>ZONE 69: PUENTE LARGO – PASADENA</b>		
<b>BOUNDARIES</b>	Calles 101-107; Carreras 23-44	
<b>PRICES</b>	<b>LPRB</b>	<b>DAPD/DACD</b>
LAND PRICE PER M2 YEAR 2004 BEFORE REGULATORY CHANGE (V1)	\$ 657,284	\$ 447,940
LAND PRICE PER M2 YEAR 2005 PAYMENT OF VALUE INCREMENT (V2)	\$ 679,120	\$ 622,229
DIFFERENCE IN VALUE (V2 - V1) OR VALUE INCREMENT PAID	\$ 21,836	\$ 174,289
REAL ANNUAL RATE, PERIOD OF REGULATORY CHANGE	3.32%	38.91%
LAND PRICE PER M2 2006	\$ 700,000	\$ 730,000
REAL ANNUAL RATE SUBSEQUENT TO CHANGE (2005-2006)	3.07%	\$ 650,000

Taking market dynamics in this sector into account, these results lead to the conclusion that in this case where a considerable levy of \$174,289 per m2 was imposed on value increments, the equivalent of one fourth the square meter price, the charge levied has been completely absorbed by land owners given that the final price of products must be kept at reasonable levels in order to be competitive with other properties on offer in the zone, making it impossible to raise prices by the same order of magnitude. The middle class housing market in this and other zones of Bogotá has been very active since 2002, so there is no structural or cyclical problem that would hold back increasing land prices. Since there was regulatory change that benefited land owners, values theoretically should have risen. Since this increase never took place, we conclude that owners absorbed the charges that derived from the benefits of regulatory change. Developers and builders did not pay for the intensified land utilization allowable under the new regulations, because the final market, the middle class, would not pay a sharply increased price for apartments.

This conclusion also appears to be corroborated by the behavior of the rate of real price growth in this zone compared to the average in upper-middle strata residential zones where there was no levy on value increments. The corresponding graph clearly illustrates that in the years of regulatory change and the payment of the levy on value increments, the appreciation rate dropped in this zone and was overtaken by the rate in the zones without levies, evidence of the impact attributable to the imposition of the levy.



**Graph 17**



b) Zone 71 – Nueva Autopista – Contador – Margaritas

This zone is located along the Autopista Norte and is traversed by other important thoroughfares such as Avenida 19 and Calle 134. It has been positively influenced by the new *Transmilenio* bus rapid transit system since it is a densely populated middle class sector with heavy traffic. It is quite attractive to the property market since practically everything that is built can easily be sold or rented, which partially explains the appreciation of property here in recent years: 11.6 % annually between 2004 and 2006.

As in the previous case, though, given the positive market and the fact that the levy on value increments represents a proportion of almost one fourth of the price per m2, the data suggest that land owners are absorbing the charge at least in part, given that builders can not assume the entire burden out of their profits or out of the final price, which is influenced by high demand but also by strong competition.

<b>ZONE 71: AUTOPISTA NORTE - CONTADOR - MARGARITAS</b>		
<b>PRICES</b>	<b>LPRB</b>	<b>DAPD/DACD</b>
LAND PRICE PER M2 YEAR 2004 BEFORE REGULATORY CHANGE (V1)	\$ 602,510	\$ 687,552
LAND PRICE PER M2 2006, YEAR OF PAYMENT OF LEVY ON VALUE INCREMENT (V2)	\$ 750,000	\$ 882,757
DIFFERENCE IN VALUE (V2 - V1) OR VALUE INCREMENT PAID	\$ 147,490	\$ 195,205
REAL ANNUAL RATE, PERIOD OF REGULATORY CHANGE	11.57%	13.31%
LAND PRICE PER M2 2006	\$ 750,000	\$ 650,000
		\$ 600,000

#### 4.4 Middle-middle stratum residential zones (Stratum 4)

##### a) Zone 74 - Cedritos

Of the small group of residential zones of this middle-middle stratum that were studied by the LPRB, only this one was regulated and was also subject to a levy on value increments in 2006.

Cedritos is quite large, with a property market that has been active for several decades due to the high demand for housing for growing strata 4 and 5 families. The prices recorded by the LPRB for 2004 to 2006 indicate a real annual growth rate of 7.5 % over inflation, with an absolute variation of \$94,016 per m<sup>2</sup>. This was 32 % less than the levy on value increments, the estimated average of which was \$139,354, or about 20 % of the unit land price.

With the active market dynamics in this zone and relative though limited elasticity of final product price increments given the strong competition within the supply sector and the limited buying power of the demand sector, it is reasonable to suppose that the cost of significant price increment charges can not be passed along from property owners to builders, who could neither absorb them as additional project expenses nor allow them to reduce profits.

The graph illustrating the evolution of real rates in the zone compared to rates in the group of middle-middle stratum residential zones without a levy on value increments indicates similar growth since 2005, but rates are higher in zones where value increments are levied.

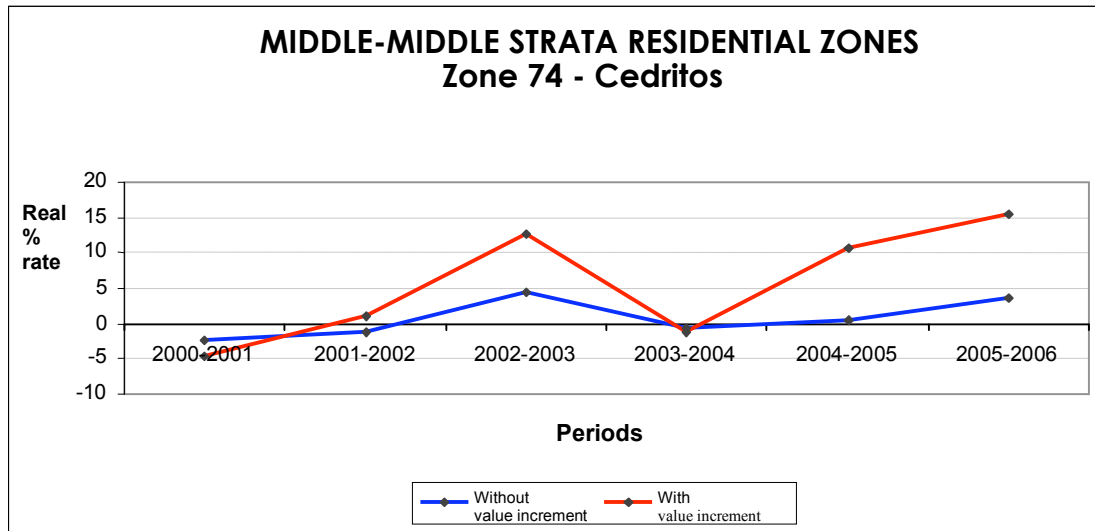
In 2007 the great demand for middle class apartments in this zone has encouraged builders to acquire lots with significant frontage, integrating various existing lots with or without houses for demolition and constructing the apartment buildings of 8 to 19 stories that are permitted when separate lots are combined. Lots are on offer for \$800,000 to \$1,000,000 per m<sup>2</sup>, which they are certainly worth if they are integrated lots where the maximum building height is allowed. However, property owners unaware of regulatory restrictions are asking the same price for lots where buildings of only 5 or 6 floors are permitted while the maximum market value in such cases is \$700,000 per m<sup>2</sup>.

District Planning regulations call for a levy on value increments when lots are integrated. Builder-purchasers only agreed to pay a levy of \$800,000 per m<sup>2</sup> in 2007 on integrated lots where 12 story buildings are permitted, because they know that the value increment will be between \$100,000 and \$150,000 per m<sup>2</sup> and they can expect to pay at most \$1,000,000 per m<sup>2</sup> for the lot including the value increment. In this case the property owner clearly pays the levy because he deducts it from the maximum market value resulting from the new regulation pertinent to the integration of what were previously separate frontages.

**Table 25: Zone 74**

<b>ZONE 74: CEDRITOS</b>		
<b>PRICES</b>	<b>LPRB</b>	<b>DAPD/DACD</b>
LAND PRICE PER M2 YEAR 2004 BEFORE REGULATORY CHANGE (V1)	\$ 605,984	\$ 579,881
LAND PRICE PER M2 YEAR 2006 OF PAYMENT OF VALUE INCREMENT (V2)	\$ 700,000	\$ 719,235
DIFFERENCE IN VALUE (V2 - V1) OR VALUE INCREMENT PAID	\$ 94,016	\$ 139,354
REAL ANNUAL RATE, PERIOD OF REGULATORY CHANGE	7.48%	11.37%
LAND PRICE PER M2 2006	\$ 700,000	\$ 650,000

Graph 18



#### 4.5. Lower-middle stratum residential zones (Stratum 3)

At this point it should be mentioned that the selection and delimitation of low-income residential sectors (stratum 3 and below) considered in the current LPRB study are almost entirely consistent with the way they were defined decades ago by the first studies of extensive portions of Bogotá's southern periphery occupied by generally informal settlements of low-income population sectors. At that time, however, they were highly homogeneous in their generally substandard conditions and land values as well as their similar tendencies and evolution of structural and cyclical behavior with regard to value appreciation.

Three or four decades after these studies, of course, many areas in these originally informal zones, especially those that are older and more centrally located, have been regulated and consolidated, appreciating considerably in the process so that they have also slowly ascended on the scale of urban social stratification. Consequently, the most peripheral and most recently developed areas within this group of low-income residential areas are the lowest priced. Nevertheless, it is important to stress that the majority of low-

income residential zones benefited from the construction of the *Transmilenio* mass transit system.

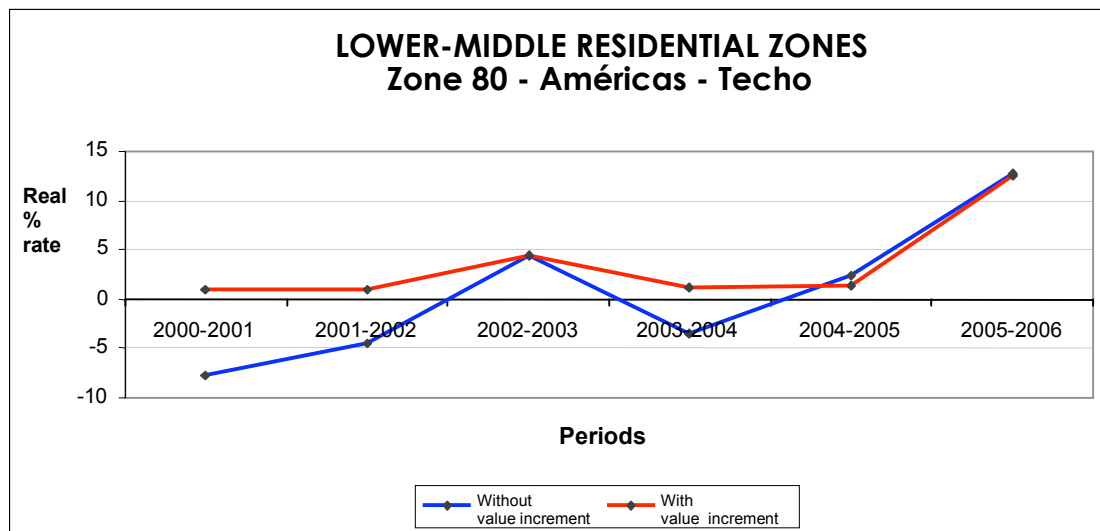
a) Zone 80 – Américas – Techo

Average prices in this zone should be compared for the years 2001-2004 and the years 2003-2005, since the two ZPUs that partially cover the area were adopted at different times. LPRB data indicate moderate real annual appreciation between 1.22 % and 2.12 %, which is significantly less than the 7.1 % and 10.8 % real annual appreciation indicated by DAPD/DACD data. Nevertheless, considerable appreciation equivalent to an annual rate of 12.6 % is estimated with respect to 2005 prices and estimated prices for 2006.

Considering that the levy paid on value increments was \$88,885 per m<sup>2</sup>, and that initial prices increased only between \$8,500 and \$21,000 per m<sup>2</sup> in the years when the new regulations were adopted, it is easy to conclude that the regulatory change produced no immediate change in the market, but the increase in the following year, significant but proportionally less than the levy on value increments that was paid, would indicate that this is one of the cases where the obligation to pay for value increments was shared between land owners and builders. This conclusion also seems to be supported by the comparative behavior of appreciation rates in this zone and those in lower-middle residential zones where there was no levy on value increments, where it is observed that tendency of growth in zones without the levy is to seek parity with values in the zone where there is one.

