

# Effects of public policies on informal and formal urban expansion

A comparative impact evaluation between neighborhood legalization and slum upgrading



Universidad del Rosario, 2022  
Faculty of Economics  
Guibor Camargo

Advisors:  
Juan F. Vargas & Patricia Acosta

Neighborhood orders

Treated unit	2nd order (80-160 mttu)	4th order (240-320 mttu)
1st order (0-80 mttu)	3rd order (160-240 mttu)	5th order-pure control (>320 mttu)

## Context:

- Urban expansion is one of the most important events in South America's recent history. According to the World Bank, between 1960 and 2000, the urban population in Latin America and the Caribbean tripled, going from around 30% of the total population to over 75% (WB, 2022)
- In the last three decades Bogotá almost doubled (DANE, 1989, 2005 and 2018), and up today is the 46th most dense urban area in the world.
- Habitat challenges: 3.8% of Bogota's households are in quantitative deficit while 10.2% are in qualitative deficit – About 352,000 households. (DANE 2018).

## Policy response:

- Law 388 of 1997 (Birth of the POTs – [Es] *Planes de Ordenamiento Territorial*): Urban plans which, through programs and norms, seek to order and re-direct formal and informal urban growth.
- To deal with slum's expansion, the POTs integrated two main policies:
  - Neighborhood legalization: **A legal procedure** for recognizing **illegal settlements**, so they can be later provided with public infrastructure and amenities.
  - Neighborhood Upgrading (“Mejoramiento Integral de Barrios-MIB”): **A program** which integrates all kinds of actions over **informal settlements**, such as road construction, housing improvement, installation of networks, the definition of public transport routes and stops, and construction of public facilities (among others).

## Illegality VS informality

- In Colombia, **illegality** has two dimensions:
  - Illegal occupations: When construction occupies a forbidden/restricted area by the POT.
  - Illegal constructions/buildings: When a construction, regardless of their location, has been built or intervened without a building permit or license (ES-“*licencia de construcción*”).
- **Informality** in contrast, is just a reference to a **construction technique or pattern**

**In this research**, we focused on the comparative effect of both policies over **illegal occupation dynamics**.

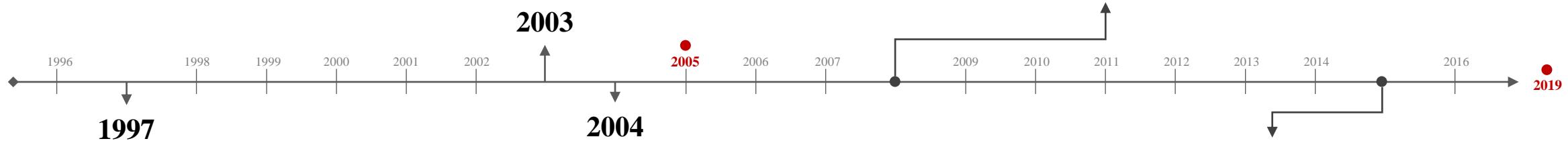
## Against

- Politicians and governments have advocated for stopping these policies based on the belief that **they foster or incentive illegal and informal growth.**
- This vision has gained support from construction companies which build new social housing projects.
- In Bogota, the number of detected illegal occupation has almost increased by a factor of 10 in the last two decades (SDP, 2021).

## In favor

- On the other hand, others have claimed that this kind of program not only do not foster informal expansion but also represent a **cheaper solution to the habitat problem both for the government and low-income families.**
- A VIS cost of 150 monthly minimum wages (approximately \$34,190 USD), and a VIP, cost 110 monthly minimum wages (approximately \$25,070 USD).
- 70% of Colombian households live with less than a minimum wage - \$225 USD/month-, and 40% live in poverty- less than \$80 USD/month- (DANE, 2020).

President Alvaro Uribe Velez established in his *Developing Plan* that informal settlements which origin year were after 2003, **could not be legalized nor receive any public investment.** (VIS/VIP/Macro)



The Law 388 gave to all municipalities the order to formulate their first POT's.

Bogotá finally (by decree) adopts its first POT (decree 190 of 2004).

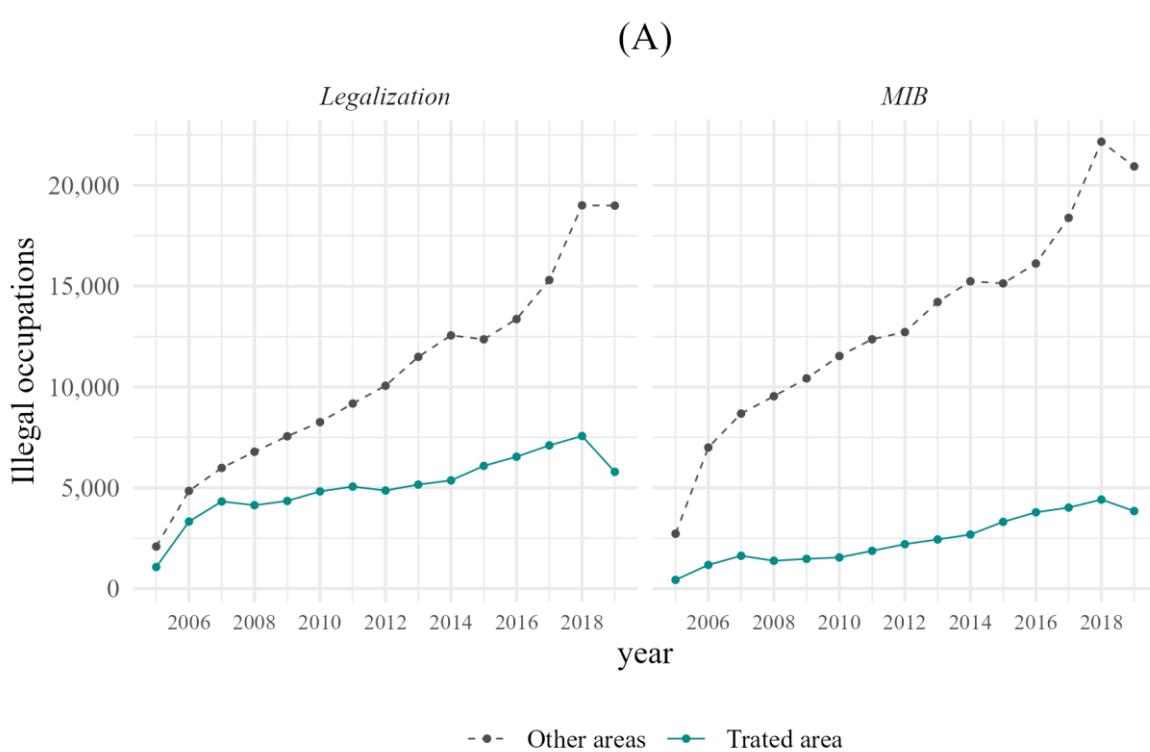
The Constitutional Court declare the 2003 restriction **against the constitution.**

2008

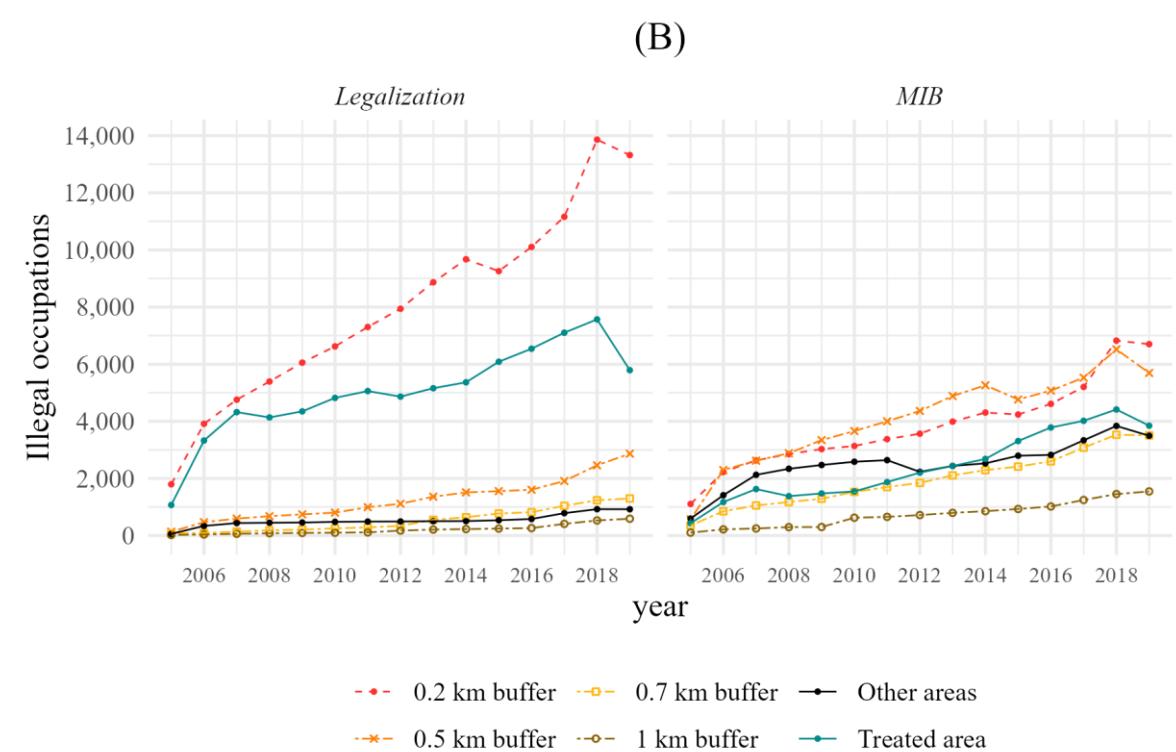
2015

The National Decree 76 of 2015 establishes that every legalized neighborhood must be subject to subsequent neighborhood improvement programs.

# The debate



It's possible to observe that the areas treated by these policies have suffered a significantly less accelerated process of illegal occupation.



Nevertheless, if one observes closely, the areas closer to the legalization of polygons are the ones that have experienced the faster informal occupation expansion.

**Main question:** ¿Have these policies (neighborhood legalization and neighborhood improvement-MIB) legalization program incentivized urban illegal expansion?

### Complementary questions:

1. If these effects exist, ¿Do they the same for both policies?
2. ¿Do changes in national regulation generate some difference in the effects of these policies?

