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The challenge of low-income housing quality in Latin American cities: lessons from two decades of housing policies in Bogotá

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ABSTRACT

In the 1990s the public entities promoting low-cost housing projects in Colombia disappeared. Instead, the state went on to subsidize the acquisition of new homes built by the private sector with a price cap. In Bogotá, more than 20 years later, after an initial boom in low-cost housing construction by the private sector, production and quality of units has been declining while the number of informal units increase. This paper tries to find the reasons for these limited effects of the change in housing policies. For this, we reviewed quantitative data from different reports of the city and independent organizations over the last 20 years. We found that different governments had contradictory objectives for the sector, such as encouraging the production of formal and informal housing at the same time. In addition, they have set unattainable goals and are now more focused on projects that improve public space in informal settlements than on improving the housing supply.

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Introduction

During the second half of the twentieth century, housing production in the largest cities of Latin America did not meet the demand produced by migration, due to poverty and violence in rural areas. The low-cost units built by the public sector were not enough for families without political patronage, very small incomes or unstable jobs in the informal sector. A logical response from migrants was an informal development of new urban neighbourhoods and building homes through self-help. These informal city expansions occurred where land was cheaper because it lacked infrastructure and planning permission, usually on the banks of polluted rivers, in high-slope terrain or flood-prone areas, all areas of high risk to life and property of the poorest families. The public referred to these substandard neighbourhoods as *barriadas*, *callampas*, *barrios piratas*, *invasiones* or *favelas*.

Given the inefficiency of public institutions in the construction of housing in the quantities and costs required, since the 1990s, most countries have adopted housing

policies in which the public sector withdraws from production and focuses on the partial financing of new low-cost units, following a model initially developed in Chile in the 1970s. This model of mixed financing for housing production has been addressed as *Ahorro-Bono-Crédito* (ABC) or ‘Demand-side Subsidies’, it consists on providing funding to low-income families for the purchase of new homes with a price cap built by private developers. The government provides this financing through the combination of a voucher (a.k.a. housing subsidy) and a mortgage loan from private banks, conditioned on small family savings.

Despite the rise of the ABC model, in parallel, most governments of large cities in the region have also engaged with slum-upgrading programs, known as *urbanización, habilitación, desmarginalización* or *mejoramiento de barrios*. These programs focus on improving infrastructure of informally developed areas. For instance, these programs build streets, sewers; provide utilities and property titles to informal occupants.

The investigation to which this paper refers, followed the outcomes of such two approaches in Bogotá during two decades. It was identified that, despite reductions in both quantitative and qualitative housing deficits, there are still sizeable challenges in affordable housing provision, demonstrated by the continuing occupation of rural peripheral lands with informal settlements. Governments have been unable to cope with targets in both new constructions of affordable units and improvement of informal settlements. Instead of improving the supply of housing, local governments have shifted their interest to focus on interventions in the public space with the potential to promote city branding and informal settlements as tourism destinations, following the model established by Medellín (Hernandez-Garcia, 2013). Additionally, if the non-fulfilment of goals becomes common, citizens lose an instrument to monitor and evaluate the performance of their politicians.

Literature review

The two Latin American policy approaches mentioned have been the subject of numerous academic papers. One of the most appropriate sources to summarize the literature is McTarnaghan *et al.* (2016). It analyses more than a thousand academic studies on housing policies in Latin America and the Caribbean. Regarding the ABC model, McTarnaghan *et al.* point out the important achievements in the reduction of the quantitative housing deficit. However, they also mention a set of challenges such as the poverty induced by poor location and quality of subsidized units (2016, p. 48). In terms of slum-upgrading policies, McTarnaghan *et al.* suggest that academic criticism shows that government’s projects frequently do not align with the interests and visions of local communities, and there is no consensus about whether improvement programs result in a real increase of the quality of life of inhabitants (2016, p. 56).

McTarnaghan *et al.* also note that, despite the volume of publications, there is still a lack of evidence with a rigorous production regarding housing problems in the region, which generally focuses on short periods and particular cases (2016, p. 65). Consequently, the authors point out a series of gaps in housing research that constitute opportunities for the future. They call attention to the decrease in housing

affordability – by price or location – that can perpetuate socio-spatial segregation and inequality in access to economic opportunities in the city (2016, p. 56).