<b>Table 26: Zone 80</b>		
<b>ZONE 80: AMÉRICAS – TECHO</b>		
<b>PRICES</b>	<b>LPRB</b>	<b>DAPD/DACD</b>
LAND PRICE PER M2 YEAR 2003 BEFORE REGULATORY CHANGE (V1)	\$ 329,190	\$ 389,378
	\$ 346,717	
LAND PRICE PER M2 YEAR 2005 OF PAYMENT OF VALUE INCREMENT (V2)	\$ 350,551	\$ 478,262
	\$ 355,232	
DIFFERENCE IN VALUE (V2 - V1) OR VALUE INCREMENT PAID	\$ 21,361	\$ 88,885
	\$ 8,515	
REAL ANNUAL RATE, PERIOD OF REGULATORY CHANGE	2.12%	7.09%
	1.22%	10.83%
LAND PRICE PER M2 2006	\$ 400,000	\$ 600,000
REAL ANNUAL RATE SUBSEQUENT TO CHANGE (2005-2006)	12.60%	\$ 450,000

Graph19



b) Zone 82 – Minuto – Española – Quirigua – Bolivia

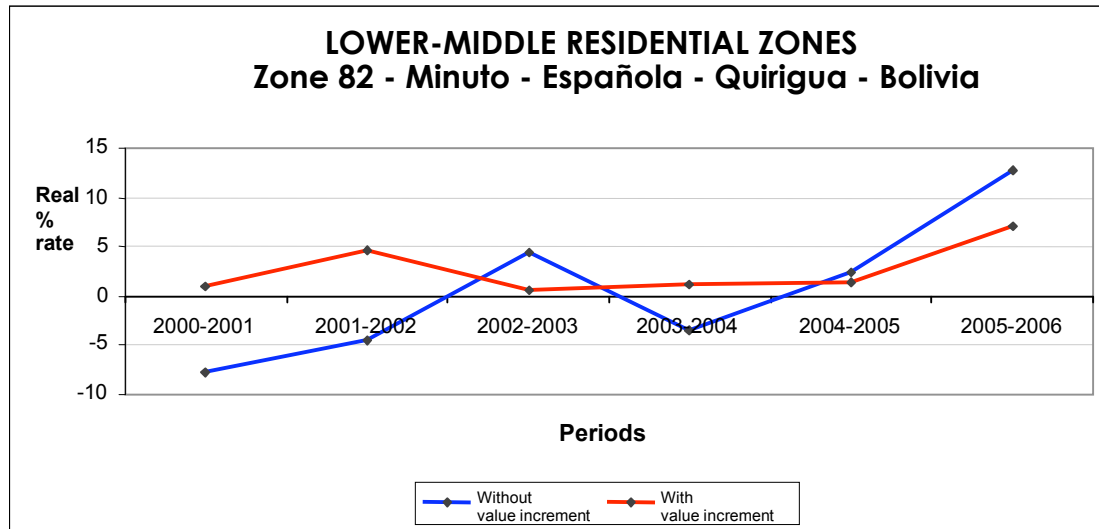
As in the previous zone, accessibility to this densely populated sector has been substantially improved with the implementation of the first major line of the *Transmilenio* mass transit system on the Autopista Medellín or Calle 80 and later with the secondary line on the Avenida Ciudad de Cali. The change was even more dramatic in this zone than in the one referenced above due to previously less developed conditions of accessibility and transportation infrastructure in this zone and because this was the first phase of Bogotá's new mass transit system.

In this case it can be observed that prices rose moderately in the relevant period as recorded by the LPRB, at an annual rate equivalent to 2.1 %, or somewhat more than \$21,000 per m<sup>2</sup> in absolute terms, far less than the total calculated value increment of over \$220,000 per m<sup>2</sup>, although the 2006 increase was at a higher rate (4.1 %), reaching an average of \$380,000 per m<sup>2</sup>. Notice in the graph corresponding to this zone, however, that with the exception of the 2002-2003 period, the growth rate in this zone was generally above average for the group of lower-middle residential zones without a levy on value increments.

Compare the levy on value increments with the increase in land prices. Since the real growth rate in this zone since 2003-2004 has been lower than average for the group of areas with the same use and without the levy on value increments, we might suppose that land owners have had to assume the burden of the charge since they have not been able to pass it along.

Table 27: Zone 82		
ZONE 82: MINUTO-ESPAÑOLA-QUIRIGUA-BOLIVIA		
PRICES	LPRB	DAPD/DACD
LAND PRICE PER M2 YEAR 2003 BEFORE REGULATORY CHANGE (V1)	\$ 329,190	\$ 392,111
	\$ 346,717	Unresolved
LAND PRICE PER M2 YEAR 2004 PAYMENT OF LEVY ON VALUE INCREMENT (V2)	\$ 350,551	\$ 615,365
	Unresolved	Unresolved
DIFFERENCE IN VALUE (V2 - V1) OR VALUE INCREMENT PAID	\$ 21,361	\$ 223,254
	Unresolved	Unresolved
REAL ANNUAL RATE, PERIOD OF REGULATORY CHANGE	2.12%	16.21%
	Unresolved	Unresolved
LAND PRICE PER M2 2006	\$ 380,000	\$ 430,000
REAL ANNUAL RATE SUBSEQUENT TO CHANGE (2004-2006)	4.12%	\$ 380,000

**Graph 20**



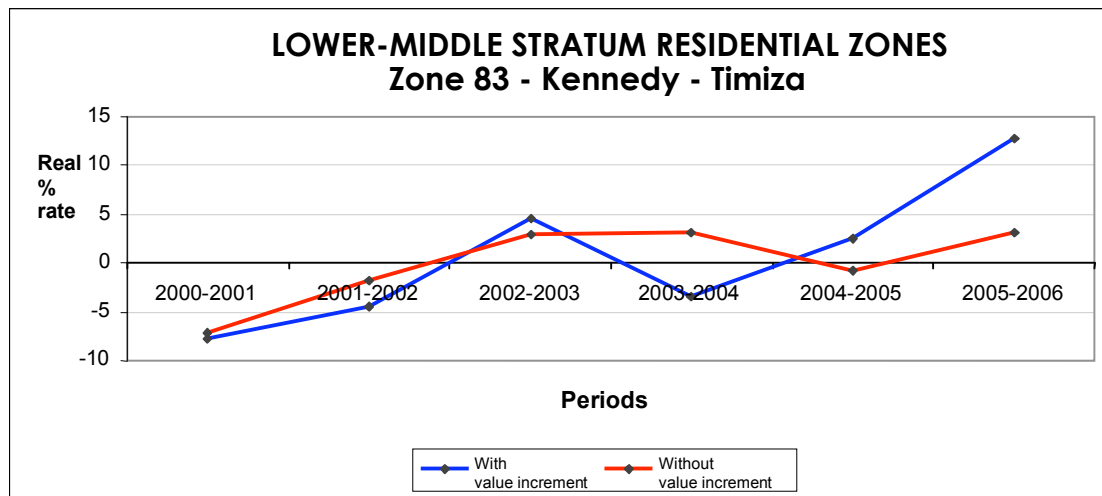
c) Zone 83 – Kennedy – Timiza

In 2004 and 2005, land prices grew at a similar rate, slightly under inflation, increasing in constant terms from \$273,868 to \$271,648 for a negative annual rate of -0.8 %. This tendency was reversed in 2005 and 2006 when prices rose 3.1 %. The levy that was paid on value increments on those properties regulated by ZPUs was \$68,319 per m2 in this LPRB zone, so it is clear that property owners had to assume the charges. The impact of the regulatory change was not reflected in land price increases and market tendencies were seemingly unaffected by the new regulations that were adopted. This is also suggested by a comparison of the appreciation rates in this zone with the average for zones with the same uses where there was no levy on value increments. The tendency in this zone during the period of regulatory change, which had been more positive than in the group where no levy was collected on value increments, became significantly less positive than in the latter group. However, the large sector of Timiza is included in this zone, and new regulations took effect there only in November 2006. An adequate

evaluation of the impact of the levy on value increments in the zone will have to wait one year so that the levy can be fully paid for properties within the Timiza UPZ and market prices have an opportunity to react to the new regulatory changes.

Table 28: Zone 83		
ZONE 83: KENNEDY – TIMIZA		
	LPRB	DAPD/DACD
LAND PRICE PER M2 YEAR 2004 BEFORE REGULATORY CHANGE (V1)	\$ 273,868	\$ 239,186
LAND PRICE PER M2 YEAR 2005 PAYMENT OF LEVY ON VALUE INCREMENT (V2)	\$ 271,648	\$ 307,505
DIFFERENCE IN VALUE (V2 - V1) OR VALUE INCREMENT PAID	\$ -2,220	\$ 68,319
REAL ANNUAL RATE, PERIOD OF REGULATORY CHANGE	-0.81%	28.56%
LAND PRICE PER M2 2006	\$ 280,000	\$ 360,000
REAL ANNUAL RATE SUBSEQUENT TO CHANGE (2005-2006)	3.07%	\$ 320,000

Graph 21



d) Other lower-middle stratum zones

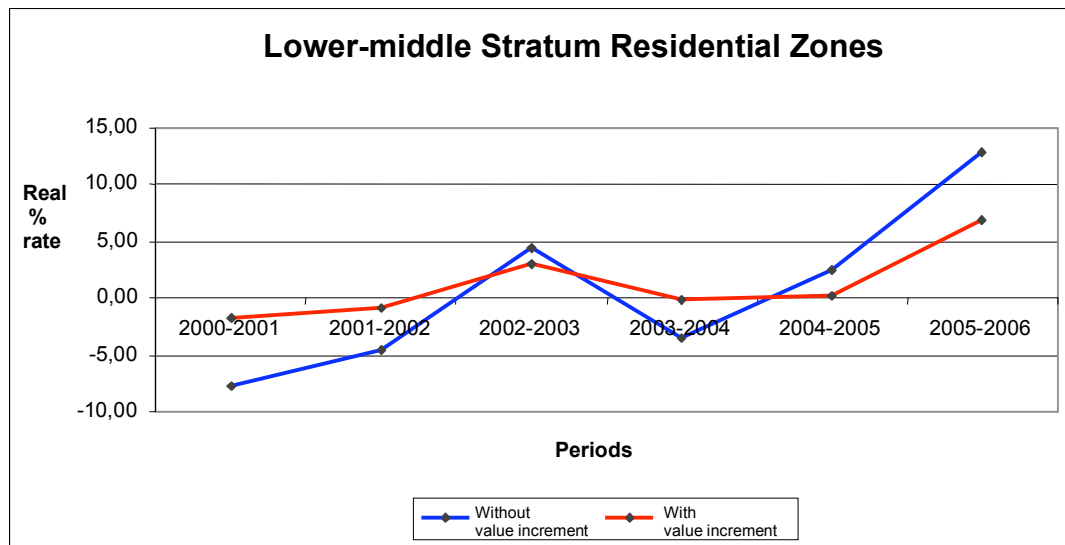
The report by Esperanza Durán also discussed other zones of the LPRB in the same social stratum:

- - *Southwest 1 – Olaya – Quiroga*
- - *Rincón – Tibabuyes*

Behavior in these zones is similar to that in the other lower-middle stratum zones discussed. To summarize, the graph below compares the zones of this stratum where there was a levy on value increments with those where there was no levy. Land values in zones without the levy grew faster than those where it was collected. It can at least be concluded that the collection of the levy on value increments after regulatory change was

not passed along to developers or final buyers and was completely absorbed by property owners. It even lowered land values.

**Graph 22**



#### 4.6. Low stratum residential zones (Strata 1 and 2)

##### a) Zone 91 – Southeast 2 – Guacamayas – Marruecos

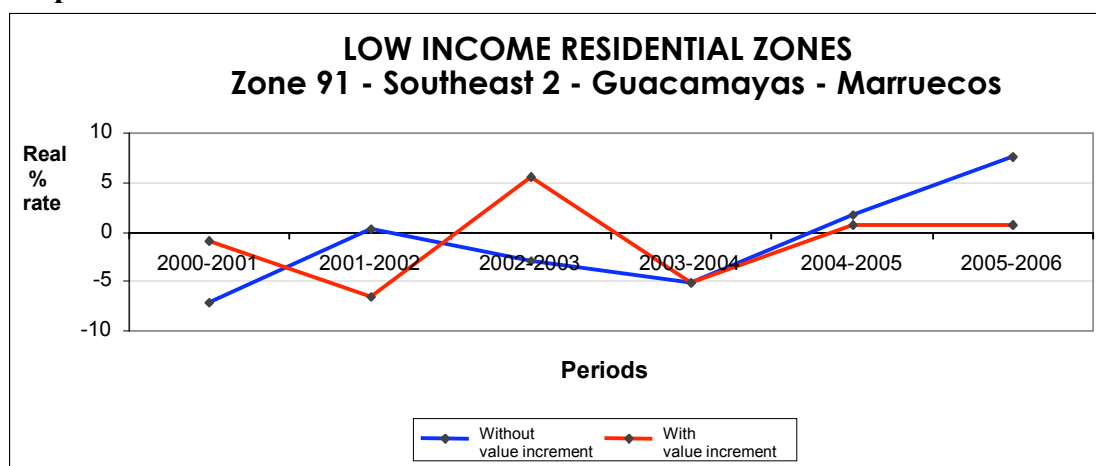
This is a densely populated stratum 2 sector located east of Avenida 13 between Calles 31 and 51 South. Most of its neighborhoods have illegal origins, some as land invasions. In recent years these have been the object of legalization programs allowing for the provision of some public services. Most buildings are self-built structures of 1 to 3 stories. Their construction and design is very varied and they present many different stages of interior and exterior completion. Access is inhibited by limited municipal street infrastructure and the steepness of the location. Like the majority of low-income residential areas, however, the area is served by many public transportation routes, most of them presumably informal.

As recent land price evolution indicates, growth in this peripheral zone has been close to inflation, so it can be said that regulatory change had little impact on the market, and the amount of the levies, which averaged \$28,674 per m<sup>2</sup>, was not passed along to land prices. Thus it can be concluded that property owners assumed most or all of the levies on value increments. The small profit margin on low stratum housing projects limits the ability of builders to absorb most of the charge associated with the levy or for it to be integrated into the price of the final product.