## Slum intervention's effects:

Effects over public health: Bhan, N. (2013) ; Pérez-Casas, M. (2017); Henson, R. M., et al. (2020);

Effects over household economy and unemployment: Amis, P. (2001); Takeuchi, A., Cropper, M., & Bento, A. (2008)\*; Majale, M. (2008); Olthuis, K., Benni, et al. (2015); Bardhan, R.,et al. (2015)

Effects over land prices and construction: Nieto, C. A. B., et al (2017); Corredor Collazos, M. E. (2020)\*\*.

## Scientific gaps and opportunities:

- I. Most of studies focus on physical interventions, ignoring legal changes.
- II. The majority focus on positive outcomes (sometimes determinists ones), ignoring policies side effects.
- III. Most oversimplify the policies, making risky assumptions that put in doubt causal claims.
- IV. Almost no study analyses *effect heterogeneity* and it's sources.
- V. Still, *impact evaluations* on slum management still scarce, and comparative studies of causality in this field are even rarer.

## Illegal urban growth

- Illegal occupations (lat/lon/year). SDH – 2005-2019
- Illegal occupation's monitoring polygons. SDH – 2005 - 2019 \*
- Resettlement program identifications and enrollments (lat/lon/year) IDGER – 2004-2019

## Legal urban growth

- Cadastral data-base of constructions (location/high/land use) OCB – 2011-2019
- Castral data-base of lots (location/high/land use) – 2011-2019

## Treatment (polices) information

- Neighborhood Legalization polygons with legal process info\* (1950-2019)
- Neighborhood Improvement program polygons\* (2002-2019)

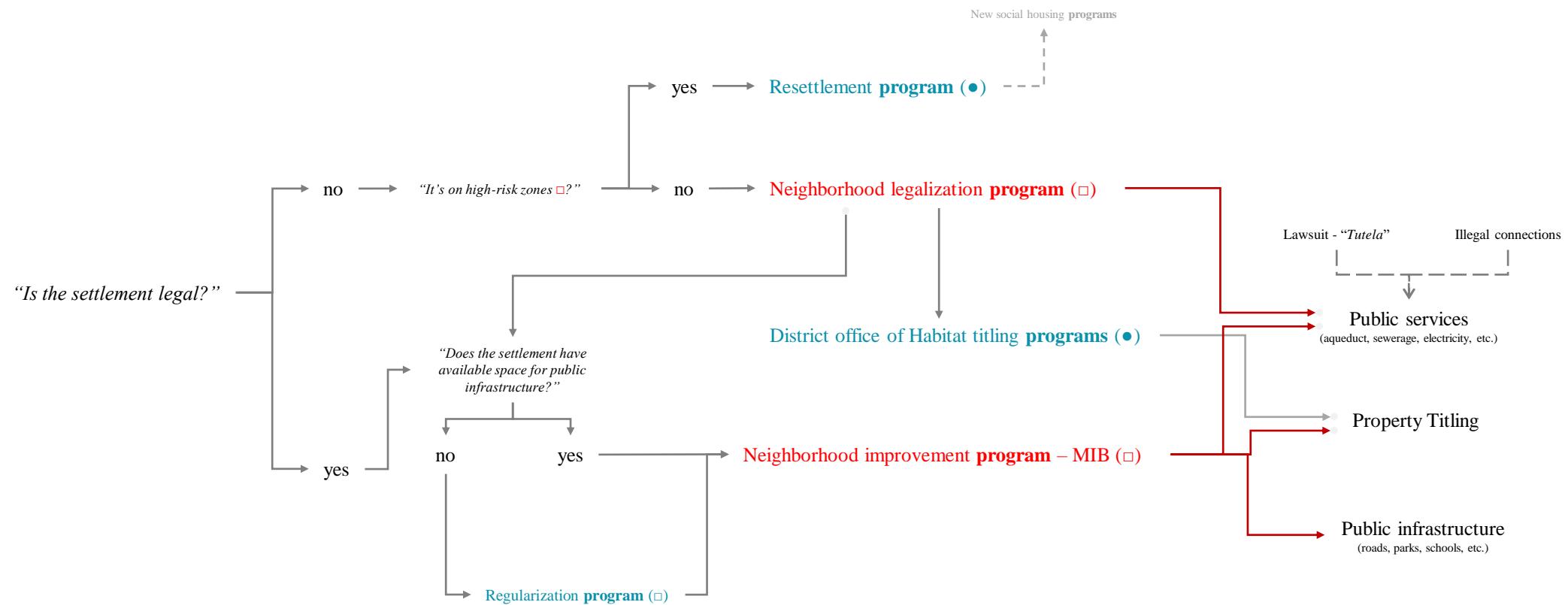
## Control variables

- Socioeconomic stratum
- POT spatial data-base
- Previous historical projects

Context



## Context: articulation with other programs



# Methodology



- **Challenge #1:** Unit of treatment's heterogenous geography
- **Challenge #2:** Spatial spill-overs (violations of SUTVA)
- **Challenge #3:** Some outcomes are observed just in restricted areas
- **Challenge #4:** Relevant differences across units
  - I. Differences in the relation with historical programs or interventions:
  - II. Differences exposure to current regulatory framework
  - III. Differences in demographic composition
- **Challenge #5:** External checks (court intervention)
- **Challenge #6:** Absence of “*pure never-treated*” units and different treatment times
- **Challenge #7:** Difference in anticipation time

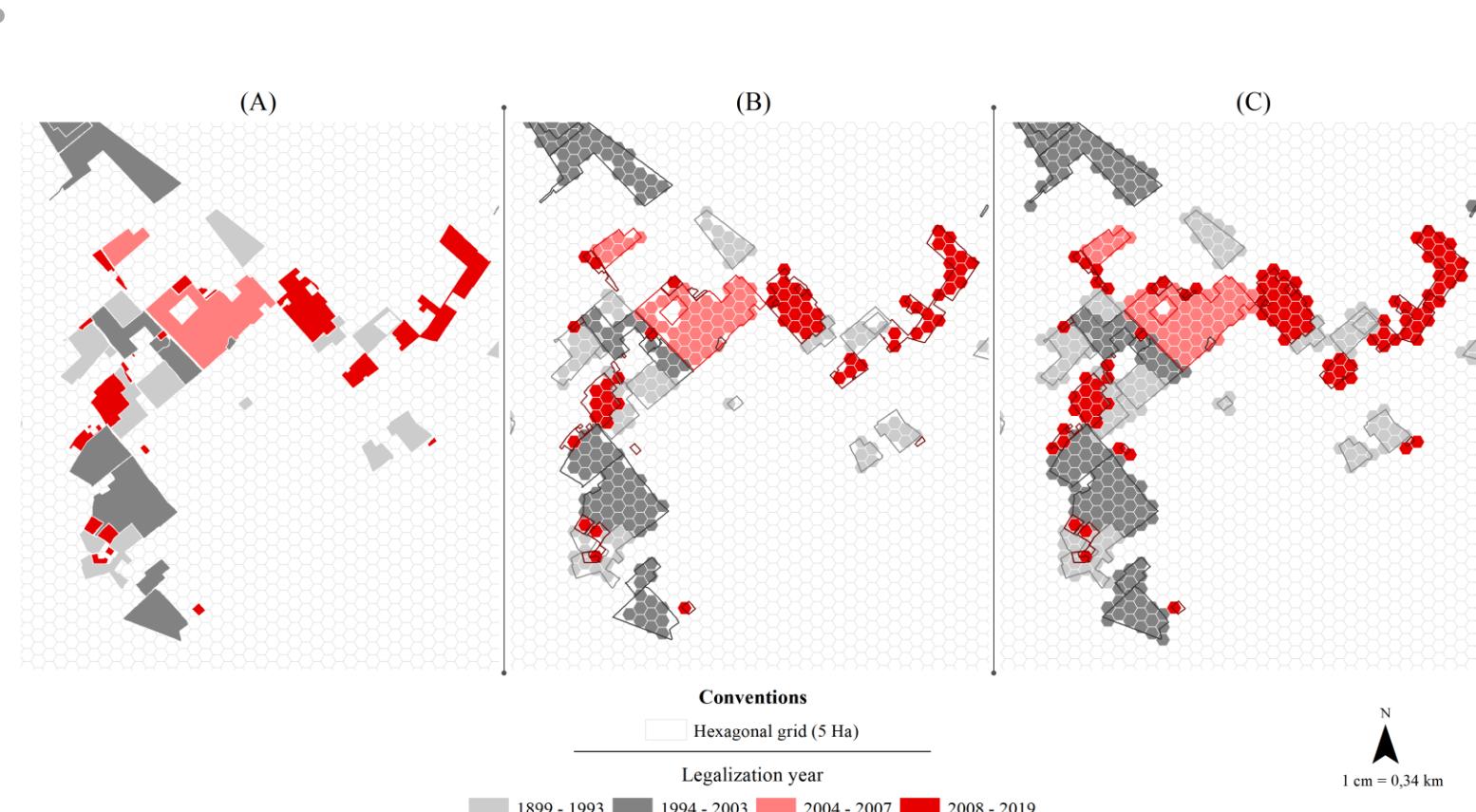
# Addressing challenge #1: Unit of treatment's heterogenous geography

## Standardizing unit of analysis

1. Legalization polygons were transformed into hexagons of 5 Ha each.
2. Treatment and controls are defined not by centroid intersection (B) but rather by closest centroid (C), to avoid treated unit's omission.

