Gentrification and Displacement in Bogotá Typologies

The unit of analysis is a *sección urbana* as designated by the 2005 Colombian census.

Displacement and Gentrification in Bogotá	
Typology (seccion urbana level)	**Typology Criteria**
Vulnerability	Has at least 2 of the 3 vulnerable factors in 2005: - % unemployment > city mean - % poor infrastructure > city mean - % up to HS education > city mean
Gentrification	Has both of the factors from 1993 to 2005 - % increase in post-secondary education > city mean - % increase in residential parcels with a rent gap > city mean
Displacement	% loss of people who have up to a primary school education > city mean
Exclusion	- Areas NOT classified as either gentrification or displacement AND - % residential parcels with land value in the top city quintile in both 2011 and 2017 > city mean

Table 1: Distribution of neighborhood change typologies in Bogotá

Typology	Number of *secciones*	Percentage
Gentrification + Displacement + Vulnerability	126	4.65
Gentrification + Vulnerability	20	.74
Gentrification + Displacement	77	2.84
Gentrification	287	10.59
Displacement + Vulnerability	1051	38.77
Displacement	330	12.17
Vulnerability	46	1.70
Exclusion	292	10.77
Exclusion + Vulnerability	25	.92
Other	457	16.86

Appendix

A typology of neighborhood change

Using census and cadastral data, we were able to characterize the different forms of neighborhood change, including not just vulnerability, gentrification, and displacement but also exclusion. The analysis of neighborhood change builds on combinations of the following basic categories:

Vulnerability

We used three indicators to estimate the vulnerability of *secciones urbanas* within Bogota. Using the 2005 Census we found different types of vulnerability. A *sección urbana* is considered vulnerable if it meets at least two of the three following criteria:

a. Poor infrastructure (no telephone service and no aqueduct service): % of residents reporting poor infrastructure over city mean (3.71%).
b. High unemployment: % of residents reporting unemployment over city mean (4.12%)
c. Low education: % of residents reporting up to a high school education over city mean (43.34%)

Counting the number of *secciones urbanas* in the vulnerable typology, 20% of them (543), localized mainly in the peripheries, have high unemployment, poor infrastructure and low education. Only 27% of *secciones* were found not vulnerable and they are located mostly in the area known as the expanded north city center. Table 2 shows the distribution of vulnerability throughout the city

Table 2: Vulnerability Clusters in Bogotá

Vulnerability	No.	Percentage
High unemployment + Poor Infrastructure + Low Education	543	20.03
High unemployment + Poor Infrastructure	78	2.88
High unemployment + Low Education	351	12.95
High unemployment	337	12.43
Poor Infrastructure + Low Education	297	10.96
Poor Infrastructure	82	3.02
Low Education	285	10.51
None	738	27.22

Gentrification

We used two criteria to estimate gentrification in *secciones urbanas* within Bogota using the 1993 and 2005 Census, 2006 Cadastral, and 2011 and 2017 Valores de Referencia. A *sección urbana* is considered gentrifying if it meets both criteria:

a. High education. Growth in % of residents reporting having a post-secondary education from 1993 to 2005 > city mean growth (1.60%). Post-secondary education is defined as any college, technical, or graduate education.

b. Rent gap. % of residential parcels that have a high gain in land value > city mean (44.03%), normalized by *estrato* designations.

The rent gap is based on the theory by Neil Smith (1986) and is operationalized in this context to characterize parcels that experience a gain in land value from 2011 to 2017 that is higher than the city's average land value gain, normalized by the *estrato* of the parcel or block. Parcels that do have a rent gap may be paying less in *estrato* taxes than their land value would suggest. *Secciones* that have a high percentage of parcels that are experiencing rent gaps may be providing a price signal of desirability in this area. Table 3 provides an overview of the average increases in residential land use by *estrato* designation.

Table 3: Average increases in residential land value by *estrato* designation

Estrato	Average land value change between 2011 to 2017 ($ COP per square meter)
1	291.639
2	589.291
3	901.819
4	912.899
5	916.699
6	1.406.092

Displacement
We used loss of people with up to a primary education to estimate displacement in *secciones urbanas* within Bogota, comparing the 1993 and 2005 censuses. Primary education is defined as up to elementary school education. A *sección urbana* is considered experiencing displacement if its loss of people with up to a primary education from 1993 to 2005 is higher than the city mean (14.72%).

Exclusion
Exclusion is a classification that is only reserved for secciones urbanas that are not classified as experiencing gentrification or displacement. The exclusion typology is given to residential parcels in the seccion that were in the highest quintile in land value in both 2011 (adjusted for inflation) and 2017, and higher than city mean share in the highest quintile (20.56%).