Table 29: Zone 91		
ZONE 91: SOUTHEAST-ORIENTE 2 - GUACAMAYAS - MARRUECOS		
PRICES	LPRB	DAPD/DACD
LAND PRICE PER M2 YEAR 2004 BEFORE REGULATORY CHANGE (V1)	\$ 197,185	\$ 119,627
LAND PRICE PER M2 YEAR 2005 PAYMENT OF LEVY ON VALUE INCREMENT (V2)	\$ 198,512	\$ 148,301
DIFFERENCE IN VALUE (V2 - V1) OR VALUE INCREMENT PAID	\$ 1,327	\$ 28,674
REAL ANNUAL RATE, PERIOD OF REGULATORY CHANGE	0.67%	23.97%
LAND PRICE PER M2 2006	\$ 200,000	\$ 300,000
REAL ANNUAL RATE SUBSEQUENT TO CHANGE (2005-2006)	0.75%	\$ 240,000

Graph 23



b) Zone 94 – Southeast 3 – La Belleza – La Gloria

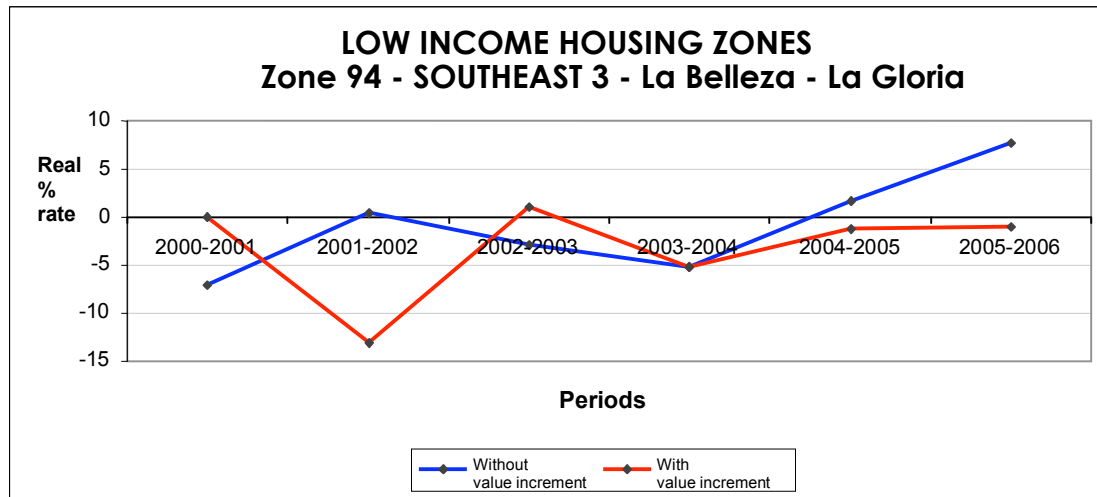
This is the city’s southeastern periphery, made up of neighborhoods that like most peripheral settlements began as illegal land invasions or pirate developments. Some areas have undergone legalization processes that have allowed for the improved provision of public services. In general they suffer from the same type of substandard buildings and difficulties of access and infrastructure as described in previous paragraphs. If anything, conditions are worse in this vast zone due to its challenging topography. Nevertheless, it is also served by numerous informal transportation routes.

When regulations for the UPZ that covers this sector and the resolution for the levy on value increments were adopted in 2004 and 2005, land prices decreased slightly in real terms at a rate of -1.22 %, which moderated slightly in 2005-2006, decreasing by only - 0.99 %, with prices at about \$150,000 per m2. The average levy per m2 was \$31,690, which is significant: more than 20 %. Nevertheless, given the impact of market conditions for the viability of VIS projects in the sector, neither builders nor final buyers of housing units are able to absorb this charge. Thus it can be assumed that in this case the charge falls directly and entirely on land owners in this zone.

**Table 30: Zone 94**

<b>ZONE 94: SOUTHEAST 3 - LA BELLEZA - LA GLORIA</b>		
<b>PRICES</b>	<b>LPRB</b>	<b>DAPD/DACD</b>
LAND PRICE PER M2 YEAR 2004 BEFORE REGULATORY CHANGE (V1)	\$ 153,366	\$ 105,244
LAND PRICE PER M2 YEAR 2005 PAYMENT OF LEVY ON VALUE INCREMENT (V2)	\$ 151,496	\$ 136,934
DIFFERENCE IN VALUE (V2 - V1) OR VALUE INCREMENT PAID	\$ -1,870	\$ 31,690
REAL ANNUAL RATE, PERIOD OF REGULATORY CHANGE	-1.22%	30.11%
LAND PRICE PER M2 2006	\$ 150,000	\$ 200,000
REAL ANNUAL RATE SUBSEQUENT TO CHANGE (2005-2006)	-0.99%	\$ 150,000

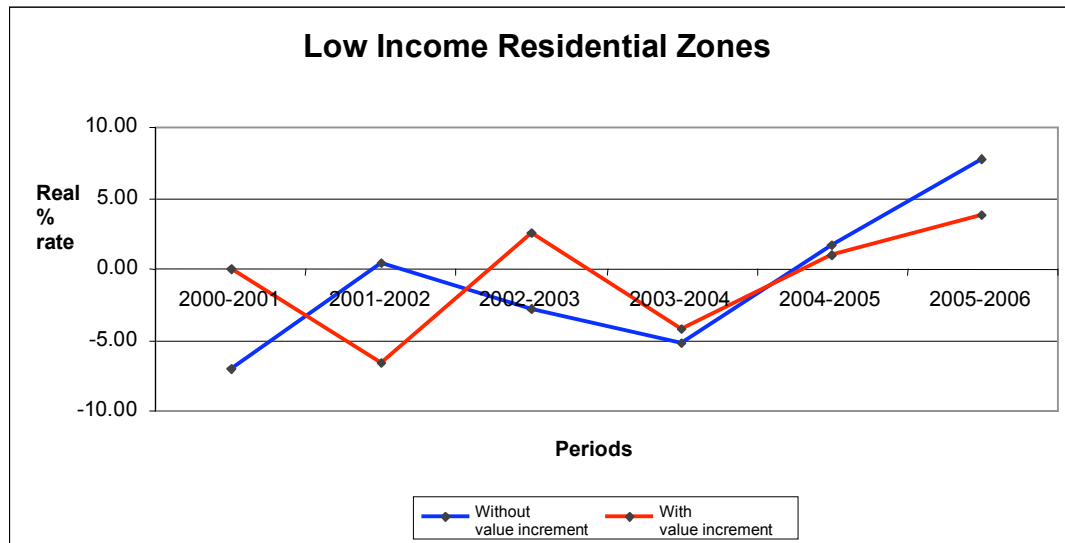
**Graph 24**



c) Other low stratum neighborhoods

Other low stratum neighborhoods where value increments were subject to levies are mentioned in Esperanza Durán's report: Bosa, Ciudad Bolívar, Patio Bonito, Britalia, and Class. All of them had results similar to those reported for areas associated with this stratum. The levy on value increments and regulatory change did not bring significant increases in land values and thus were assumed not by buyers but by owners. Below we present a summary of growth rates reported in low stratum neighborhoods where a levy was placed on value increments and those where there was no such levy.

Graph 25



#### 4.7 Conclusions for Consolidated Zones

- a) Based on the above analysis of zones where there was a levy on value increments, grouped according to their uses, and especially after observing a notable change of behavior within low-income residential zones, it can be inferred with regard to the hypotheses of this study that there is substantial evidence regarding the evolution of land prices that allows us to conclude with a certain degree of confidence that the impact of regulatory change and of the charge for value increments on land prices decreases as one descends the social strata. Also descending the social strata, the charge on value increments is progressively less assumed solely by builders and progressively more shared by land owners. Note that in lower-middle and lower stratum residential zones the curve of the average appreciation rate in the group of zones without a levy on value increments lies above the same curve for the group of zones with the same uses but with a levy on value increments, while in commercial and higher stratum residential zones this curve is always higher in zones with a levy on value increments than it is in zones that do not have a levy on value increments.
- b) In high stratum zones, value increments benefit property owners because associated charges are passed along in their entirety to final buyers. There is sufficient elasticity in this market to allow for price increases.
- c) In middle strata, on the other hand, the charge on value increments is shared between property owners and builders, and builders pass their share along to final buyers. In other zones, property owners completely absorb this charge because the final demand sector is unwilling to pay higher prices for housing.
- d) Commercial zones where there was regulatory change behaved differently. In zones where the market was static or declining, regulatory change had no result on land prices because property owners absorbed the levy on value increments. In dynamic commercial and service zones where commercial and office space is

in high demand, the levy on value increments was entirely passed along to buyers or builders and property owners benefited. The market allowed for higher prices for commercial and office space in order to cover the costs of the municipal levy.

## 5. General Conclusions

- a. In areas of Bogotá's northern and southern periphery, where land uses are regulated through zonal plans that determine the assessment of charges on value increments ranging from 50 to 60 % of the expected value of land without charges, both developers and appraisers have incorporated the payment of these charges into their valuations such that their determination of land value effectively transfers the obligation to pay such charges to the land owner, although municipal regulations assign to the builder the responsibility to pay the municipality all charges and levies on value increments upon the approval of a partial plan.
- b. Land owners on the northern periphery have accepted land price reductions proportionate to the charges and levies on value increments to be paid once the zonal plan is approved. This has meant a reduction of 50 % with respect to land price expectations as of 2004 before the district administration decided to assign these obligations. We were able to verify no less than six transactions in the northern zone in which commercial values actually transacted were 50 % below price expectations as a result of the transfer to the property owner of charges and levies on value increments.
- c. Appraisals conducted by the Real Estate Board of Bogotá (*Lonja de Propiedad Raíz de Bogotá – LPRB*), the leading association of realtors and appraisers in Bogotá, arrive at expected land values after deducting charges and levies on value increments using the residual method, such that their proposed transaction values transfer such charges to land owners.
- d. There is a marginal charge for increased construction ratios on lands to be developed within the urban perimeter of Bogotá in zones of less than 10 hectares regulated under Decree 327 of 2004. This marginal charge is subtracted from the expected value of the land with the maximum allowable construction ratio such that the payment of this charge is transferred to the property owner. It was determined in studying appraisals and transactions for this report that in 90% of transactions carried out in Bogotá that were regulated under this decree the payment of charges was deducted from the lot price in order to determine the commercial value. Developers demand that these payments be deducted from lot prices.
- e. Behavior is ambiguous with regard to properties to be developed within the urban perimeter in zones of more than 10 hectares, which by definition must be regulated by partial plans or land readjustments (Decree 436 of 2006). In 60 % of these cases studied, the cost of charges was assumed by the land owner, decreasing transaction prices. In the other 40 % it was passed along to buyer-developers. Since this regulation is only six months old, it will be necessary to

- wait one or two years in order to determine whether behavior resembles that resulting from Decree 327/04.
- f. Charges established by Decree 327/04 for zones and lots of under 10 hectares are double the charges and obligations mandated under Decree 436/06 as a proportion of project sales. This explains why a group of Bogotá developers agreed to pay the charges in their negotiations for lots. Compared to the decree that established charges for lots with less than 10 hectares they did not seem so high.
  - g. Econometrics did not help to establish a definitive conclusion relating the value of lots with levies on value increments to regulatory change in consolidated zones. The principal limitation of cross-sectional analysis is that a chronology of events is not available, and in this case it is clear that it is necessary to evaluate the effect of regulations over time in order to understand its real impact. It is probable that by analyzing the data for one year, only the short term impact of the new regulation is captured, but the regulation's effect may develop with the time that the market takes to digest and react to it and it may depend on the implementation of other coexisting regulations or on major urban transformations over time that allow for its effective application.
  - h. The econometric analysis of the Chicó-Lago Zone in report 2 (Annex 7 of this report), with a very representative sample of 5,600 cases, confirms the impact of regulatory change on increasing land values. Regulatory change increased land values by 11 %. The opposite was found in the Cedritos Zone based on a similar amount of data, where regulatory change reduced land prices.
  - i. The OLS model proposed for some zones (Castilla) suggested that regulatory change leading to increased construction ratios or more profitable uses would degrade certain zones. It can be supposed that property values could suffer in a zone where new commercial or industrial activities are made permissible if they are accompanied by negative externalities such as noise pollution, traffic congestion, environmental pollution, etc., thus justifying the results of the regression analysis.
  - j. The report includes an econometric analysis regarding 100 lots for sale in the consolidated zone of Santa Bárbara, Cedritos and Chicó, where there was regulatory change and a levy was placed on value increments. Statistical results indicate that the regulatory change in this zone, a land-use plan allowing additional building construction, i.e. more profitable use of land, reduced land values by 12.31 % for the year 2007 compared to those properties where there was no regulatory change. One explanation for this result is the fact that regulations in these neighborhoods have been undergoing changes for several years: since 2000 in Santa Bárbara, 2003 in Chicó, and 2005 in Cedritos. This means that values for the year 2007 had already incorporated the effects of regulatory change, complicating the analysis of data collected before and after only the most recent change. A cross-sectional analysis may be telling us that the lots in Santa Bárbara where there was no regulatory change were already subject

to regulations more advantageous than the newest ones and therefore lots that were subject to the latest regulatory change lost 12% of value compared to those that were not. Only in Chicó and Cedritos did regulatory change increase the number of allowable stories, but only on lots where frontage was consolidated, a factor that is not apparent in the data. The econometric results are not conclusive and do not identify a tendency.

- k. The best method for determining the impact of levies on value increments in consolidated zones is to determine land values before and after regulatory change and before and after rate-setting for the levies. This comparison was performed for 97 zones of the city alongside studies by the LPRB. An analysis was conducted in 29 zones where a levy on value increments was implemented as a charge on the benefits of regulatory change, and the impact on land values in the following years was compared with the changes in land values in control zones where no charge on value increments was levied. There had also been upward tendencies in land values in these control zones as a result of the real estate expansion underway after 2001. The levy on value increments was collected after 2004.
- l. Behavior in high stratum neighborhoods where there was an levy on value increments did not differ from behavior where there was no such levy, because it was not considered that there was regulatory change. Increases were large but this was due not to the levy on value increments but to the general growth in the real estate market. Builders assumed responsibility for the levy on value increments and were able to pass them along to final buyers because there was room under the market price ceiling for them to do so. Property owners benefited from the market, not from new regulations.
- m. The same thing occurred in highly dynamic high stratum commercial zones. Regulatory change and the levy on value increments were passed along to builders or developers and then charged by them to final buyers. The scarcity of land in these zones, and the nature of high stratum commerce which makes it possible for merchants to pay elevated prices for commercial space make the payment of levies on value increments affordable as a cost of the building process. Land owners appropriated this benefit.
- n. In moderately dynamic middle and upper-middle stratum commercial zones the results were the opposite. These zones are much more common than those described above. Regulatory change and the levy on value increments did not raise land prices. Instead their cost was absorbed by land owners since construction companies prevented levies on value increments from being passed along to final buyers.
- o. Results were inconclusive in middle and upper-middle stratum neighborhoods. In some neighborhoods, builders absorbed the levy on value increments and landowners benefited. These were neighborhoods with strong market dynamics

where increased land prices translated into higher housing prices for final buyers. In other neighborhoods with strong market dynamics but more limited demand, landowners paid levies on value increments resulting from regulations because builders were unwilling to do so. Since land values remained unchanged, property owners had to assume payment of levies on value increments because they could not raise prices after construction ratios were raised through regulatory change.