By doing this we guarantee:

1. A geographic standardized unit of analysis.
2. Representation of all treated areas
3. Standardization of never-treated units



# Addressing challenge #2: Spatial spill-overs

## Defining the range of contamination

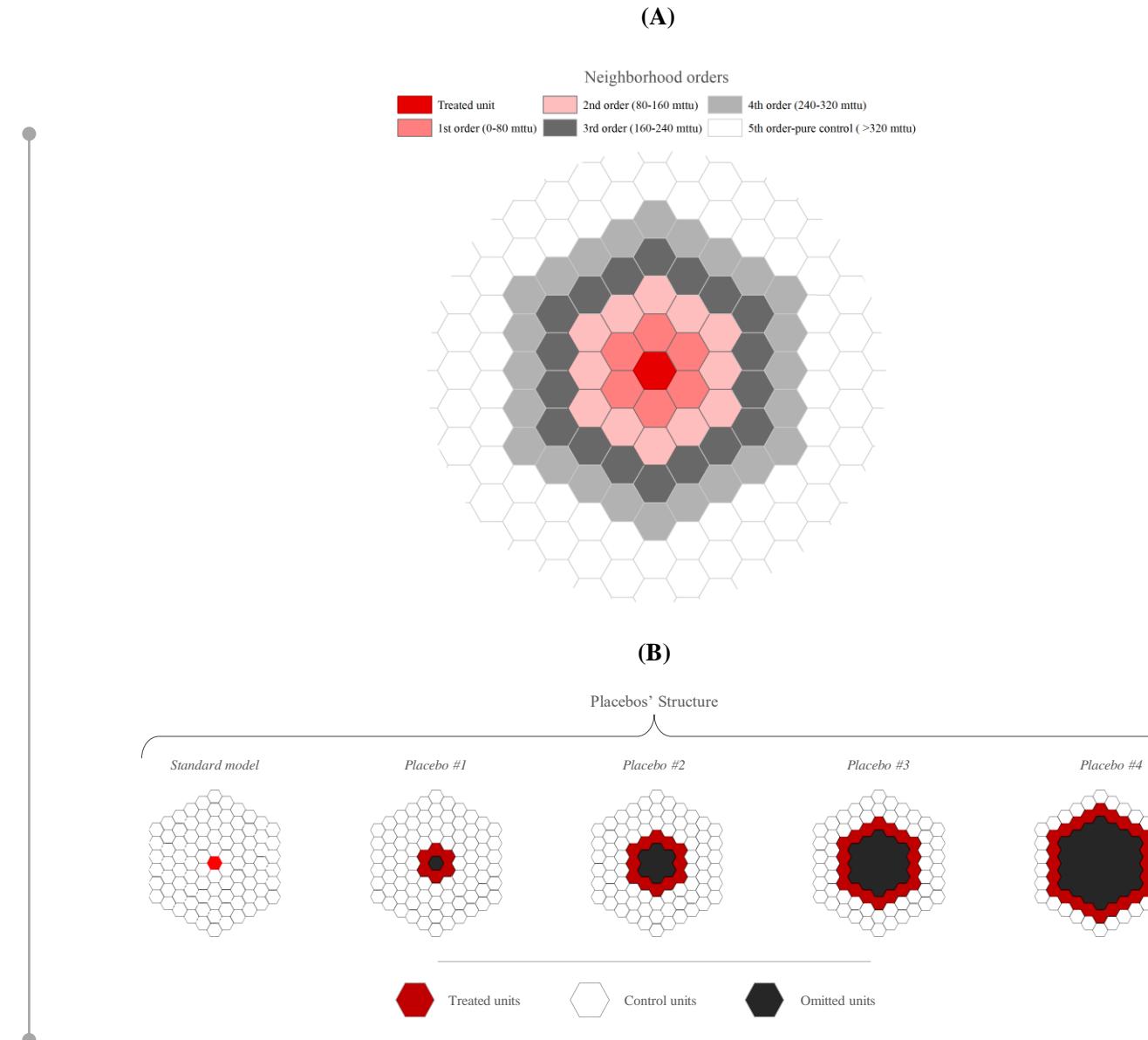
To deal with possible violation of SUTVA we categorize control units into five neighborhood orders and employed two different strategies:

A. **Controlling comparation's units:** We run the model taking different combinations of neighborhood units.

- *i.e.* Treated VS 1<sup>st</sup> neighbors || Treated VS 2<sup>nd</sup> neighbors || ... Treated VS all Neighbors.

B. **Measuring spill-over effects:** We additionally run several placebos test, assuming neighbor control units to be treatment units instead, following a similar procedure as in [Butss \(2021\)](#):

- **Direct effects:** Without the spatial contamination over treated units.
- **Switching effects:** effects over non-treated units.



# Addressing challenge #3: Restricted observations for key outcomes

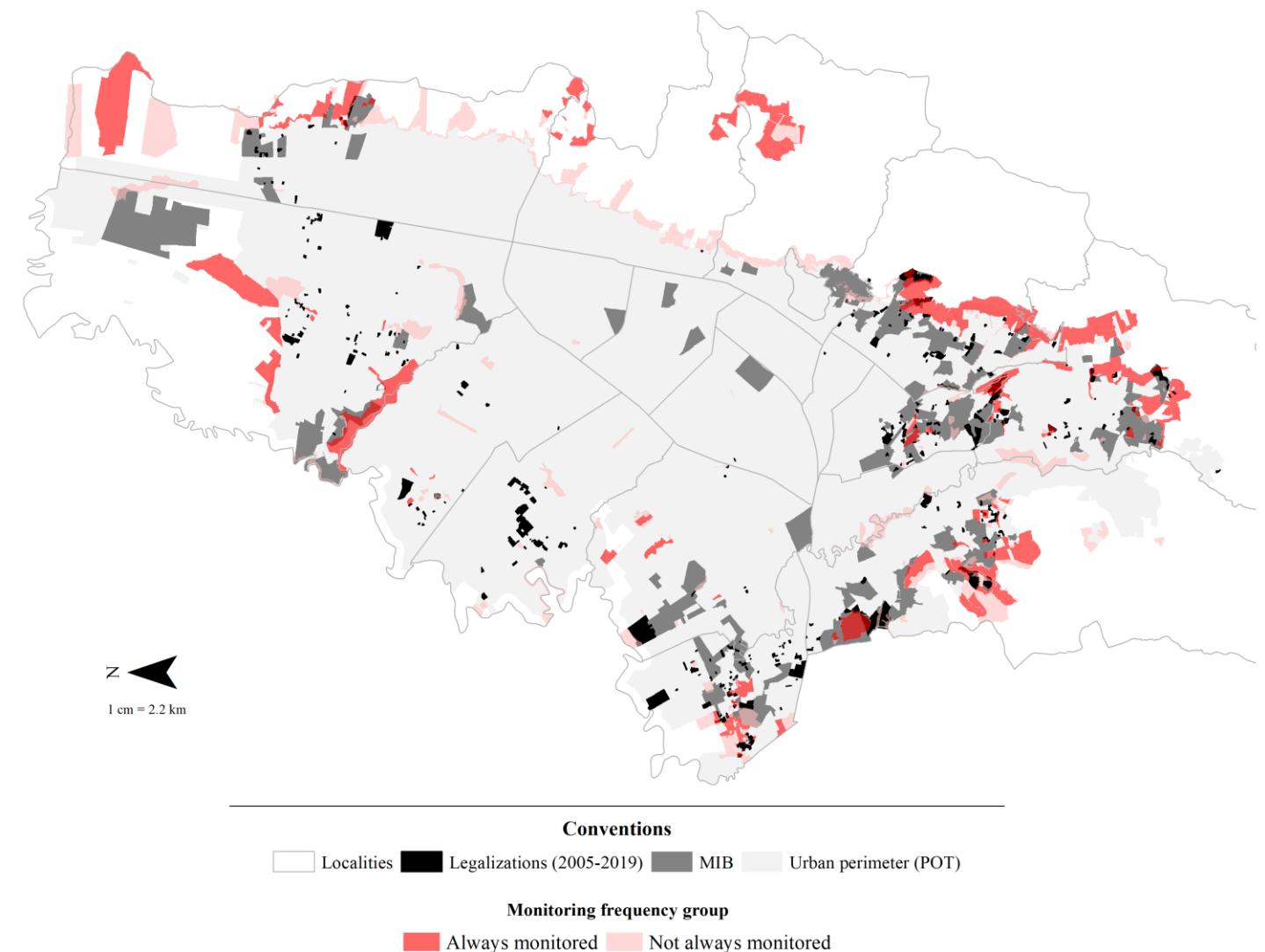
## Keeping comparability

### Considerations:

- Our main outcomes are:
  1. Illegal occupations
  2. Evolution of the resettlement program
  3. Formal construction (cadastral bases' changes)
- Illegal occupation are just observed across monitoring polygons which changes over time and do not cover all the city's surface.
- Then, just a little portion of tarted units are effectively observed in all periods of time (2005-2019) for this outcome.

### Procedure:

For comparability, we ran the analysis with the same restricted sample for the rest of the outcomes. Nevertheless, we also analyze the remaining outcomes with all the data.



# Addressing challenge #3: Restricted observations for key outcomes

## Keeping comparability

### Considerations:

- Our main outcomes are:
  1. Illegal occupations
  2. Evolution of the resettlement program
  3. Formal construction (cadastral bases' changes)
- Illegal occupation are just observed across monitoring polygons which changes over time and do not over all the city's surface.
- Then, just a little portion of tarter units are effectively observed in all periods of time (2005-2019) for this outcome.

Table 2: Treated units by program and monitoring groups

Monitoring frequency group	Legalization treated units	MIB treated units
I. Always	329 (1.9 %)	160 (1.8 %)
II. Not always	862 (4.9 %)	900 (9.9 %)
III. Never	163,93 (93.2 %)	8,062 (88.4 %)

### Procedure:

For comparability, we ran the analysis with the same restricted sample for the rest of the outcomes. Nevertheless, we also analyze the remaining outcomes with all the data.