In the frame of the ABC program, Libertun de Duren (2018) describes the rationale of developers for building social housing with low quality on urban peripheries of Latin American cities, using the case of Brazil and Mexico. She states that developers' focus on peri-urban areas responds to lower land prices. She found that the real cost savings come from the use of large empty plots to benefit from the economies of scale, building more than 500 units with smaller areas and cheaper materials. The result of this process is the reduction of quantitative deficits, at the cost of increasing qualitative deficiencies of homes. According to Libertun de Duren, in Brazil and Mexico only 20% of all households with deficits need a new housing unit, yet 80% of all housing funds focus on subsidizing the production of new homes.

Alan Gilbert has devoted a good part of his academic research analyzing the housing policies of Latin America. According to Gilbert (2011), the persistence of housing deficits in the region responds to a series of 'myths' that have infiltrated the designers of public policies. We highlight some: Gilbert, for example, indicates that policy makers believe that the housing deficit in the region should reach zero. This purpose is problematic because it focuses merely on numerical indicators, while experience shows that it is very complex to define and quantify the housing deficit (2011, p. 79). Another issue is the widespread fear due to the possible decrease in housing prices, a situation known in the region as *crisis de la vivienda*, or 'housing crisis'. On the contrary, Gilbert suggests that a period of decreasing prices is natural in a housing market, and should rather be a positive situation, because a constant increase in prices relative to average income makes it difficult for the most vulnerable groups to purchase property (2011, p. 82).

Regarding the informal self-built housing, Gilbert suggests that the designers of public policy in the region tend to see informal settlements as 'subnormal' and that the solution to this phenomenon is simply their improvement. The world's experience, according to Gilbert, suggests that not merely infrastructure improvements and land titles solve the problem of substandard housing. It is very difficult to overcome a housing problem when the income of families is precarious and unstable (2011, p. 80). Gilbert argues that even though policy makers promote improvement, they do not seem to believe that self-built settlements can also be 'planned' to host a share of population growth. In the past, there were initiatives called 'lots with services' in which the government collaborated with communities in the development of self-constructed neighbourhoods, initiatives that unfortunately have been abandoned by the lack of political support (2011, p. 85).

A final myth is the large dead capital of informal settlements. According to the theories of De Soto (1989), the answer to housing problems in Latin America consists of informal settlements' legalization and entitling land to catalyse activation of the dead capital represented by self-built housing, so that families can access bank loans. However, Gilbert states that property titles alone do not solve a housing problem because families are very poor to use their self-built homes as collateral for bank loans. Gilbert argues that instead, they prefer to use their homes as a secondary income through renting parts of them to tenants in the informal market (2011, p. 86).

Finally, Gilbert stresses out that the problems of housing policies in the region are accentuated by a style of democratic governance that alternates between governments focused on technocracy and others characterized by clientelism with different approaches to housing policies (Gilbert, 2015). This results in discontinuities of priorities, public projects and programs.

As a response to these challenges, academics have proposed other alternatives to ABC and improvement programs. In some cases, they have called to diversify forms of tenure beyond ownership, such as cooperatives or renting as a way to produce affordable housing (Gilbert, 2016; Torres Ramírez & Pérez Pérez, 2008). In other cases, academics have also recommended incentivizing the renovation of old self-built homes in central areas that are deteriorating. In such way, strategies that allow low-income families to relocate in them could be developed (Ward, 2015). In addition, in the Colombian context the government even implemented programs that directly provided free homes to more than 100,000 families. However, as indicated by Gilbert (2014), these programs had great costs for the government and were unsustainable over time due to their lack of efficiency in the distribution of funds to benefit the majority of the population.