- p. In the lower-middle, low, and lowest income strata, regulatory change and levies on value increments exceeded increased land values. Given market price limitations, they could not be passed along to builders or final buyers. Land owners had to assume responsibility for the levy. Had it not been for this burden, land values would have increased along with the positive market cycle. Prices rose more in control zones where there was no levy on value increments than they did in zones belonging to the same economic strata where there was a levy.

In summary, this study has successfully demonstrated the validity of a hypothesis of the Lincoln Institute of Land Policy. The collection of taxes, charges, and levies on value increments on urban land leads to a reduction of land values because these expenses can not be passed along to final buyers; the demand sector does not have the resources to pay higher prices for final products. Although in the Colombian case, the developer or builder is the direct payer of charges and levies on value increments to the municipality, these burdens are deducted from the value of the lot with reference to the residual value that the lot would have with the benefit of new regulations, uses, and construction ratios.

Annex 1 Table 2

**PRICE EXPECTATIONS AND  
PRICES AFTER CHARGES**

REGULATION	AND	VALUES with charges	AFTER		CHARGES	
			value w/out VIS oblig.	value w/out charges	charges as % of value	charges as % of sales
<b>Decree 327/04</b>	<b>2</b>	<b>177,000</b>	215000	205000	15.6%	2.0%
	<b>5</b>	<b>246,000</b>	331000	296000	20.8%	2.9%
	<b>7</b>	<b>148,000</b>	186670	175000	15.6%	2.1%
	<b>10</b>	<b>41,000</b>	41000	41000	0.0%	0.0%
	<b>13</b>	<b>63,000</b>	70768	66000	4.2%	0.4%
	<b>14</b>	<b>27,000</b>	27000	27000	0.0%	0.0%
	<b>15</b>	<b>134,000</b>	162000	154000	15.6%	1.6%
	<b>17</b>	<b>128,000</b>	167000	140000	8.5%	1.1%
	<b>19</b>	<b>199,000</b>	251000	249000	20.8%	2.8%
	<b>20</b>	<b>372,000</b>	488000	436000	15.6%	2.7%
	<b>21</b>	<b>645,000</b>	959000	815000	20.8%	3.9%
	<b>22</b>	<b>232,000</b>	350000	274000	15.3%	3.2%
	<b>25</b>	<b>216,000</b>	309000	280000	22.8%	3.1%
TOTAL : 13 LOTS						
<b>Decree 436/06</b>	<b>1</b>	<b>219,000</b>	237000	227000	3.7%	0.5%
	<b>3</b>	<b>198,000</b>	211000	205000	3.7%	0.5%
	<b>4</b>	<b>326,000</b>	399000	361000	9.7%	1.4%



	<b>6</b>	<b>254,000</b>	300000	276000	9.6%	1.3%
	<b>8</b>	<b>301,000</b>	362000	330000	9.7%	1.3%
	<b>12</b>	<b>27,500</b>	27500	27500	0.0%	0.0%
	<b>18</b>	<b>280,000</b>	335000	310000	9.7%	1.3%
	<b>23</b>	<b>207,000</b>	259000	242000	21.3%	3.5%
TOTAL : 9 LOTS	<b>24</b>	<b>177,000</b>	234000	225000	21.3%	3.5%
<b>NORTHERN ZONAL PLAN</b>	<b>9</b>	<b>142,000</b>		310000	50.8%	9.1%
	<b>16</b>	<b>90,000</b>		215000	58.0%	
	<b>26</b>	<b>70,000</b>				
TOTAL: 4 LOTS	<b>27</b>	<b>85,000</b>		201000	52.0%	
	<b>29</b>	<b>60,000</b>		175000	60.0%	
	<b>30</b>	<b>70,000</b>				
<b>USME ZONAL PLAN</b>	<b>11</b>	<b>15,000</b>		60000	76.0%	
TOTAL : 2 LOTS	<b>28</b>	<b>15,000</b>		60000	76.0%	

AREA M2	VALUE M2	APPRAISAL	possible	difference	Appraisal w/out	negotiation	observation
offer	with	negotiation	from	charges or	Vs appraisal	w/out	
	charges		appraisal	VIS	charges		
21000	200,000	<b>177,000</b>	180,000	1.7%	215000	-16.3%	
57,133	190,000	<b>246,000</b>	171,000	-30.5%	331000	-48.3%	
14735	159,959	<b>148,000</b>	143,963	-2.7%	186000	-22.6%	
25697	40,587	<b>41,000</b>	36,529	-10.9%	41000	-10.9%	
28791	50,002	<b>63,000</b>	45,002	-28.6%	70768	-36.4%	
10471	27,505	<b>27,000</b>	24,754	-8.3%	27000	-8.3%	
24400	131,148	<b>134,000</b>	118,033	-11.9%	162000	-27.1%	
23,814	188,964	<b>128,000</b>	160,620	25.5%	167000	-3.8%	
17,234	203,087	<b>199,000</b>	182,778	-8.2%	251000	-27.2%	
12,960	424,383	<b>372,000</b>	360,725	-3.0%	488000	-26.1%	
16,287	1,000,000	<b>645,000</b>	850,000	31.8%	959000	-11.4%	
9,200	450,000	<b>232,000</b>	382,500	64.9%	350000	9.3%	commercial LOT
14736	220,548	<b>216,000</b>	198,493	-8.1%	309000	-35.8%	
				-4.4%		-23.0%	
						15.5%	

AREA M2	VALUE M2	APPRAISAL	possible	difference	Appraisal w/out	negotiation	observation
offer	with	negotiation	from	charges or	Vs appraisal	w/out	
	charges		appraisal	VIS	charges		
24000	125,000	<b>219,000</b>	125,000	-42.9%	237000	-47.3%	
23300	309,013	<b>198,000</b>	262,661	32.7%	211000	24.5%	
84000	600,000	<b>326,000</b>	510,000	56.4%	399000	27.8%	
84000	297,619	<b>254,000</b>	252,976	-0.4%	300000	-15.7%	
31413	376,109	<b>301,000</b>	319,693	6.2%	362000	-11.7%	
147319	27,000	<b>27,500</b>	24,300	-11.6%	27500	-11.6%	

40,000	250,000	<b>280,000</b>
27179	400,015	<b>207,000</b>
10040	450,000	<b>177,000</b>

225,000	-19.6%	335000	-32.8%	
340,013	64.3%	259000	31.3%	industrial use
360,000	103.4%	234000	53.8%	industrial use
			-10.3%	

AREA M2	VALUE M2	VALUE
172000	300,000	<b>142,000</b>
16700	132,156	<b>90,000</b>
183869	150,000	<b>70,000</b>
121784	150,000	<b>85,000</b>
200000	130,000	<b>60,000</b>
300000	120,000	<b>70,000</b>

negotiation	diference	Value w/out	negotiation	comment
240,000	69.0%	310000	-22.6%	commercial use
105,725	17.5%	215000	-50.8%	
70,000	0.0%	175000	-60.0%	transaction
85,000	0.0%	201000	-57.7%	transaction
60,000	0.0%	180000	-66.7%	transaction
70,000	0.0%	180000	-61.1%	transaction

63300	18,000	<b>15,000</b>
1540000	25,000	<b>15,000</b>


15,000	0.0%	60000	-75.0%	transaction
22,500	50.0%	60000	-62.5%	


NAME	ZONE	No. in sample	NEIGHBORHOOD	ADDRESS	property identification	AREA M2	TOTAL VALUE	VALUE M2	APPRAISAL
17	SOUTH		ISLA DEL SOL	call 69A sur cra 55 (facing La Coruña neighborhood)		23,814	4,500,000,000	188,964	128,000

 **PARTIAL PLAN** decree 436/06

 **DEVELOPMENT DECREE 327/04** decr 327

 **POZ**

 Lots that are negotiable because they are close to or higher than appraisal

 Lots waiting for appraisal because they are in zonal plans

**North**

SOURCE	COMMENTS	REGULATORY REGIME	CURRENT STATE
BORRERO OCHOA	Will trade 30%. Multiple use. Services available. Cessions 25% to Municipality. 12% for future expansion. 11.61 for roads. No partial plan required. Housing 3 stories or less. Near Club El Rancho. Vacant lot offered in trade, can be subdivided, corner of main thoroughfare and secondary road, reserved parking in front, located in urban zone		SOLD
Inm. Romero Serrano (Realty) Tel. 620921/6299851 Johana Hermida	Multiple use. 300 deep. 250 wide. Corner. Urban zone. Value being assessed	POZ NORTH-DECREE 327-INTEGRAL URBAN AREA RESIDENTIAL ZONE	SOLD
BIENES Y MERCADEO INM. (Realty) Tel. 6091900-6094317-2579878. Patricia	Usable for low-income housing. On main road. . Located in urban zone . All services . Next to river or stream Other buildings 1,400 m2, Forset reserve 9,000 m2	DECREE 327-INTEGRAL URBAN AREA RESIDENTIAL ZONE	FOR SALE
lot located at Km 15 east side Autopista Norte Bogotá has an area of 3 hectares + 2,000 M2	Located at Km 15 east side Autopista Norte Bogotá, area 3 Hectares plus 2,000 M2	POZ NORTH-DECREE 327-INTEGRAL URBAN AREA SERVICE AND INDUSTRIAL ZONE	SOLD
6474888 - María de Huertas	4,000 constructed Institutional.	POZ NORTH-DECREE 327-INTEGRAL URBAN AREA SERVICE AND INDUSTRIAL ZONE	SOLD
3157319954 - 3157931850 Marceliano Barrera	Multiple use. lot 12,000 - \$280,000	POZ NORTH-PARTIAL PLAN LOS SAUCES	
3154106378 - Jaime Peláez - 3313994	Six blocks from Santa Fé mall. Multiple use_ Encumbrance for Avenida Cundinamarca_ Value under review as regulations are undergoing change	POZ NORTH-DECREE 327-INTEGRAL URBAN AREA RESIDENTIAL ZONE	FOR SALE
3158505442 - Muyer Muvdi	Next to Makro - lot not incorporated by DAPD, within urban area regulatory possibilities under review	DECREE 327-INTEGRAL URBAN AREA ZONA RESIDENCIAL	
2571359 3102698275 Gloria Nosa	Lot with buildings -Urban zone - Institutional use - Paved streets	DECREE 327-INTEGRAL URBAN AREA RESIDENTIAL ZONE	
6706428 Teresa de Tavera, - Eduardo Rojas 2742885/6841 - 3005642636	Multiple use	DECREE 327-INTEGRAL URBAN AREA RESIDENTIAL ZONE	FOR SALE

6706428 Teresa de Tavera, - Eduardo Rojas 2742885/6841 - 3005642636	Multiple use. At foot of MAKRO	POZ NORTH-DECREE 327-INTEGRAL URBAN AREA RESIDENTIAL ZONE	FOR SALE
6706428 Teresa de Tavera, - Eduardo Rojas 2742885/6841 - 3005642636	Includes area with building facing Autopista. Institutional use	POZ NORTH-DECREE 327-INTEGRAL URBAN AREA MULTIPLE ZONE	SOLD
6706428 Teresa de Tavera, - Eduardo Rojas 2742885/6841 - 3005642636	Multiple use. At foot of Santa Fe Mall	DRGA3-UPZ LA URIBE	FOR SALE
Inm. Romero Serrano (Realty) Tel. 6209214/ 6299851 Johana Hermida	Use of lot housing. Corner of primary and secondary street. Lot location urban	UPZ TOBERIN OR LOS CEDROS (Calle 153 separates them)	SOLD
Inm. Romero Serrano (Realty) Tel. 6209214/ 8773/ 6299851 Johana Hermida	Lot divided in 2 parts Lot 1 is 9,430 m2 , Lot 2 is 6,857 m2 on secondary street (CII 107A). Lot use housing. On primary street. Usable area 12,103.69 m2, Cession 2,919.71 m2, Area of Calle 107 1,264.42 m2 On secondary street, Corner. Lot location urban. All services	UPZ USAQUEN	FOR SALE
2104484 Libardo	Housing use	UPZ BRITALIA	SOLD
6780974 - 6780963 Juan Pablo Jara	Housing use_ Gloria Montoya	DEVELOPMENT (no streets or lots)	SOLD
Jaime h Cicei 6019843		POZ NORTH-DECREE 327-INTEGRAL URBAN AREA MULTIPLE ZONE (east side of Autonorte)	SOLD
		POZ NORTH-ARG26C-UPZ LA ACADEMIA	SOLD
Rengifo Montoya 6109626-6102295	Urban zone_ Constanza Ospina	PARTIAL PLAN TIBABITA	FOR SALE
6252855-3115214636	Wetland encumbrance / diagonal to Club Cafám_ Luis Eduardo Ruíz (3124327322)	POZ NORTE	FOR SALE
Rafael Reyes - 2955911	SOLD AT SAME PRICE	DECREE 327-INTEGRAL URBAN AREA RESIDENTIAL ZONE	SOLD