# Addressing challenge #3: Restricted observations for key outcomes

Table 6: Legalization treatment groups by monitoring group

Treatment group	<i>Monitoring frequency group</i>			
	I. Always	II. Not always	III. Never	Total
<b>Pre-court intervention</b>				
2005	64 (11.1%)	61 (10.6%)	450 (78.3%)	575
2006	8 (6.3%)	16 (12.6%)	103 (81.1%)	127
2007	11 (6.5%)	30 (17.8%)	128 (75.7%)	169
2008	2 (6.7%)	4 (13.3%)	24 (80%)	30
<b>Post-court intervention</b>				
2009	-	-	2 (100%)	2
2010	-	2 (5.9%)	32 (94.1%)	34
2011	-	23 (22.3%)	80 (77.7%)	103
2013	-	-	14 (100%)	14
2014	-	-	17 (100%)	17
2015	17 (6.5%)	35 (13.4%)	210 (80.2%)	262
2016	1 (1.9%)	1 (1.9%)	51 (96.2%)	53
2017	-	12 (21.1%)	45 (78.9%)	57
2018	3 (4.6%)	9 (13.8%)	53 (81.5%)	65
2019	2 (2.2%)	12 (13.2%)	77 (84.6%)	91
Never treated	2696 (2.2%)	5911 (4.9%)	112629 (92.9%)	121236
Treated before 2005	323 (1.9%)	801 (4.8%)	15533 (93.3%)	16657

Table 7: MIB treatment groups by monitoring group

Treatment group	<i>Monitoring frequency group</i>			
	I. Always	II. Not always	III. Never	Total
<b>Pre-court intervention</b>				
2008	5 (0.8%)	38 (6.3%)	562 (92.9%)	605
<b>Post-court intervention</b>				
2009	7 (0.3%)	236 (10.1%)	2097 (89.6%)	2340
2010	37 (1.3%)	223 (8.1%)	2506 (90.6%)	2766
2011	12 (0.9%)	83 (6.4%)	1193 (92.6%)	1288
2012	22 (4%)	155 (28%)	376 (68%)	553
2013	10 (9.9%)	13 (12.9%)	78 (77.2%)	101
2014	-	12 (14.6%)	70 (85.4%)	82
2015	3 (8.6%)	3 (8.6%)	29 (82.9%)	35
2016	-	3 (6.2%)	45 (93.8%)	48
2018	64 (4.9%)	134 (10.3%)	1106 (84.8%)	1304
Never treated	2967 (2.3%)	6017 (4.6%)	121386 (93.1%)	130370

# Addressing challenge #4: Differences between units

## Selecting and transforming covariates

### Considerations:

- There are multiple sources of variation, both from current differences and historical dynamics.
- However, since the main models' sample is quite restricted, adding all relevant covariates could represent an important loss of degrees of freedom.

### Procedure

We reconstruct the most relevant covariates and perform a PCA analysis to reduce its dimensionality\*.

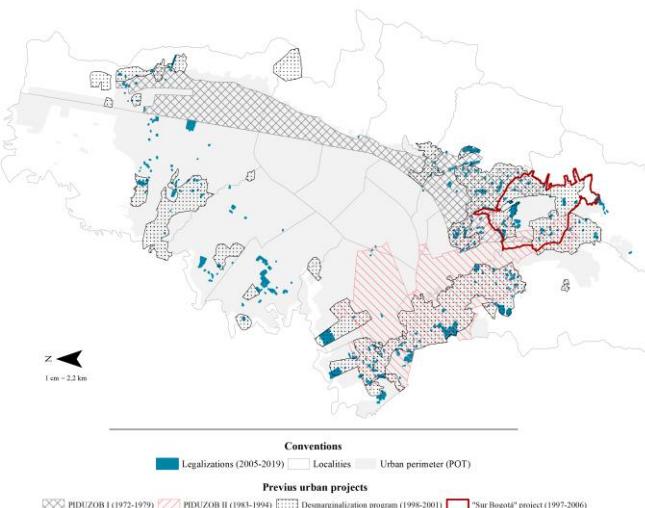


Table 3: T-test by neighborhood orders

Variable	Comparation between specific neighborhood orders					
	1st	2nd	3rd	4th	5th	All neighbors
<b>Socio-economic covariates</b>						
Population density (hab/km <sup>2</sup> )	3496.9 ***	6726 ***	9077.3 ***	10671.2 ***	17266 ***	15006.8 ***
Dis. to stratum 1	-665.8 ***	-874.3 ***	-1037 ***	-1164.2 ***	-2507.3 ***	-2154.7 ***
Dis. to stratum 2	-17.7	-142.1 ***	-256.2 ***	-350.2 ***	-2055.8 ***	-1640.9 ***
Dis. to stratum 3	393.9 ***	463.3 ***	463.2 ***	478.9 ***	-2647.6 ***	-1965.9 ***
Dis. to stratum 4	1077.1 ***	1437.2 ***	1622.5 ***	1808.2 ***	-1529.7 ***	-873.9 ***
Dis. to stratum 5	2083.9 ***	2618.9 ***	2935.2 ***	3216.2 ***	381.5 ***	881.7 ***
Dis. to stratum 6	2299.2 ***	2884.7 ***	3176.5 ***	3420 ***	462.9 ***	996.2 ***
<b>POT covariates</b>						
Dis. to expansion areas	-403.5 ***	-438.9 ***	-564.3 ***	-645.9 ***	-1759.7 ***	-1482 ***
Dis. to rural areas	718 ***	648.1 ***	692.5 ***	698.1 ***	2449.3 ***	2061.5 ***
Dis. to urban area	-27.7 ***	-43.6 ***	-64.8 ***	-83.5 ***	-1518.2 ***	-1195 ***
Dis. to protected areas	8.9	-36.5	-88 *	-126.4 **	-1122.4 ***	-886.7 ***
Dis. to consolidation areas-TU	91.6 ***	90.2 ***	68.6 ***	45.2 ***	-1824.9 ***	-1405.8 ***
Dis. to development areas-TU	-61.7 ***	-89.4 ***	-132.5 ***	-166.8 ***	-1486.5 ***	-1182.4 ***
Dis. to C1 areas-TU	-207.8 ***	-401 ***	-548.4 ***	-672 ***	-2523.9 ***	-2062.7 ***
Dis. to renewal areas-TU	140.3 *	255.9 ***	302.1 ***	328.8 ***	-2707.9 ***	-2056.8 ***
Dis. to high risk zones	252 ***	100.8	42.8	-34.2	-297.3 ***	-208.4 ***
Dis. to environmental p. areas	-46 ***	-65.2 ***	-78.8 ***	-104.1 ***	-12.8	-25.5 **
<b>Pre-POT covariates</b>						
Dis. to PIDUZOM I	920.3 ***	930.7 ***	1006.8 ***	1029.5 ***	2.1	214.4 **
Dis. to PIDUZOM II	-2095.8 ***	-2597.7 ***	-2847.3 ***	-3086.4 ***	-4918.6 ***	-4407.9 ***
Dis. to Desmarginalization	-268.2 ***	-432.8 ***	-569.4 ***	-694.9 ***	-2504.9 ***	-2055.9 ***
Dis. to Sur-Bogotá project	-1636.7 ***	-2209.9 ***	-2408.4 ***	-2683.4 ***	-2585 ***	-2495.2 ***

Table 4: PCA cumulative variance over control variables' dimensions

Dimension	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10
Socioeconomic (k = 7)	0.63	0.86	0.959	0.984	0.996	0.999	1	-	-	-
POT (k = 10)	0.498	0.674	0.823	0.906	0.955	0.976	0.987	0.994	0.998	1
Pre-POT (k = 4)	0.503	0.842	0.986	1	-	-	-	-	-	-
<b>Combinations</b>										
POT and Pre-POT (k = 14)	0.437	0.602	0.752	0.856	0.919	0.955	0.97	0.98	0.987	0.992
All together (k = 21)	0.469	0.641	0.757	0.849	0.895	0.927	0.953	0.965	0.973	0.98

**Note:** We observed significant difference between treated units and different sets of control groups, which could represent a relevant endogeneity problem between (i.e.) historical programs and the legalization program. Nevertheless, we argue that (i) historically and institutionally, there is no relation between previous programs and legalization occurred after 2005; (ii) if PT assumption holds, we would still be capturing the program's causal effects; and (iii) most differences are statistically significant but geographically depreciable ( $x < 1 \text{ km}$ ).

Estimating DID models base on [Callaway and Sant'Anna \(2021\)](#)

$$ATT_{g,t} = \left[ \left( \frac{G_g}{\mathbb{E}[G_g]} - \frac{\frac{p_g(X')C}{1-p_g(X')}}{\mathbb{E}\left[\frac{p_g(X')C}{1-p_g(X')}\right]} \right) * (Y'_t - Y'_{g-1} - m_{gt}(X')) \right]$$

$$m_{gt}(X') = \mathbb{E}[Y'_t - Y'_{g-1}|X', C = 1]$$



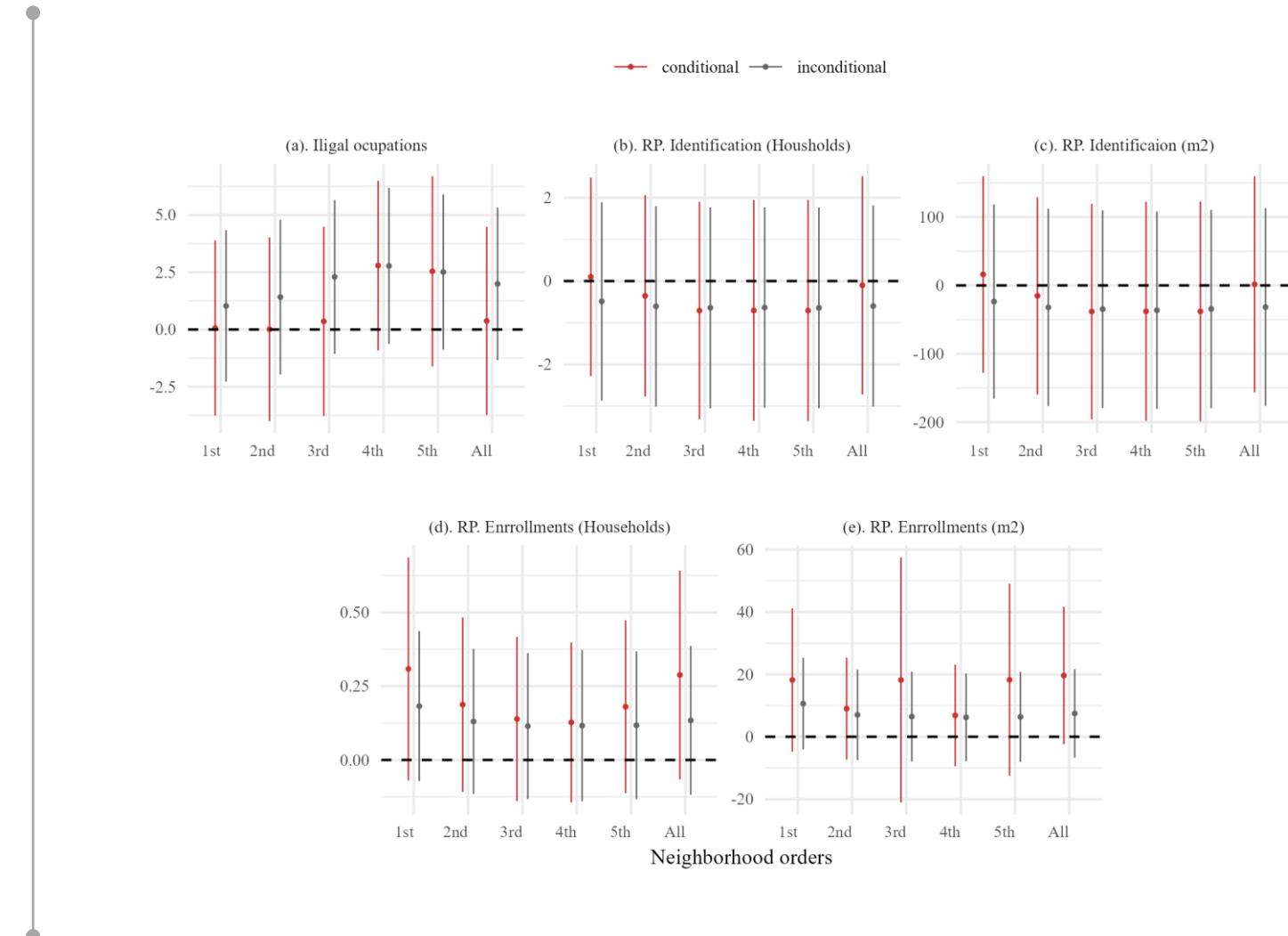
1. Allow for difference in treatment timing, focusing on not yet started units: avoiding forbidden comparision as in the classical two-way fixed effects approach.
2. The identification of treatment dynamic across time and treatment groups (group effects and event study effects), comes in handy when analyzing external shocks.
3. Covariates are integrated indirectly through PS and or a regression outcome approach, allowing for conditional parallel trends.
4. The approach also allows to test for policy's anticipation effects