Pilar- 6296475-3102813017	institutional and residential use	DECREE 327- INTEGRAL URBAN AREA SERVICE AND INDUSTRIAL ZONE	SOLD
Inm. Romero Serrano (Realty) Tel. 620921/6299851 Johana Hermida	frontage 400 by depth 450	POZ NORTH- DECREE 327- INTEGRAL URBAN AREA RESIDENTIAL ZONE	SOLD
portal valuatorio 4830515 2570937	<b>Teresa Cataño</b>	UPZ CHICO LAGO	SOLD
luis soto 3122077		DECREE 327- INTEGRAL URBAN AREA RESIDENTIAL ZONE	SOLD
Central de Inversiones S.A	Nov 2, 2006 information sent by e-mail by sales departament. Luis Ernesto Guzmán García. 5923434 property code1006003694	DREA1-UPZ LA URIBE	FOR SALE
6919153	Jairo Cradenas	POZ NORTH	FOR SALE
3365234-3112638999	Hugo Martinez		FOR SALE
2183626-3123865832			FOR SALE

**Appraisals by Real Estate Board of Bogotá with Charges and VIS Obligations**

Appraisal No.	Date	Address	Name	Area	Appraisal m2	Method	Regulatory Regime	Charge	Typology	Comment	UPZ
20	Jan-06	Diagonal 46 No 94-66	Puerta de Teja_Fontibón	11,757	180,000	Residual	Dec 327/Special urban sector_industrial zone	VIS-25%	Vacant Lot		ALAMOS
207	Mar-05	Ladrillera Santafé	Avenida Caracas, Usme	102,572	13,500	Residual	DRGA1	POZ Charges	Vacant Lot	License predates 327 and was not allowed to expire	USME
210	Jul-06	Calle 182 No. 45-24	Nueva Zelanda Sector	14,439	290,000	Residual	Dec 327/ Integral urban area_Residential zone	VIS-25%-Cession for increased construction ratio	Vacant Lot		SAN JOSE DE BAVARIA
242	Sep-06	calle 167 No 18-13	Lot 2	22,533	170,000	Market and Residual	Dec 327/ Residential Area with commercial and service zone	VIS-25%-Cession for increased construction ratio	Vacant Lot		LA URIBE
47	Mar-06	Usme_Calle 39 B Sur to Calle 48 between Carreras 5 and 8	Old Hacienda Los Molinos_Reg. 50S-40364423	173,194	12,000	Residual	PARTIAL PLAN	VIS-25%-Cession for increased construction ratio	Vacant Lot		LA GLORIA
7	Jan-06	Km 4 avenida Villavicencio Calle 41B sur	Alpes del Zipa Development	19,557	6,000	Residual	Dec 327	VIS-25%-15% local streets Cession for increased construction ratio	Vacant Lot		LA GLORIA
46-46A-46B	Mar-06	calle 37B sur No. 68-38; carrera 68 No. 38B-19 sur; Avenida 68 No. 38A-15	Chalver Laboratories	13,395	360,000	Residual	UPZ 45 Carvajal	-----	Lot with building	These are three lots at the three addresses, currently occupied by Chalver	CARVAJAL

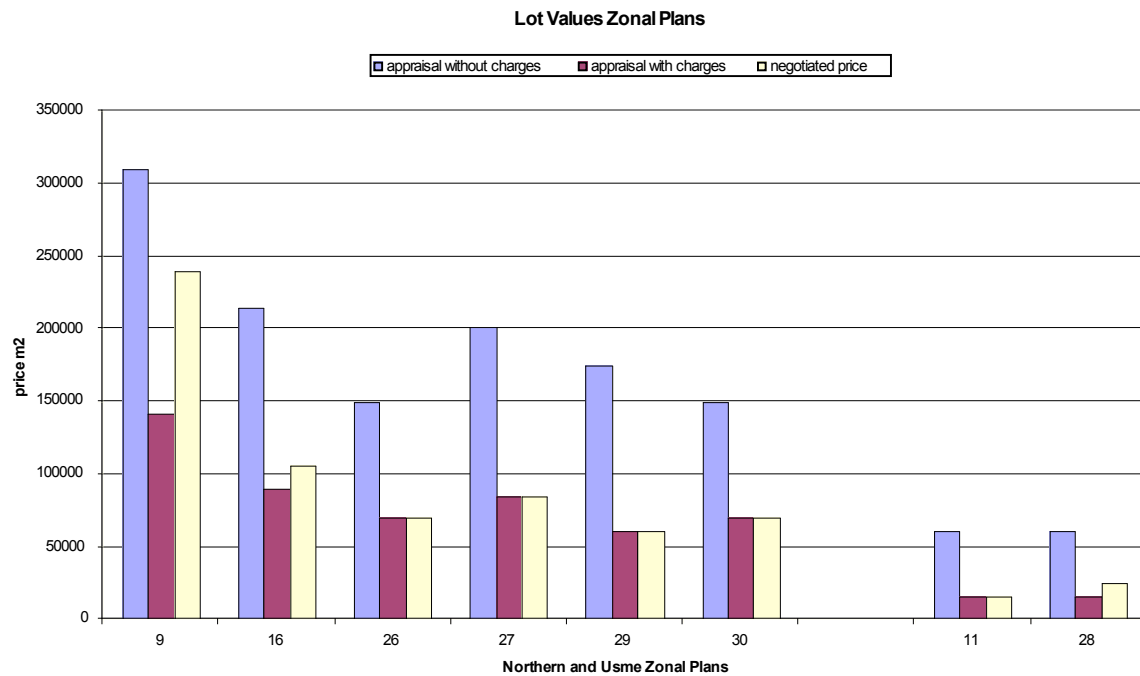
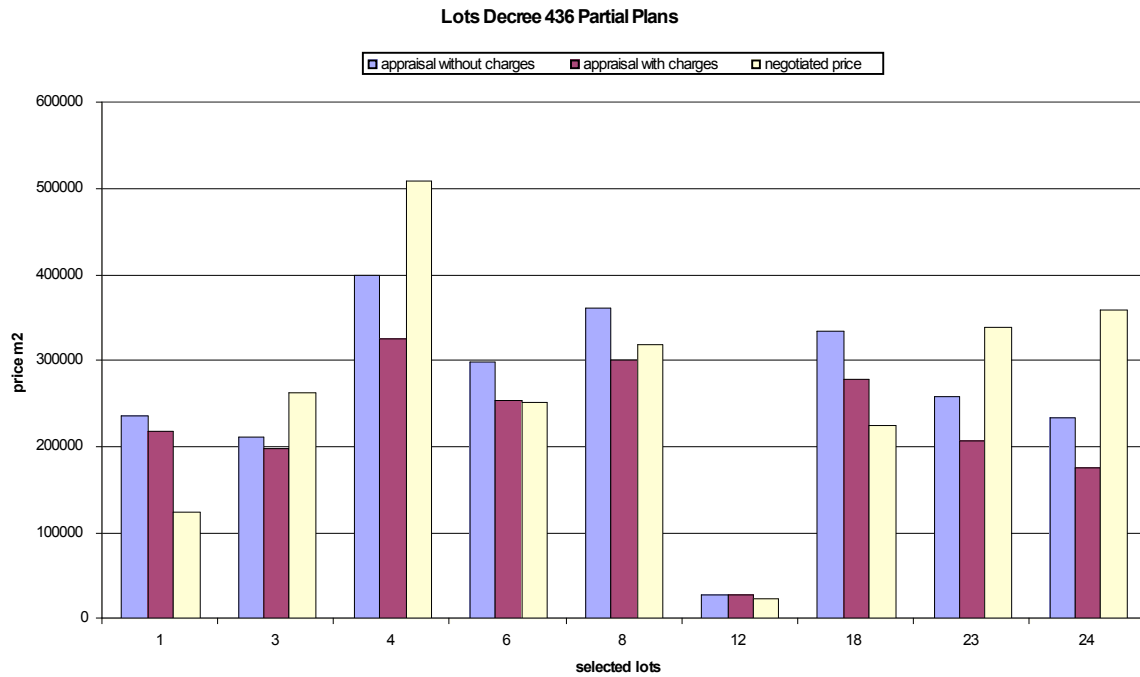


		sur								Laboratories; there is also an undeveloped portion	
292	Oct-06	Avenida Centenario No. 68F - 25	Nuestra Señora de la Paz Hospital	132,202	140,000	Market	CRGII_ Institutional	-----	Lot with building	The clinic and storage buildings come to 16,398; the rest is a lot	GRANJAS DE TECHO
281	Oct-06	Calle 168 A No. 68-67	Lot AG 5 / Vereda Suba Cerros II	23,205	35,000	Market+ Residual	PARTIAL PLAN	VIS-25%	Vacant Lot	The appraisal makes it clear that no local charges or encumbrances were deducted	CASA BLANCA SUBA
282	Oct-06	avenida calle 170 No. 70-75	Lots 2 + 5 "El Charrascal" Vereda Suba Cerros II	170,522	35,000	Market+ Residual	PARTIAL PLAN	VIS-25%	Vacant Lot	The appraisal makes it clear that no local charges or encumbrances were deducted	CASA BLANCA SUBA
64	Mar-05	calle 13 No. 65-71		24,337	240,000	Residual	AZID026C	-----	Lot with building	Contains storage buildings (9,742.79 m2) but the reported value is exclusively that of the undeveloped land. The license under Agreement 6 has not been allowed to expire	PUENTE ARANDA
129	Apr-05	Transversal 66 No. 148-32	Lots A and C Hacienda Casa Blanca	38,453	200,000	Market+ Residual	PARTIAL PLAN	VIS-25%	Vacant Lot		CASA BLANCA SUBA
NA			Club Millonarios	121,784	90,084	Residual	Northern POZ	POZ Charges	Vacant Lot		Northern POZ

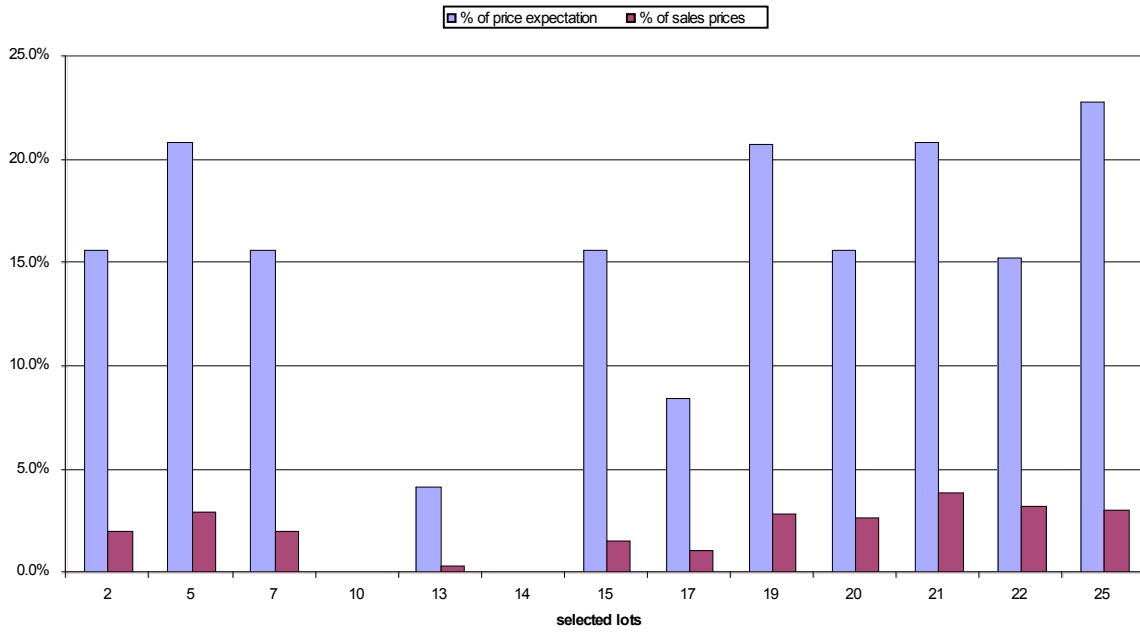
NA			tibabita	183,869	70,156	Residual	Northern POZ	POZ Charges	Vacant Lot		Northern POZ	
NA			Arquimedes	1,540,000	15,000	Residual	Usme POZ	POZ Charges	Vacant Lot		Usme POZ	U Z PI

TOTAL	2,591,818
Not included in research sample	746,165
Included in research sample	1,845,653

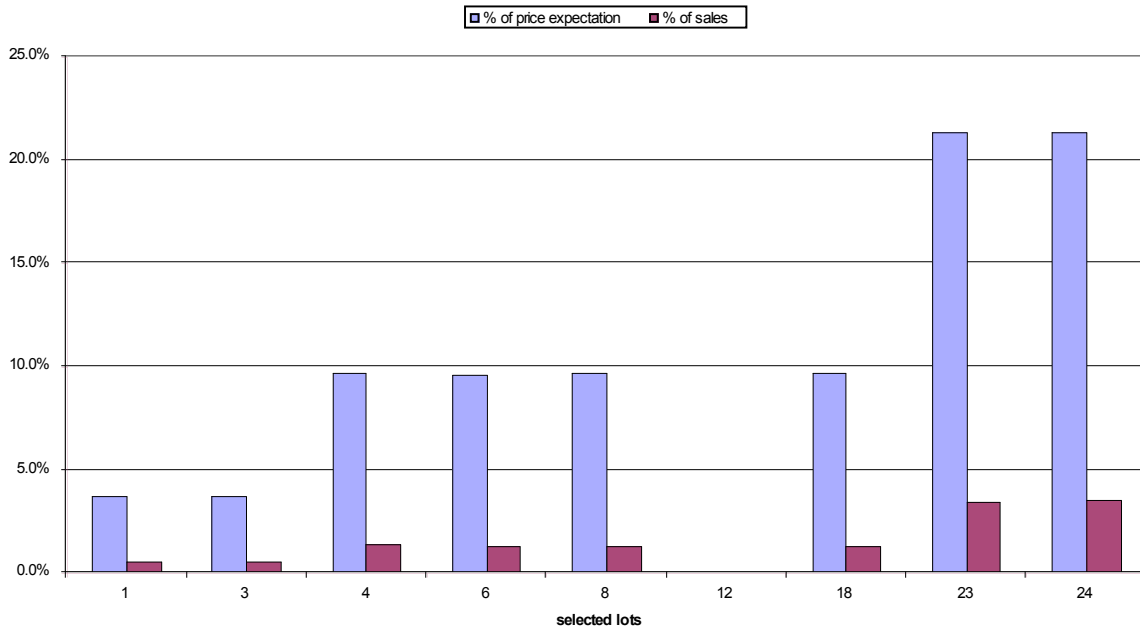
## Annex 2 Graphs



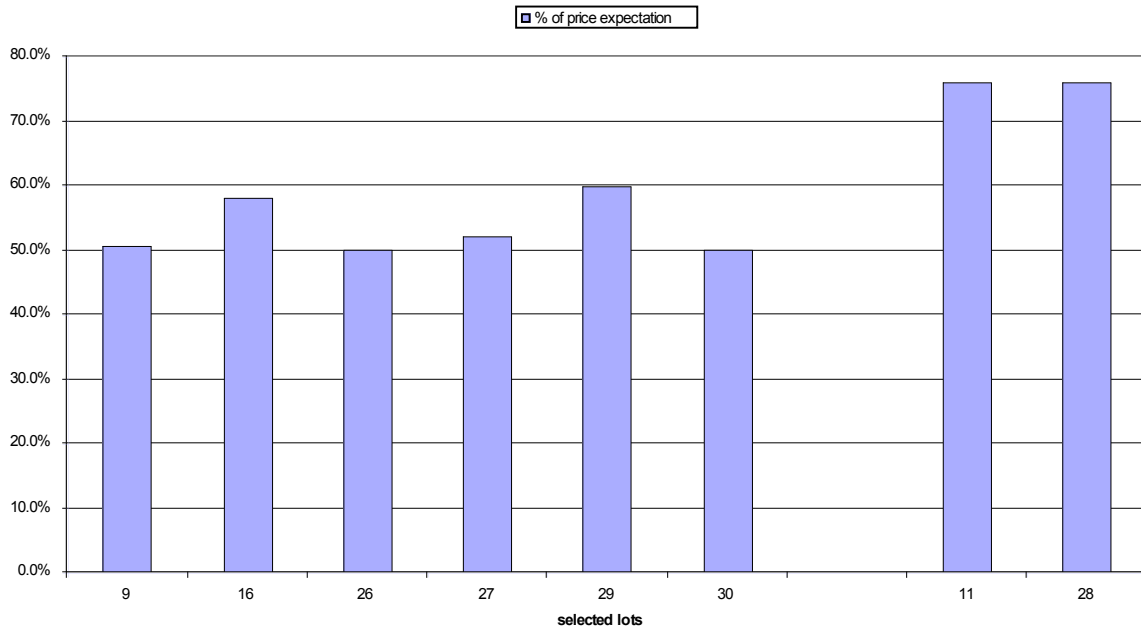
**Charges as % of Price Expectations and Sales Prices Decree 327**



**Decree 436 Partial Plans Proportion of Charges**



Charges and value increments as % of price expectation in northern and Usme zonal plans



REGULATION		with charges	value without VIS obligation	value without charges	charges as % of value	charges as % of sales	price m2
Decree 327/04	2	<b>177,000</b>	215000	205000	15.6%	2.0%	180,000
	5	<b>246,000</b>	331000	296000	20.8%	2.9%	171,000
	7	<b>148,000</b>	186670	175000	15.6%	2.1%	143,963
	10	<b>41,000</b>	41000	41000	0.0%	0.0%	36,529
	13	<b>63,000</b>	70768	66000	4.2%	0.4%	45,002
	14	<b>27,000</b>	27000	27000	0.0%	0.0%	24,754
	15	<b>134,000</b>	162000	154000	15.6%	1.6%	118,033
	17	<b>128,000</b>	167000	140000	8.5%	1.1%	160,620
	19	<b>199,000</b>	251000	249000	20.8%	2.8%	182,778
	20	<b>372,000</b>	488000	436000	15.6%	2.7%	360,725
	21	<b>645,000</b>	959000	815000	20.8%	3.9%	850,000
	22	<b>232,000</b>	350000	274000	15.3%	3.2%	382,500
	TOTAL : 13 LOTS	25	<b>216,000</b>	309000	280000	22.8%	3.1%
Decree 436/06	1	<b>219,000</b>	237000	227000	3.7%	0.5%	125,000
	3	<b>198,000</b>	211000	205000	3.7%	0.5%	262,661
	4	<b>326,000</b>	399000	361000	9.7%	1.4%	510,000
	6	<b>254,000</b>	300000	276000	9.6%	1.3%	252,976
	8	<b>301,000</b>	362000	330000	9.7%	1.3%	319,693
	12	<b>27,500</b>	27500	27500	0.0%	0.0%	24,300
	18	<b>280,000</b>	335000	310000	9.7%	1.3%	225,000
	23	<b>207,000</b>	259000	242000	21.3%	3.5%	340,013
	TOTAL : 9 LOTS	24	<b>177,000</b>	234000	225000	21.3%	3.5%
NORTHERN ZONAL PLAN	9	<b>142,000</b>		310000	50.8%	9.1%	240,000
	16	<b>90,000</b>		215000	58.0%		105,725
	26	<b>70,000</b>		150000	50.0%		70,000
	TOTAL: 4 LOTS	27	<b>85,000</b>		201000	52.0%	
	29	<b>60,000</b>		175000	60.0%		60,000
	30	<b>70,000</b>		150000	50.0%		70,000
USME ZONAL PLAN	11	<b>15,000</b>		60000	76.0%		15,000
	TOTAL : 2 LOTS	28	<b>15,000</b>		60000	76.0%	25,500

COMPARACION ENTRE DATOS DE OFERTA Y AVALUOS

REGLAMENTACION	NOMBRE	ZONA	BARRIO	DIRECCION	AREA M2	VALOR M2	AVALUO	negociacion	diferencia	Avaluo sin	negociacion
					oferta	con cargas		posible	con avaluo	cargas ni VIS	vs avaluo sin
Decreto 327/04	2	OCCIDENTAL	fontibon	calle 31 carrera 114	21000	200,000	<b>177,000</b>	180,000	1.7%	215000	-16.3%
	5	NOROCCENTAL	Britalia - Cantagallo	Cra 54 Cll 151	57,133	190,000	<b>246,000</b>	171,000	-30.5%	331000	-48.3%
	7	NOROCCENTAL	Engativa Urbano 345-169	Cra 119A Calle 63 esquina	14735	159,959	<b>148,000</b>	143,963	-2.7%	186000	-22.6%
	10	SURORIENTE	Villabel	Cll 48 Sur Av. Cra 4 Este	25697	40,587	<b>41,000</b>	36,529	-10.9%	41000	-10.9%
	13	SUROCCIDENTE	Bosa_101276	cra 93 calle 54B sur	28791	50,002	<b>63,000</b>	45,002	-28.6%	70768	-36.4%
	14	SUROCCIDENTE	dina turbay_328- M24135	calle 48 p sur 5-99	10471	27,505	<b>27,000</b>	24,754	-8.3%	27000	-8.3%
	15	NORTE	346- 161codito	av 7 con calle 183A	24400	131,148	<b>134,000</b>	118,033	-11.9%	162000	-27.1%
	17	SUR	ISLA DEL SOL	call 69A sur cra 55	23,814	188,964	<b>128,000</b>	160,620	25.5%	167000	-3.8%
	19	NORTE	SAN ANTONIO NORTE	calle 183 Transversal 33A	17,234	203,087	<b>199,000</b>	182,778	-8.2%	251000	-27.2%
	20	ORIENTE	CHAPINERO	avenida circunvalar entre calles 57 y 57A	12,960	424,383	<b>372,000</b>	360,725	-3.0%	488000	-26.1%
	21	NORTE	los molinos	calle 106 cra 9A (costado sur)	16,287	1,000,000	<b>645,000</b>	850,000	31.8%	959000	-11.4%
	22	SUR	el playón	avenida caracas (calle 51) carrera 11 sur	9,200	450,000	<b>232,000</b>	382,500	64.9%	350000	9.3%

TOTAL : 13 LOTES	<b>25</b>	OCCIDENTAL	EL REFUGIO - FONTIBON	AV. ESPERANZA CON CRA 122 A	14736	220,548	<b>216,000</b>	198,493	-8.1%	309000	-35.8%
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PROMEDIO desviacion estandar -20.4%  
15.5%

<b>Decreto 436/06</b>	<b>1</b>	OCCIDENTAL	Castilla	avenida ciudad de cali calle10	24000	125,000	<b>219,000</b>	112,500	-48.6%	237000	-52.5%
	<b>3</b>	OCCIDENTAL	Cerca ciudadela Colsubsidio	avenida calle 80 (costado occidental) carrera 119	23300	309,013	<b>198,000</b>	262,661	32.7%	211000	24.5%
	<b>4</b>	NOROCCENTAL	Mazuren 76-2595	calle153 carrera 54A	84000	600,000	<b>326,000</b>	510,000	56.4%	399000	27.8%
	<b>6</b>	NOROCCENTAL	colina de suba	calle 164 cra 78 (dir antigua cra 56 y 54)	84000	297,619	<b>254,000</b>	252,976	-0.4%	300000	-15.7%
	<b>8</b>	NOROCCENTAL	118-642 San jose V sector	Av Calle 170 con carrera 70	31413	376,109	<b>301,000</b>	319,693	6.2%	362000	-11.7%
	<b>12</b>	SURORIENTE	Usme_Altos del Virrey	tv 17 este con calle 47 e	147319	27,000	<b>27,500</b>	24,300	-11.6%	27500	-11.6%
	<b>18</b>	NORTE	AUTOPISTA NORTE	calle 170 entre 7 y 8 (costado sur de la calle 170)	40,000	250,000	<b>280,000</b>	225,000	-19.6%	335000	-32.8%
	<b>23</b>	OCCIDENTAL	alamos 343-58	Trav 93 No. 62-51	27179	400,015	<b>207,000</b>	340,013	64.3%	259000	31.3%
	TOTAL : 9 LOTES	<b>24</b>	SUR	345-199 Olarte	Autopista Sur con Trav 73 B (tr 73b 57R -24 sur)	10040	450,000	<b>177,000</b>	360,000	103.4%	234000



promedio sin industriales

-10.3%

<b>PLAN ZONAL NORTE</b>	<b>9</b>	NORTE	76-2309 canaima	Autop. Norte con CII 194	172000	300,000	<b>142,000</b>	240,000	69.0%	310000	-22.6%	
	<b>16</b>	NORTE	Tibabita - Floresta de La Sabana	CII 201 Av. Cra 9	16700	132,156	<b>90,000</b>	105,725	17.5%	215000	-50.8%	
	<b>26</b>	NORTE	Tibabita CISA	Carrera 7 con calle 200	183869	150,000	<b>70,000</b>	70,000	0.0%	175000	-60.0%	
	TOTAL: 4 LOTES	<b>27</b>	NORTE	MILLONARIOS	Autopista norte	121784	150,000	<b>85,000</b>	85,000	0.0%	201000	-57.7%
	<b>29</b>	NORTE	Sector Mazuren autopista norte	plan parcial Carmel	200000	130,000	<b>60,000</b>	60,000	0.0%	180000	-66.7%	
	<b>30</b>	NORTE		plan parcial en proceso	300000	120,000	<b>70,000</b>	70,000	0.0%	180000	-61.1%	
<b>PLAN ZONAL USME</b>	<b>11</b>	SURORIENTE	Centro Usme	CII138 s Cra 3_ Por Avenida Caracas	63300	18,000	<b>15,000</b>	15,000	0.0%	60000	-75.0%	
	TOTAL : 2 LOTES	<b>28</b>	SURORIENTE	USME	salida Villavicencio	1540000	30,000	<b>15,000</b>	25,500	70.0%	60000	-57.5%
TOTAL	<b>30</b>				3,345,362							

promedio planes zonales  
desviacion estándar

-56.4%  
15%

## ANNEX 3

### RESULTS OF ECONOMETRIC ANALYSIS: CONSOLIDATED LAND WITH REGULATORY CHANGE AND PAYMENT OF VAUE INCREMENTS

*Note from research director:* The following results have been provided by economist and assistant researcher Johanna Ramírez, who was asked to select three high, middle and lower-middle stratum zones to carry out econometric research based on 2006 cadastral data, and to verify the impact of regulatory change on land values. Her results help elucidate the extent to which econometric analysis is useful in measuring the impact of urban regulations.

#### ECONOMETRIC ANALYSIS

In its group discussions regarding the impact of levies on value increments and of the application of regulations in the **consolidated** city, researchers have commented on the preliminary results suggesting several patterns of behavior in parts of the city with regard to regulations on land use planning and management.

For example the team found that in high stratum areas (UPZs Chico Lago and El Refugio) there was evidence that the levy on value increments was transferred to the final user (and in the same sense an even more marked positive impact resulting from the application of POT regulations), effectively absolving land owners of this obligation, while as one descended the socioeconomic strata land owners increasingly assumed the levy on value increments. This phenomenon will be demonstrated in the following chapters of this report.

There is also evidence of increasing land values in some zones of the city that have not been noted by relevant authorities such as the Bogotá Real Estate Board and the District Cadastre.

The question that arises is whether these price increases are a spontaneous reaction to market expansion or if they result from the application of recent regulations developed by the POT<sup>30</sup> in the year 2000.