# Results



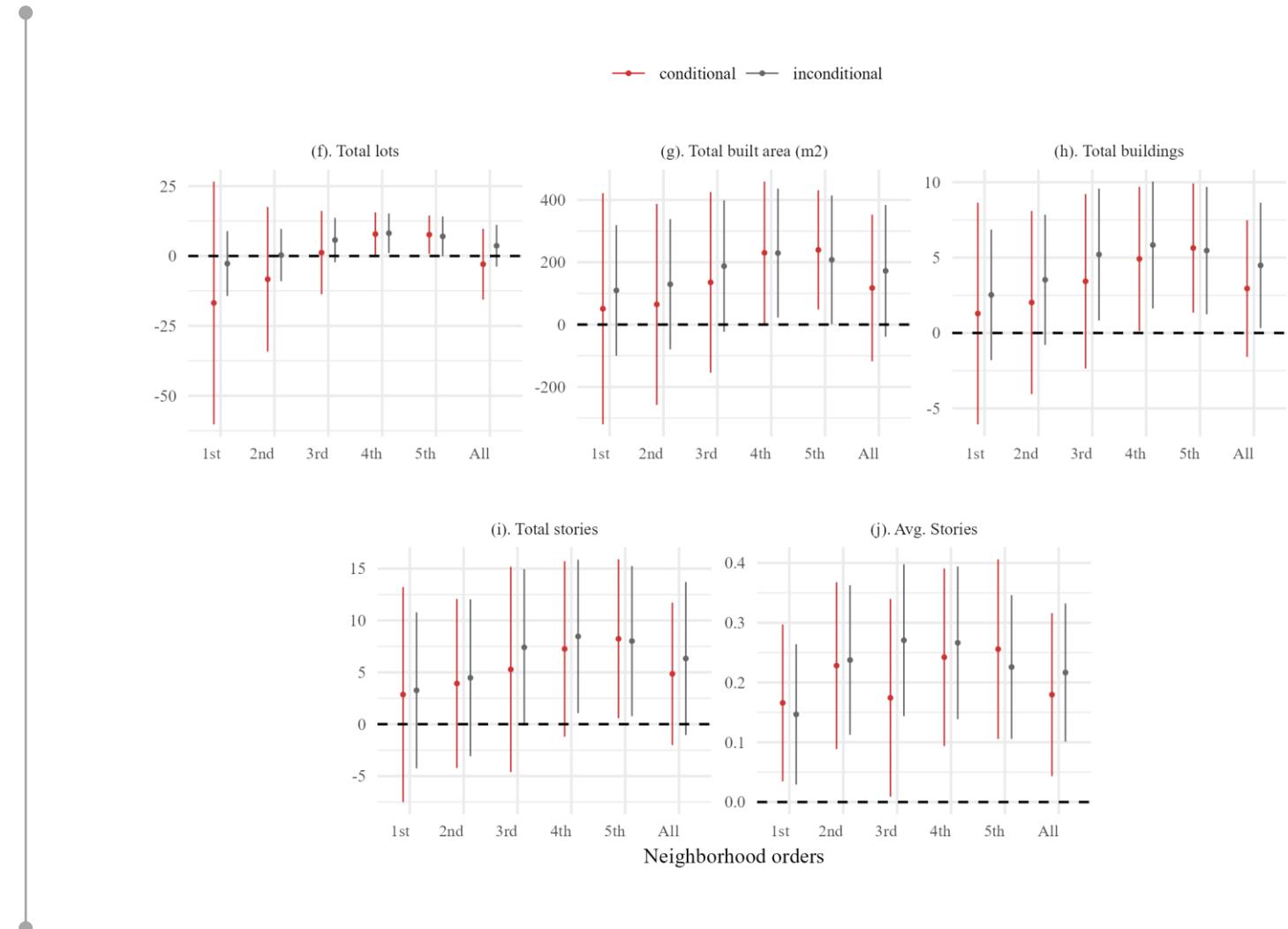
# Legalization VS illegal occupations

- We identified that the neighborhood legalization policy does not generate effects on illegal occupations.
- This finding is robust in all comparisons between neighbors and conditioned and unconditioned models.
- The effect is neither positive nor negative, so although it does not encourage the illegal expansion of the city, it is not a mechanism to control it either.



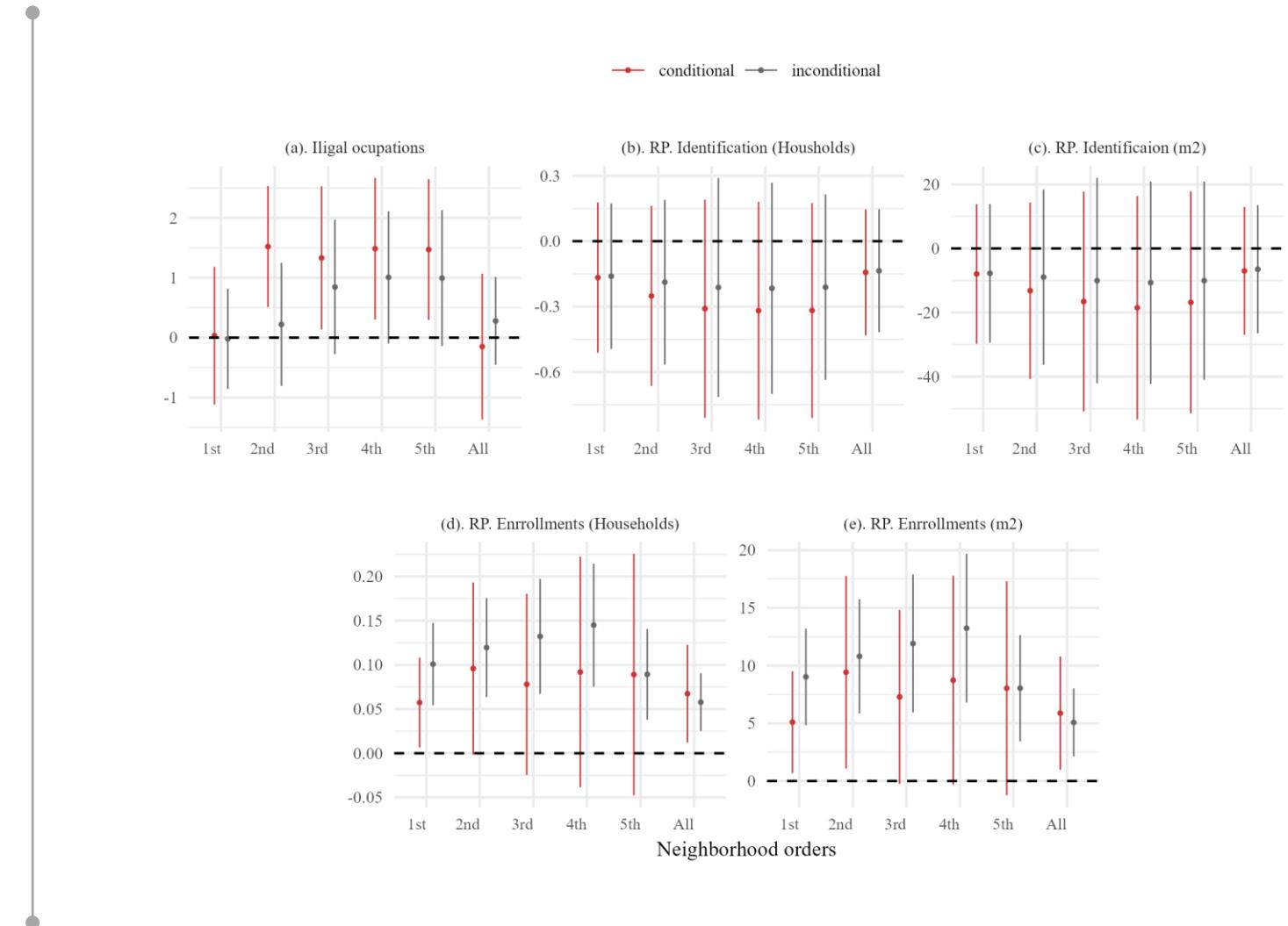
# Legalization VS legal occupations

- If we find effects on legal occupancies, increase up to 56% in building height (0.37 floors).
- However, we did not detect an increase in the number of lots derived from legalization. This may be an urban consolidation effect of the policy.
- In some cases, the effect is detected only in higher-order neighbors, suggesting the presence of spillovers.