In order to provide alternative analytical methodologies or to complement the work produced by the research team, in this annex we propose a transversal econometric analysis to determine what part of land value increments are effectively due to the application of regulations, in particular in three sectors of the city that drew our attention in the results of the work by Esperanza Durán: the UPZs of Chico Lago, Los Cedros, and Castilla, which together represent the diverse characteristics of the city with regard to socioeconomic strata, urban structure, and diversity of use.

A first econometric analysis was based on cadastral data regarding the value of land in the year 2006, for which a linear estimate was performed using the OLS<sup>31</sup> method for cross-sectional or transversal cut data, that is to say individual data (properties). By means of explanation, information is available for a specific snapshot in time, in this

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<sup>30</sup> Land-use Plan (Plan de Ordenamiento Territorial – POT) and its associated regulatory decrees.

<sup>31</sup> Ordinary Least Squares

case T = 2006, to construct a large sample composed of individual elements, in this case properties within each regulated UPZ.

One of the reasons for this analysis is the availability of information. At one time only the 2006 DACD property registries were available, information that was relevant in that period, but two years of transition have passed for the application of Chico Lago UPZ regulations and one year for the application of regulations in the Los Cedros and Castilla UPZs.

The idea is to verify the impact of regulations on land values for this year in particular. Thus a dichotomous variable was constructed with the value of 1 for those properties in a zone<sup>32</sup> where regulations changed to favor increased utilization or construction and 0 for all other properties.

In order to consider additional information with regard to the urban environment, socioeconomic condition, and land use, other variables such as land use, socioeconomic stratum, and presence of urban infrastructure were incorporated into the OLS estimate. Together with the effect of regulations, these factors could help explain land value.

In each of the three cases analyzed, a maximally significant sample of each UPZ<sup>33</sup> was constructed by selecting cadastral data for those properties described most completely for certain variables with the least possible erroneous data, extracting the greatest number of properties located inside sectors with regulatory change where value increments were generated and a similar sample of properties outside those sectors.

This information was georeferenced with the use of the ArcView package; nevertheless it is appropriate to indicate that there is a margin of error since many properties were left out of the sample due to technical difficulties matching up numerical and cartographic information (especially in the Chico and Los Cedros UPZs) due to imprecise information, mostly regarding addresses. Therefore in some cases the location of properties in the cadastral database in respective regulatory sectors of the UPZ was effectuated using conventional methods rather than ArcView.

A preliminary comparison of land values as described by the DACD<sup>34</sup> compared to those reported by the LPRB<sup>35</sup> in its report on land values in Bogotá revealed significant and in some cases absurd differences between the two sources. Those differences will not be detailed in this document because they are not analytically relevant and because part of the work that we present in Chapter 3 of this report, which has been discussed in the meetings of this work group, also manifests these differences and describes them in more detail for almost the entire city. Nonetheless it is worth mentioning the need to review and correct the methodology used by both organizations in their estimates.

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<sup>32</sup> Identified within respective UPZs as regulatory sectors.

<sup>33</sup> Zonal Planning Unit (*Unidad de Planeamiento Zonal* – UPZ)

<sup>34</sup> Administrative Department of the District Cadastre (*Departamento Administrativo de Catastro Distrital* – DACD)

<sup>35</sup> Real Estate Board of Bogotá (*Lonja de Propiedad Raíz de Bogotá* – LPRB)

This clarification is relevant because what is being presented here is an econometric analysis, privileging only cadastral data, which may not really reflect market conditions and/or recent urban transformations. We call upon the District Cadastre and the LPRB to adopt elements of the analysis used in the studies presented here as points of reference to use in reviewing their own figures.

Having made the above comments, we now present the basic equation following the OLS model, which incorporates variables associated with relevant uses and construction ratios in keeping with their statistical significance in each UPZ:

Equation 1

$$LVLR\_M2_i = a_0 + a_1*LA\_CONST_i + a_2*COMMERCIAL_i + a_3*RESIDENTIAL_i + a_4*INDUSTRIAL_i + a_5*STRATUM_i + a_6*PEFAC\_EDU_i + a_7*PEFAC\_JUS_i + a_8*REG + \mu_i$$

Figure 1

where:  $i = 1, 2, \dots, N$        $N =$  number of units of the transversal sample (property records),  
and

***LVLR\_M2***.....Logarithm of the cadastral value of one m2 of land  
***LA\_CONST***.....Logarithm of the area of construction  
***COMMERCIAL***..... Binary dummy variable that takes the value 1 when the use of the property is commercial and 0 in any other case.  
***RESIDENTIAL***..... Binary dummy variable that takes the value 1 when the use is residential and 0 in any other case.  
***INDUSTRIAL***..... Binary dummy variable that takes the value 1 when the use is industrial and 0 in any other case.  
***STRATUM***.....Reports the stratum of each property.  
***PEFAC\_EDU***..... Percentage of educational facilities in the neighborhood where the property is located as a proportion of total educational facilities in the UPZ.  
***PEFAC\_JUS***..... Percentage of public security and justice facilities in the neighborhood where the property is located as a proportion of total public security and justice facilities in the UPZ.  
***REG***..... Binary dummy variable that takes the value 1 when there has been regulatory change for the property and 0 in any other case.

In this sense Equation 1 was reformulated for each UPZ in keeping with the statistical and economic significance of each of the explanatory variables. Respective estimates were performed using the statistical package STATA 8.2.

All OLS estimates at the level of the UPZ were performed using robust estimators due to problems of heteroscedasticity that characteristically introduce error when analyzing these kind of data..

Real variables (value of land per m2 and construction area) are expressed as logarithms in order to provide an interpretation of price elasticity in relation to construction area.

## 2.1. CHICO LAGO UPZ

Located in the northeastern part of Bogotá known as Chapinero, this is one of the wealthiest sectors of the city (strata 5 and 6).<sup>36</sup> It is home to multiple metropolitan-scale economic activities. The presence of financial institutions in particular is highly consolidated and the city’s principal service industries are also well established.

Its northern boundary is Avenida Calle 100, its southern boundary is Calle 69, its western boundary is Avenida Paseo de los Libertadores and the eastern boundary is Avenida Carrera 11 Germán Arciniegas.

While this is a high income zone and is one of the best served zones in the city with regard to street and physical infrastructure as well as public space, recent densification of the area in the form of taller buildings has led to significant congestion and pollution at certain times of the day.

The sample in this UPZ includes 5,653 land records. Based on OLS analysis, only the following variables were statistically significant: dummy commercial, stratum, construction area, and dummy regulation. These are the results of the model:

**Table 1**

Regression with robust standard errors		Number of obs = 5,653				
		F( 4, 5648) = 221.09				
		Prob > F = 0.0000				
		R-squared = 0.1415				
		Root MSE = .50224				
-----						
		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
-----						
LVLR_M2						
COMMERCIAL		.1922287	.0544578	3.53	0.000	.0854706 .2989868
STRATUM		.0878383	.0097835	8.98	0.000	.0686589 .1070177
LA_CONST		-.0442155	.0101919	-4.34	0.000	-.0641954 -.0242355
REG		.1098222	.0074889	14.66	0.000	.0951411 .1245034
cons		13.67641	.0795938	171.83	0.000	13.52037 13.83244
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As could be expected, commercial use implies greater land value. The coefficient associated with the variable “COMMERCIAL” ( $a_2$ ) in Table 1 indicates that if the use of a property changed to commercial its cadastral land value increased by 19.2% if all other variables remained constant.

<sup>36</sup> Bogotá and all cities in Colombia are divided into socioeconomic strata from 1 to 6, with 1 being the lowest socioeconomic stratum and 6 being the highest.

The variable STRATUM tells us that when the socioeconomic stratum is increased the value of land also increases by 8.7%. An increase of one m2 of construction (size) in the reference year meant a decrease of approximately 4.4% in the value of a square meter of land. This result is logical given the price elasticity of the size of buildings in relation to demand: the larger the building, the lower the price per m2, both of land and floor space.

With regard to our principal question, “What is the effect of regulations on land values?” The coefficient  $a_8$  associated with the dummy variable REG tells us that regulatory change leading to increased land utilization, whether in the form of a greater construction ratios or new uses, translates to increased land values of about 10.9%.

Revisions to the regulatory decree for the Chico Lago UPZ primarily brought about changes in construction ratios, so we will now redefine the proposed model to analyze the impact of changed construction ratios. We will assign the dummy variable a value of 1 for those properties where regulations authorize an increased construction ratio and 0 for all other cases. These are the results:

**Table 2**

Regression with robust standard errors		Number of obs = 5653					
		F( 4, 5648) = 144.12					
		Prob > F = 0.0000					
		R-squared = 0.1094					
		Root MSE = .51153					
-----							
	LVLR_M2	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
-----							
COMMERCIAL		.2430724	.0559707	4.34	0.000	.1333484	.3527964
STRATUM_A		.0935587	.0102895	9.09	0.000	.0733873	.1137301
LA_CONST		-.0445706	.0103082	-4.32	0.000	-.0647787	-.0243625
REGCON		.0428995	.0151185	2.84	0.005	.0132615	.0725375
_cons		13.851	.0814627	170.03	0.000	13.6913	14.0107
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The reconsidered model alternatively suggests that land values rise by 4.28% when new regulations are proposed to increase construction ratios.

All of the above allows us to conclude that assessments by the Bogotá Cadastre reflect the impact of new urban regulations on the zone chosen as a high stratum area of the city. Although it is statistically significant, the percentage increase as a result of regulatory change is small, as can be discerned in Chapter 3 of this report where its impact is analyzed chronologically.

## 2.2. LOS CEDROS UPZ

Zonal Planning Unit 13 Los Cedros is in the part of the city known as Usaquén. Its western boundary is Avenida Paseo los Libertadores (the Autopista Norte), its eastern boundary is the mountains to the east of the city known as *los cerros orientales*, near Avenida Alberto Lleras Camargo (Carrera 7A), its southern boundary is Avenida Contador (Calle 134) and its northern boundary is Avenida La Sirena (Calle 152).

This is a zone of consolidated middle and upper-middle stratum housing (strata 4 and 5), coexisting with small, well-defined commercial spaces that derive from the area's established housing patterns and some cases of urban-scale commerce typically located on principal traffic corridors.

Many examples of good-sized community infrastructure are found here, especially a number of recognized educational institutions, excellently articulated with the zone and the larger city by means of the *Transmilenio* mass transit system and the substantial and well-maintained secondary road system.

Following the same OLS analytical methodology, a sample of 5,438 properties was examined. The variables of construction, dummy commercial, stratum, and the presence of educational facilities were found to be statistically significant.

Surprisingly, the dummy associated with regulatory change was not significant in this UPZ at even the 10% influence of regulatory change reported by the DACD for the year in question.

In Chapter 3 we will explore the origin of land value increments in some zones of Cedritos where regulatory change seems not to be responsible. Value increments may result from a market cycle in expansion in the zone or from improved market conditions that have raised prices, for example the positive externality offered by the *Transmilenio* system or increased demand for housing in well-located middle class sectors within the city in the context of the more general real estate market expansion.

**Table 3**

Regression with robust standard errors	Number of obs = 5438
	F( 5, 5432) = 91.17
	Prob > F = 0.0000
	R-squared = 0.1347
	Root MSE = .41063

LVLR_M2	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
LA_CONST	-.1967896	.0121654	-16.18	0.000	-.2206386	-.1729405
COMMERCIAL	.4050746	.0502451	8.06	0.000	.3065741	.5035751
STRATUM_A	.1076231	.0103188	10.43	0.000	.0873942	.127852
PEFAC_EDU	.1847786	.0994382	1.86	0.063	-.0101602	.3797173
REG	-.0264927	.0165967	-1.60	0.110	-.0590289	.0060435
_cons	14.04912	.0937475	149.86	0.000	13.86534	14.23291

Reviewing the regulatory code of the UPZ it is clear that it provides for significant construction ratio increases in some zones, leading us to redefine the dummy variable REG, now assigning the value 1 to all those properties where the construction ratio was increased and 0 in any other case. The results change drastically now that the dummy newly defined as REGCON acquires statistical significance with a p value of 0.044 (less than 5%) and an associated coefficient suggesting that the value of land in the zone **decreases** by 3.69% with increased construction ratios.

The variable of size has a great effect on the estimate of the coefficient associated with the variable construction area, which indicates that if all other variables are constant an increase of one m2 of construction results in a reduction of 19.6% in the value of one m2 of land.

The behavior of the coefficients in the model coincides with the reality of the property market in the zone, but not with the impact that regulatory change has had on land values. In Chapter 3 we will see price evolution before and after the regulation and increased land values, an aspect of price dynamics that can not be appreciated in a transversal econometric study for a single year.

The positive effect of regulatory change increasing construction ratios is particularly notable in relation to lots undergoing consolidation resulting in increased size and frontage. This increases the value of both lots and the resulting value increments are subject to a levy. However, this impact can not be discerned by measuring the cadastral or commercial values of the original lots while considering the consolidation pursued by developers or builders.

**Table 4**

Regression with robust standard errors

Number of obs = 5438  
 F( 5, 5432) = 90.61  
 Prob > F = 0.0000  
 R-squared = 0.1350  
 Root MSE = .41055

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
LVLR_M2						
LA_CONST	-.1970242	.0121836	-16.17	0.000	-.220909	-.1731394
COMMERCIAL	.4079189	.050371	8.10	0.000	.3091715	.5066664
STRATUM_A	.1080746	.0103143	10.48	0.000	.0878543	.1282948
PEFAC_EDU	.1673969	.1012653	1.65	0.098	-.0311237	.3659175
REGCONR	-.0369835	.0183842	-2.01	0.044	-.0730239	-.0009431
_cons	14.03188	.0880667	159.33	0.000	13.85923	14.20452

To distinguish these results from the analysis for UPZ Chico Lago, in the case of Cedros the variable PEFAC\_EDU, corresponding to the percentage participation of educational facilities within the neighborhood is significant at 10% (with a p value of 0.098). Its estimated coefficient indicates that with an increase of 1% in the participation of this kind of facility in relation to all facilities in the UPZ, land values also increase by about 16.73%.

This is not surprising, given the presence of large institutional facilities in the UPZ that are significant in the city-wide and metropolitan context, as was mentioned in the general description of the UPZ.



### 2.3. UPZ CASTILLA (Econometrics vs. State-of-the-Art Analysis)<sup>37</sup>

UPZ Castilla is in the part of the city known as Kennedy. It is classified as a consolidated low stratum (strata 2 and 3) residential area. Its northern boundary is the Fucha River; its eastern boundary is Avenida Boyacá (Carrera 73); its southern boundary is Avenida de las Américas (Calle 6) and its western boundary is formed by Avenida Agoberto Mejía, Avenida City de Cali, and the future Avenida Manuel Cepeda Vargas. It is occupied by a middle and lower-middle stratum population. It is well situated near the city's central and industrial zones and equidistant from them. It is very well served by the *Transmilenio* mass transit system. It has a good presence of both commerce and public facilities.

This UPZ exemplifies a long-term trend in most areas of the city, characterized by complete architectural heterogeneity and a disorganized spatial distribution of certain uses and activities. It has one-family and two-family houses of one, two, and three stories in areas of development that were not covered by Agreement 6 of 1990, alongside facilities for the trucking and storage of heavy cargo, for meat processing, and truck maintenance facilities drawn to the area by the strategic location of roads such as Avenida City de Cali, Avenida de las Américas, and Avenida Boyacá.<sup>38</sup>

Other than the four principal roads that generally define the perimeters of the UPZ, its secondary road network is discontinuous and deficient.

The econometric analysis for this UPZ considered 18,797 data, a figure that made it very representative of the properties in the UPZ. The greatest number of possible data was collected in order to minimize problems with georeferencing and the danger of erroneous data.

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<sup>37</sup> In this UPZ, author Johanna Ramírez not only performs the econometric exercise heretofore suggested but also considers some of the covariations or related phenomena in the zone, using knowledge of the area acquired in her work as a consultant for the DAPD in 2005 on the topic of value increment levies in this UPZ and other parts of the city.

<sup>38</sup> For a more detailed description of this zone see: *Precálculo del efecto plusvalía en la UPZ 46 Castilla* (Preliminary Calculation of the Effects of the Levy on Value Increments in UPZ 46 Castilla) written by author Johanna Ramírez for the Administrative Department of District Planning (*Departamento Administrativo de Planeación Distrital - DAPD*) in partial fulfillment of consulting contract 038 in 2005. Also see the working document *Caracterización Socioeconómica de la UPZ 46 Castilla* (Socio-economic Description of UPZ 46 Castilla), DAPD-Gerencia de Dinámica Urbana: 2002.

**Table 5**

Regression with robust standard errors  
18797

Number of obs =

702.82

F( 3, 18793) =

0.0000

Prob > F =

0.1175

R-squared =

.39417

Root MSE =

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      LVLR_M2 |
      Coef.   Robust
      Std. Err.   t   P>|t|   [95% Conf.
      Interval]
-----+-----
--
      COMMERCIAL|  -.080976   .0213489   -3.79   0.000   -.1228217   -
      .0391303
      LA_CONST |  -.1689127   .0054695  -30.88   0.000   -.1796333   -
      .158192
      REG      |  -.3199361   .0131253  -24.38   0.000   -.3456629   -
      .2942093
      _cons    |   14.15445   .0249497   567.32   0.000    14.10554
      14.20335
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The results in Table 5 refer solely to those variables that were determined to be statistically significant at 5%. Unlike the results for the other UPZs, the variables STRATUM and URBAN FACILITIES added nothing to the model after several redefinitions.

Perhaps one of the most surprising estimated coefficients is that associated with the dummy REG, which suggested a steep decline of approximately 31.9% in cadastral value when there is regulatory change allowing for intensified land utilization. This result is very surprising in light of the empirical evidence and our experience with property values. It is analyzed further below.

### 2.3.1 Econometrics vs. Observed Covariations

To tell the truth the scope of an econometric analysis like the one that has just been presented is very limited. To best understand the model one must perform an exhaustive study of the context in which it is applied and by doing so try to tease out the logic of the results if they seem counterintuitive, because all policymakers hope and intend for urban regulations and regulatory change to benefit the city and result in the appreciation rather than the depreciation of land.

The principal limitation in working with transversal cut data is that there is no chronological context for events. This is a clear drawback in this case as the transition between norms is a determining factor with a real impact. Analyzing data for a single year probably captures short term impacts of regulation among the many other impacts that may depend on the time needed by the market to integrate the new regime or to implement complementary regulations. Other longer term urban

transformations may also be necessary for the effective application of UPZ regulations, such as the execution of road or urban renewal projects, zonal plans, etc.

The OLS model for this UPZ suggested that the change from a regulatory code in use to one that allows for the generation of greater economic returns or increased construction ratios would degrade certain zones. It can be imagined that the residents of an area where new commercial or industrial activities are accompanied by negative externalities such as traffic congestion and noise and environmental pollution will value the area less than they did previous to these changes, justifying the results of this regression.

Note that the coefficient reported in Table 5 for our dummy REG would support the above explanation if analyzed in conjunction with all the other results of the regression. The reading of the other estimated coefficients supports our hypothesis that new uses that theoretically generate more economic returns or regulations increasing construction ratios could lead to lower land values in the zone if the changes are not accepted by the market.

Also note in Table 5 that the estimated coefficient for the dummy variable associated with COMMERCIAL use indicates that when a property is seen to be developing this new use the value of land decreases by 8.09%. The estimated coefficient for the variable LA\_CONST also indicates that when the area of construction increases by one m<sup>2</sup> the value of the land decreases by 16.8%. This last behavior is logical due to the inverse elasticity between the price and size of the property.

In both these cases in which regulatory change might be expected to be of benefit it is instead a predictor of land value decreases.

A thorough and state-of-the-art analysis of the UPZ in terms of social, urbanistic, and economic conditions would allow for a more broadly balanced evaluation of the preliminary results produced through our econometric exercise, but this possibility does not negate its real contributions.

Author Johanna Ramírez's knowledge of the zone does, however, allow her to challenge some of those real contributions. Below are several of the covariations observed in certain sectors subject to regulatory change that may help explain some phenomena revealed by the econometric exercise.

The urban code for UPZ 46 defines 19 regulatory sectors. A levy on land value increments was established in 6 of these sectors due to the introduction of new uses generating greater economic returns. Regulatory change in four of these sectors also generated land value increments by allowing for increased construction ratios.<sup>39</sup>

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<sup>39</sup> Article 13 of Decree 429 of December 2004 regulating UPZ No. 46, Castilla.

**Chart 1**

<b>GENERATOR OF VALUE INCREMENTS</b>	<b>REGULATORY SECTORS</b>
1. The introduction of new uses generating greater economic returns:	<ul style="list-style-type: none"> <li>• Sector 10; subsectors VIII, XII</li> <li>• Sector 11; subsectors I, II</li> <li>• Sector 12; subsectors I, II</li> <li>• Sector 14</li> <li>• Sector 17; subsector IX</li> <li>• Sector 19; subsectors I, II</li> </ul>
2. Regulatory change allowing increased construction ratios:	<ul style="list-style-type: none"> <li>• Sector 10; subsectors H, L</li> <li>• Sector 11; subsector A</li> <li>• Sector 12; subsectors A, B</li> <li>• Sector 14</li> </ul>

In the analysis conducted by the author in her work for the DAPD it was found that greater land values could only be validated for sectors 19 and 11. Since new UPZ regulations authorized new uses for land in other sectors it was supposed that land value increments would result because the new activities produced more economic returns, but the reality was that these sectors were most appropriate for existing uses.

For example, in the zone now defined in the UPZ as sector 17, Agreement 6 of 1990 (the regulatory code before the implementation of the POT) regulated it as a primarily residential area to be treated under the rules for urban preservation in the category of regulatory continuity. The goal was for urban development to be homogeneous, preserving existing regulations that generated the area’s urban identity and the architectural patrimony. Complementary to this primary use, Agreement 6 permitted commercial activity on 40 m<sup>2</sup> per property.

In the new the Land-use Plan (*Plan de Ordenamiento Territorial – POT*), which is the regulatory document of the UPZ, the primary activity was defined in the same way, now expressed as “residential with delimited commercial and service activities,” and now specifying that economic activities would take place only on the first floor of residential buildings and be limited to an area less than 60 m<sup>2</sup>.

Specific uses were added, which while they had not been listed under Agreement 6, had been categorized as neighborhood-level personal services, a descriptor that could also describe many other specific activities. Under the new regulations the specified uses were video rentals and sales, Internet services, telephony services, dance schools, bingo and board games, billiards, bowling, and electronic and other games requiring skill and dexterity.<sup>40</sup>

Thus it is clear that those who design these regulations play a fundamental role in defining not only spatial uses but also market expectations, and should not err on the side of excessive technicality. While regulations in this case do define new uses, their scale and proportion are such that they would not impact land prices since they are activities already commonly occurring, deriving as they do from the intrinsic dynamics of a residential sector.

Sector 19 is one of the sectors that the author was involved with in her work for the DAPD and that she determined to be susceptible to the generation of increased value,

<sup>40</sup> See Schedule of Uses in UPZ 46 Castilla regulations.

thus validating the regulatory changes as generators of value increments.<sup>41</sup> The brief explanation below may support certain conclusions of the econometric analysis.

Most of Sector 19 is very close to the Pio XII neighborhood, one of the largest neighborhoods in the UPZ and perhaps its most heterogeneous. In addition to extensive single-family, two-family, and multifamily residential use, it is also home to several areas of spatially and economically very large scale productive activities.

The sector is bounded by Calle 6 Bis up to the Avenida Manuel Cepeda between Carreras 77, Transversal 77 and Avenida Carrera 86, and the contiguous zone on Transversal 86A from Avenida Manuel Cepeda to the boundary with UPZ Corabastos.

The residential use of the area coexists with several fabricators of plastics and electrical parts and automotive repair facilities, related in great part to the presence of Corabastos (the city's largest market for agricultural products and associated warehousing of food products as well as sand, cement, and chemical products for agricultural use).

The productive activities described above have been established primarily in two well-defined corridors. Logically, one of them is located near the boundary with UPZ Corabastos on Avenida Carrera 86 and Transversal 86A near Avenida Manuel Cepeda, and the other on Transversal 77 and Calle 5F between Carreras 77 and 82. In the rest of the sector, especially along Avenida Manuel Cepeda and nearby streets (for example around Calle 6 Bis) the fundamental land use is residential with housing reflecting its progressive low-profile development. Building façades are simple and heterogeneous.

The deterioration of the urban structure is evident on Avenida Manuel Cepeda and Calle 5C. Plain block buildings on this block lack façades and are irregular in size, varying from 1 or 2 stories to less common 3 or 4 story houses, suggesting that housing is built to the extent that the resources of its owners permit.

With regard to regulatory change, Agreement 6 of 1990 categorized this sector as primarily residential, with complimentary uses for local- and zonal-scale commercial purposes and several specific metropolitan-scale commercial uses established solely where there was vehicular traffic. This was in the context of the general re-regulation of the urban area implemented in order to promote urban transformation in keeping with the new needs of the city and its densification, but to do so rationally.

The new POT (the UPZ regulatory code) authorized the transformation of the primary activities of the sector to service and commercial activities on a city- and metropolitan-wide scale. It was no longer to be primarily residential. The large transformations that have taken place in the zone, such as investments in the *Transmilenio* mass transit system, have improved its articulation with the city. The centrality of Corabastos and Américas is so significant that central planning clearly anticipated a complete transformation of the zone on the basis of regulatory change.

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<sup>41</sup> This analysis appears in the document *Precálculo del efecto plusvalía UPZ No. 46 Castilla* (Preliminary Calculation of the Effects of the Levy on Value Increments in UPZ 46 Castilla), by Johanna Ramírez -DAPD-Gerencia de Dinámica Urbana. 2005

Given the physical deterioration of some urban structures and the underutilization of other existing structures that may represent strategic potential for the improvement of the zone, UPZ regulations are clear that urban renewal should take place through the modality of redevelopment<sup>42</sup> in order to establish these new uses at the metropolitan scale anticipated by planners.

The POT provides for Partial Urban Renewal Plans<sup>43</sup> and requires that they be implemented in order to develop new uses in the zone under the rubric of urban development in order to avoid a property-by-property development process, at the same time providing for land readjust programs for integrated urban planning.

Of course development under partial plans is a laborious process requiring greater coordination. Until recently, the city had largely reserved the use of partial plans for undeveloped land and had not yet begun to use them extensively in the renovation of already developed properties.

A reasonable explanation for the preliminary results of our econometrics may be found in this context. They may be related to the decreased value of land as a result of its commercial use and regulatory change. Remember that in both cases the coefficients associated with the dummy variables “COMMERCIAL” and “REG” were negative. If there is a lack of willingness on the part of property owners to cooperate in the coordinated development activities associated with partial plans, no individual property owner will be able to develop his property through a construction or development license since the regulatory code conditions development activities on the articulation of partial plans. Thus it is not surprising that land is devalued in the short term if regulations requiring partial plans are issued and there is not yet any expectation that such a plan may actually be implemented.

Land appreciation may occur, but on a delayed basis over the time it takes for the conditions for renovation to evolve, while our econometric analysis appears to reflect the short-term impact, understood as a brake on property development and therefore a depreciation of land value in the zones where renovation is contingent on the approval and implementation of a partial plan.

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<sup>42</sup> The redevelopment modality entails the partial or total substitution of general systems and building spaces in the sector in order to generate new uses and activities while attending to the requirements for public space. See the POT and the UPZ’s Schedule of Regulated Uses.

<sup>43</sup> Art. 376, Subsection 4 of Decree 190 of 2004.