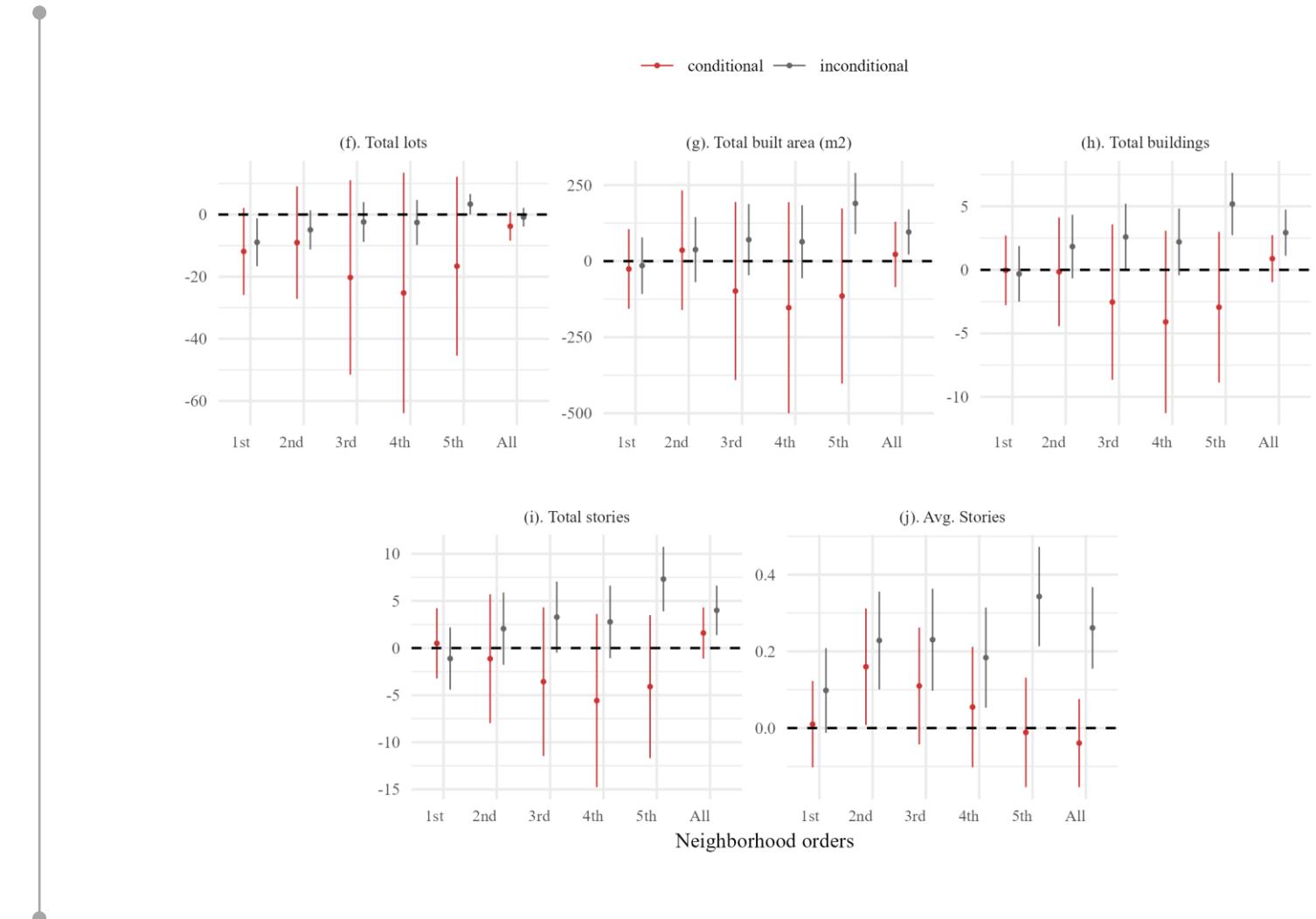
# MIB VS illegal occupations

- The MIB program significantly increases illegal occupations from 41% and up to 65% (relative to the sample average-**rsa**).
- We found a 22% robust increase in the resettlement program's total area enrolled (**rsa**).
- This is expected since the MIB program operates in conjunction with resettlement policies.
- It seems that it is the physical changes and not the legal ones that drive a response from the informal market.



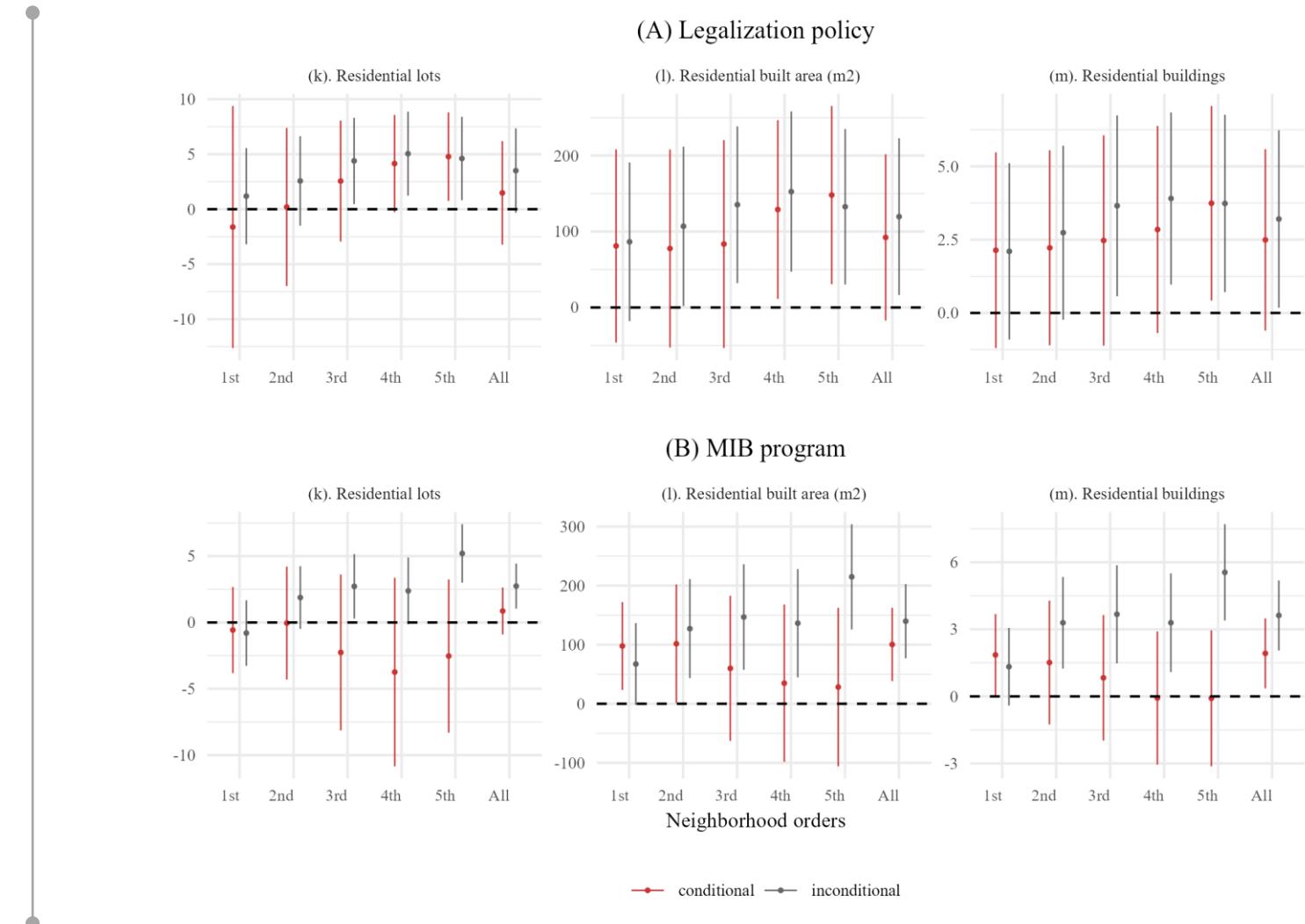
# MIB VS legal occupations

- Contrary to what was observed with the legalization policy, we did not find evidence that the MIB program generates incentives in the legal dynamics of occupation.

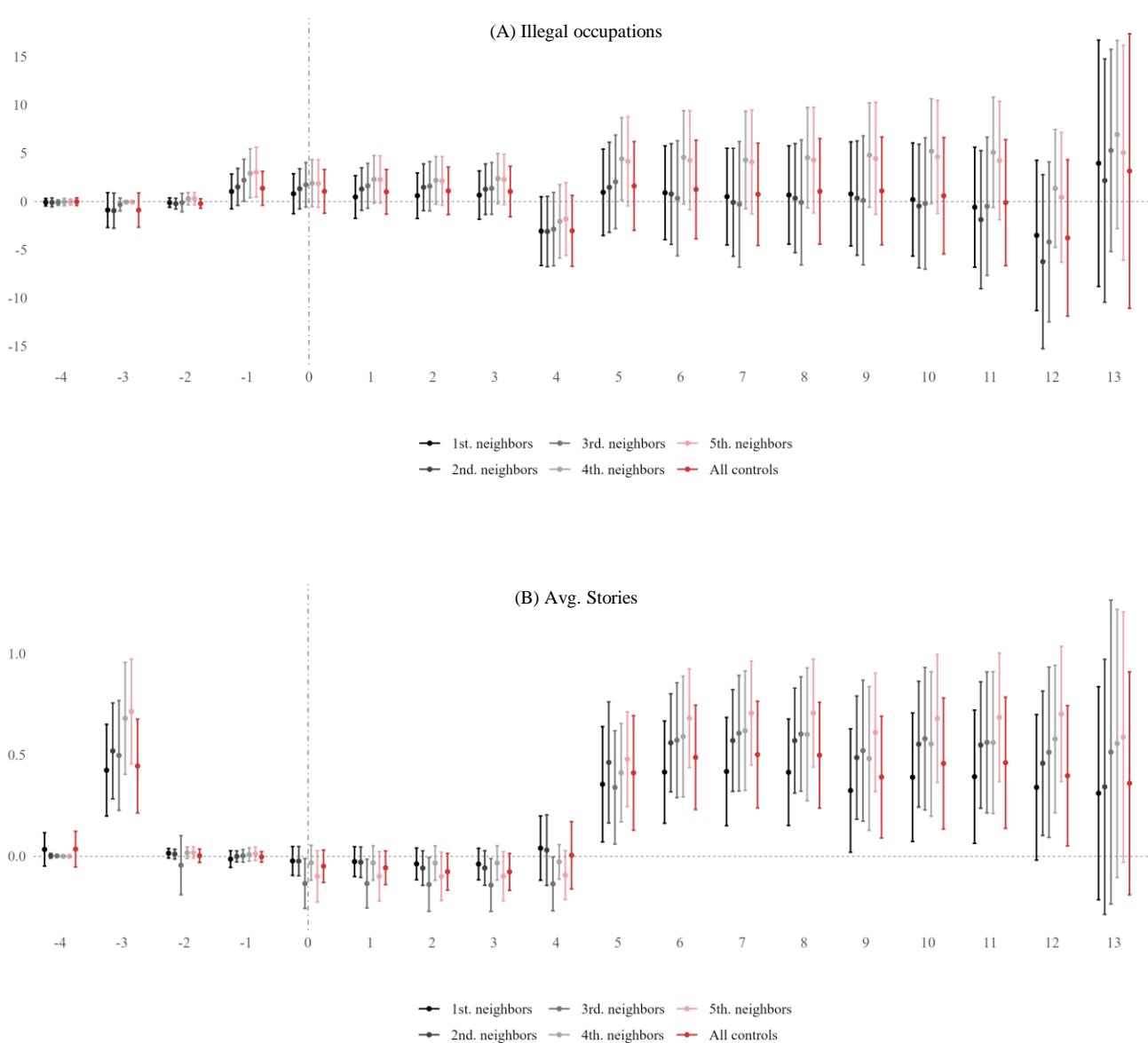


# Effects over land use diversification

- Looking at the effects on the legal market by type of use, we see only significant coefficients in residential activity.
- However, these effects are only robust in the legalization policy and more evident in the square meters built (179% rsa) and the total number of constructions (220% rsa).
- The finding of exclusive effects on residential activity also raises concerns about the contribution of these policies to the diversification of uses, the economic resilience of neighborhoods, and the city's spatial segregation dynamics.

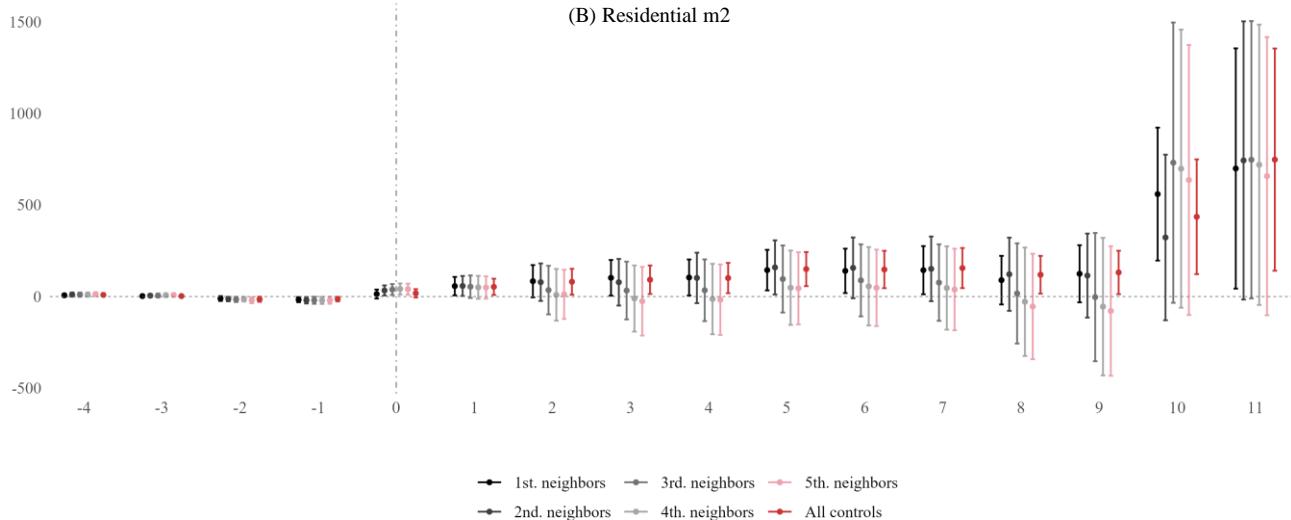
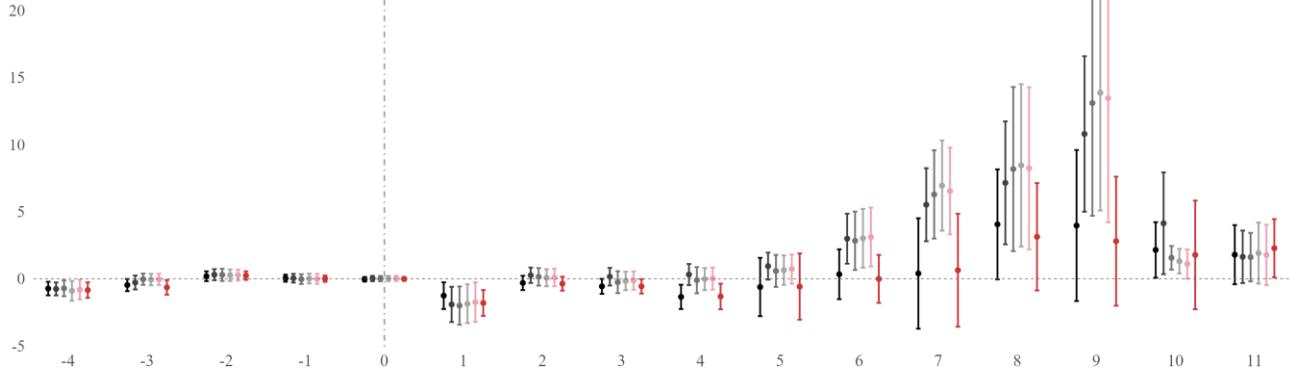


# Legalization event study effects



- Once again, it is observed that legalization does not affect the dynamics of illegal occupation.
- In the case of the effects on legal occupations, it is observed that these effects are evident not immediately but after five years of the intervention.
- This lag in the effect of legalization may be due to savings incubation processes.

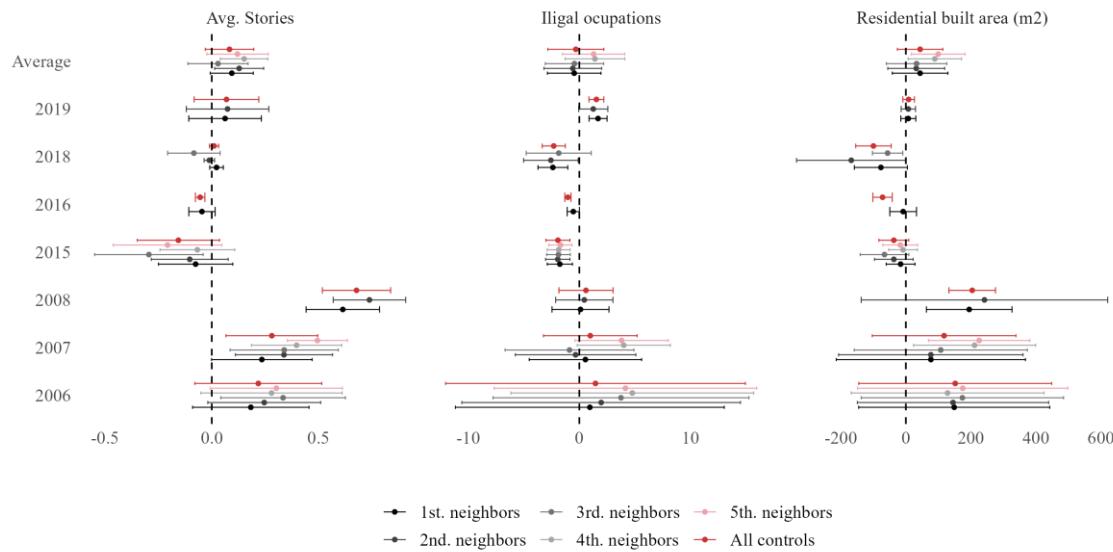
# MIB event study effects



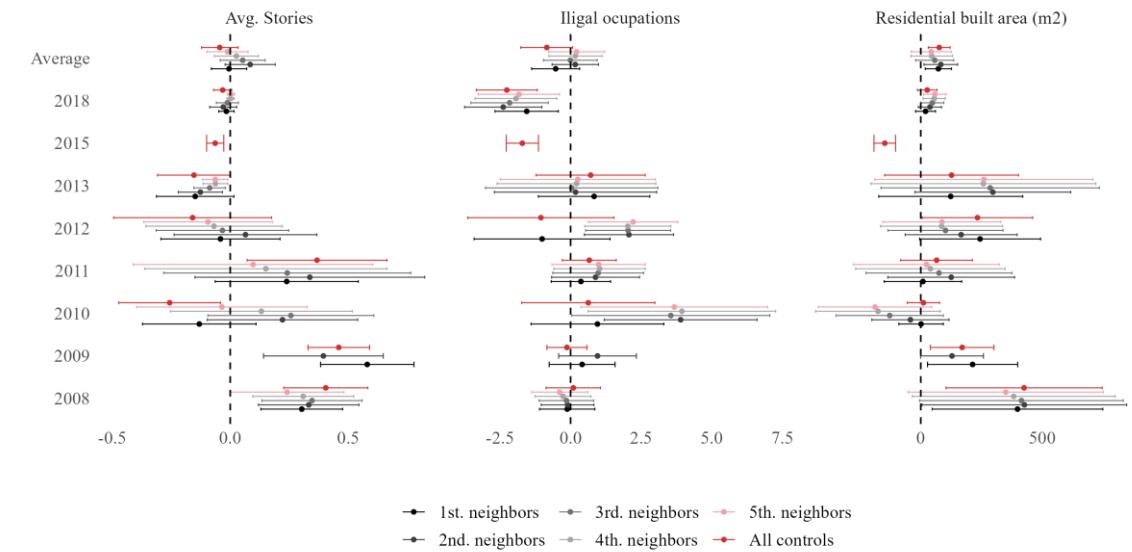
- The effects of the MIB program on illegal occupations increase over time. These effects can be up to 2.8 times the sample mean (1.4 std).
- We also observe previous effects in the number of incomes in the resettlement program, which extend up to the first two years.
- However, there seems to be a lack of monitoring of the effects on illegal urban expansion in the medium and long term of this type of program.

# Group effects

(A) Legalization



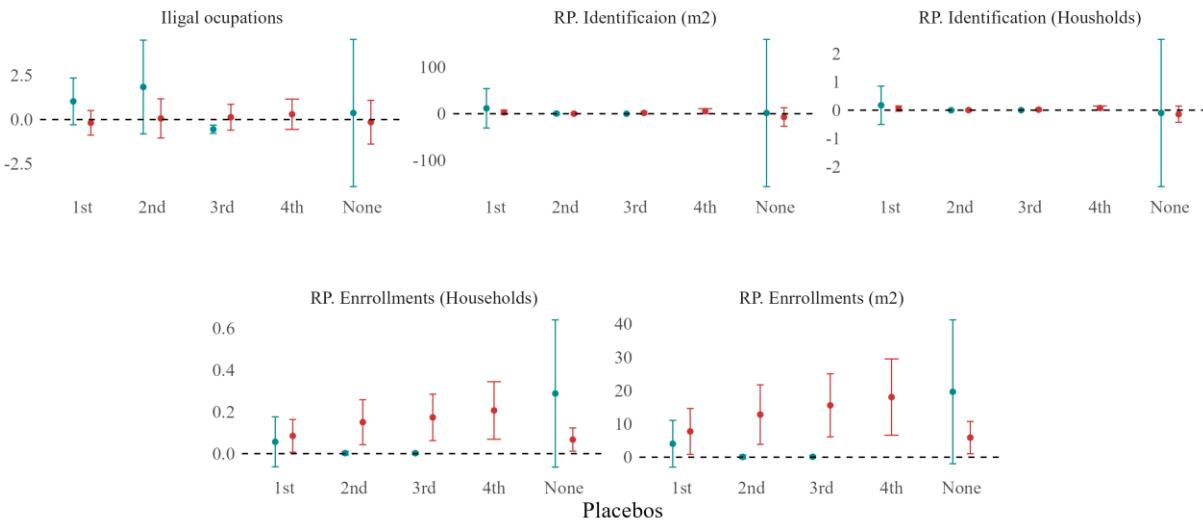
(B) MIB



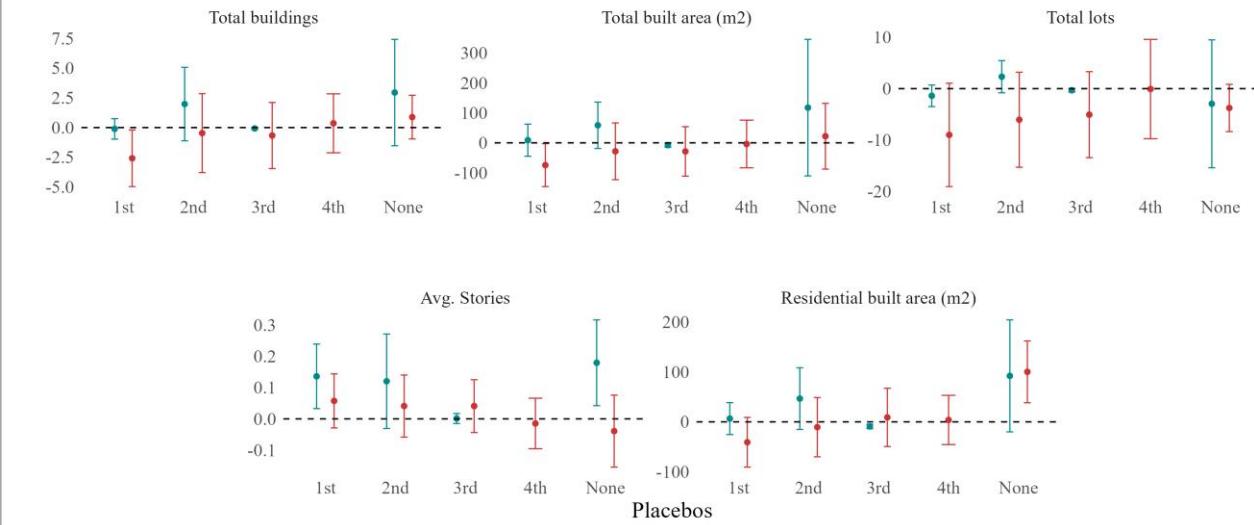
- Differences are sometimes observed in the direction of the effect and its standard error.
- However, given the sample restrictions in many of these annual groups, we cannot confidently establish that changes in national regulations have generated changes in the effects of policies on urban development.|

# Placebo analysis

**(A) Illegal occupations**  
● Legalization policy   ● MIB program



**(B) Legal occupations**  
● Legalization policy   ● MIB program



- However, by applying the previously described placebo methodology, we identified how the MIB program generates effects in the number of households and the sum of the area linked to the IDGER resettlement program.
- We expected these results since the MIB program activates the institutional mechanisms for risk control and the relocation of families in precarious housing and non-mitigable threat areas.
- Finally, in the formal market, an increase of 36.8% (relative to the sample average) was verified in the heights of the buildings, derived from the spillovers of the legalization policy.

## Legalization:

- We do not find evidence that the legalization policy generates some perverse incentive on the dynamics of illegal land occupation.
- However, according to our results, we did not detect that legalization is a mechanism that discourages or controls illegality since illegal occupation dynamics seem indifferent to the program
- The legalization of neighborhoods also substantially increases the construction dynamics of legal occupations, especially residential ones (up to 179% and 220% in the number of buildings). This dynamics tend to start five years after the legalization took place.

## Neighborhood upgrading – MIB:

- The MIB program increased illegal occupations in the treated areas from 41% to 65% compared to the sample average.
- These effects are greater in the long term, when other institutional mechanisms for the management of informal settlements no longer accompany the program.
- We verified the existence of geographical spillovers of the policies, which can reach up to more than 200 meters from treated areas.

**Regulatory changes:** We did not find enough evidence to claim regulatory changes had impact on behavior and effects of evaluated programs.

# Descriptive statistics I

Table 1: Main outcomes' descriptive statistics

Variable	Neighborhood orders					
	1st. neighbors	2nd. neighbors	3rd. neighbors	4th. neighbors	5th. neighbors	All neighbors
<b>By legalization program's neighborhood orders</b>						
<i>Illegal market:</i>						
Ilegal occupations	5.01 (9.99)	4.72 (9.68)	4.56 (9.17)	4.78 (9.2)	2.45 (6.8)	2.58 (7.44)
RP. Identification (Households)	0.12 (1.45)	0.11 (1.31)	0.13 (1.4)	0.14 (1.49)	0.05 (0.93)	0.04 (0.86)
RP. Identificaion (m2)	82.52 (8370.81)	100.77 (9369.68)	120.66 (10263.92)	137.06 (10918.77)	52.52 (6777.32)	28.37 (4873.88)
RP. Enrrolments (Households)	0.09 (0.82)	0.09 (0.77)	0.1 (0.82)	0.12 (0.87)	0.04 (0.55)	0.03 (0.49)
RP. Enrrolments (m2)	84.22 (4245.06)	103.6 (4751.45)	124.09 (5204.74)	140.19 (5536.5)	54.05 (3437.13)	28.73 (2471.86)
<i>Legal market:</i>						
Total lots	9.92 (117.98)	9.13 (84.03)	8.04 (70.81)	8.24 (70.85)	4.33 (46.51)	5.22 (76.81)
Total built area (m2)	212.46 (910.15)	217.61 (910.95)	218.62 (861.74)	225.68 (856.67)	129.43 (600.44)	124.89 (671.17)
Total buildings	4.73 (21.4)	4.6 (18.41)	4.44 (16.62)	4.77 (16.58)	2.4 (11.28)	2.4 (14.67)
Total stories	6.86 (34.21)	6.79 (29.96)	6.3 (25.79)	6.73 (25.32)	3.29 (16.7)	3.46 (23.64)
Avg. Stories	0.37 (0.63)	0.34 (0.61)	0.37 (0.61)	0.4 (0.62)	0.27 (0.55)	0.23 (0.53)
<b>By MIB program's neighborhood orders</b>						
<i>Illegal market:</i>						
Ilegal occupations	4.92 (9.68)	3.69 (7.98)	3.63 (7.55)	4.11 (8.82)	2.46 (7.31)	2.58 (7.44)
RP. Identification (Households)	0.12 (1.2)	0.1 (1.1)	0.09 (1.04)	0.11 (1.12)	0.04 (0.89)	0.04 (0.86)
RP. Identificaion (m2)	264.82 (15655.15)	278.52 (16085.58)	234.29 (14735.57)	235.77 (14757.17)	34.75 (5457.4)	28.37 (4873.88)
RP. Enrrolments (Households)	0.08 (0.56)	0.08 (0.6)	0.07 (0.51)	0.08 (0.58)	0.04 (0.53)	0.03 (0.49)
RP. Enrrolments (m2)	274.48 (7936.44)	289.39 (8154.46)	243.06 (7470.65)	244.49 (7481.58)	35.55 (2767.77)	28.73 (2471.86)
<i>Legal market:</i>						
Total lots	11.3 (97.03)	4.91 (24.27)	5.02 (23.86)	6.25 (71.59)	4.45 (73.84)	5.22 (76.81)
Total built area (m2)	227.55 (869.53)	169.6 (442.68)	171.42 (456.93)	168.07 (539.45)	117.33 (655.49)	124.89 (671.17)
Total buildings	5.26 (18.58)	4.1 (12.44)	4.18 (12.9)	4.26 (19.76)	2.02 (12.69)	2.4 (14.67)
Total stories	6.9 (23.97)	5.84 (21.24)	6.11 (22.38)	6.18 (37.17)	2.84 (19.27)	3.46 (23.64)
Avg. Stories	0.39 (0.64)	0.35 (0.63)	0.35 (0.65)	0.32 (0.59)	0.22 (0.51)	0.23 (0.53)

**Notes:** Average values above and standard deviations in parentheses. It is essential to consider that the average area of legalization has historically been 4.5 Ha, and in legalizations, after 2005, the average area is 1.8 Ha. On the other hand, the polygons of the MIB program have an average area of 36.9 Ha.