Within this framework, the present paper seeks to strengthen the evidence of housing policies evolution in Latin America, with a profound and long-term analysis of Bogotá's housing programs. As Gilbert, many other researchers have analysed the evolution of Bogotá's housing policy, nonetheless, these studies have focused on particular issues, or in short periods. Among such studies, some have delved into: the evolution of prices (Camelo Rincón & Campo Robledo, 2016; Cuervo & Jaramillo, 2009); the experience of the land bank (Gilbert, 2009; Metrovivienda, 2011); and the quality of housing and urbanism developed by the private sector (Ballén-Zamora, 2010; Escallón & Rodríguez, 2010; Fique-Pinto, 2011; Tarchópulos & Ceballos, 2003, 2005). Other investigations examined growth and improvement of informal settlements (DPU-UCL, 2006; Torres-Tovar *et al.*, 2009), and the rental market (Torres Ramírez & Pérez Pérez, 2008). Beyond, other studies explored the limitations of the deficits used by Latin American politicians, for instance, based on wider concepts such as *House*, *Housing* or *Habitat* to propose a new type of classification for public policies (Jolly, 2010).

Among those reviewed, few studies have focused on analysing a long period while monitoring multiple quantitative indicators. This evidence-based approach may help to understand the performance of all housing programs at the same time and relate results to academic criticism.

Case study

In particular, this work aims to trace 20 years of housing programs in Bogotá, one of the larger cities in Latin America, with almost 7.5 million inhabitants.¹ In the last two decades, the city has implemented different housing programs that aim at subsidizing new low-cost units and therefore limit the growth of informal low-cost housing; But also to provide funds for home and neighbourhood improvement actions in settlements of informal origin. Nonetheless, the informal production of homes

Table 1. Housing qualitative and quantitative deficits in Bogotá 2003–2018.

Data source and methodology for deficit calculations		2003	2005	2007	2011	2014	2017	2018
UN, EM	Quantitative	176,268		145,822	116,531	73,156	69,365	
	Qualitative	147,072		162,124	141,517	95,184	54,518	
DANE, EM	Quantitative					128,590	90,124	
	Qualitative					98,124	56,843	
UN, SISBEN	Quantitative				161,558		142,919	
	Qualitative				105,889		156,912	
DANE, Census	Quantitative		282,678					96,947
	Qualitative		87,197					256,633

Important note: When there is no number it is because there is no data from the consulted sources in the given years.

Source: Own work based on data from DANE and SDHT.

continues. Between 2004 and 2017 the area occupied by informal settlements grew from 2014 hectares to 3769 hectares (Alcalde Mayor de Bogotá D.C. & ONU Habitat, 2019, p. 26). This growth may respond to problems in the formal housing market. Units produced by the formal sector may be priced too high, stand in unattractive locations, or are just too small for many low-income families. These problems in the supply of formal units for purchase are demonstrated in low-income families spending more than 40% of their income paying rents (Alcalde Mayor de Bogotá D.C. & ONU Habitat, 2019, p. 9), and as result, they are increasingly aiming to acquire lots on illegal subdivisions.

The main problems when studying Bogotá's housing policies are the differences presented between data sources and methodologies that measure housing deficits. Table 1 shows the different assessments for both quantitative and qualitative deficits that national and local authorities have published between 2003 and 2018. The first column states data source. The second column shows the type of deficit according to the methodology adopted. The following columns publish the number of families in deficit each year; Note that when there is no number it is because there is no data from such sources in the given years.

Two different methodologies were used to assess the deficits, one developed internationally by the United Nations (UN) and the other developed locally by the Colombian agency for statistics (DANE). There are also at least three data sources to measure housing deficits. First, Bogotá's multipurpose survey (EM), which gathers data from a statistically representative number of households every three or four years. Secondly, data from the national database of households that receive governmental aid, called SISBEN (SDHT, 2017). And thirdly, the national census conducted twice – 2005 and 2018 – in the last 20 years.

The figure shows how these numbers differ greatly between methodologies and data sources. Data from EM with the UN methodology shows a significant reduction in the quantitative deficit while SISBEN data – using the same methodology – shows that reduction has been small in the quantitative deficit and increased in the qualitative deficit. This increase in the qualitative deficit is confirmed by census data: between 2005 and 2018 it grew from about 87,000 units to more than 250,000.

The increase in the qualitative deficit is also confirmed when reviewing data about informal units. Figure 1 follows the number of illegally occupied plots traced and monitored each year by the SDHT using field surveys and data from aerial

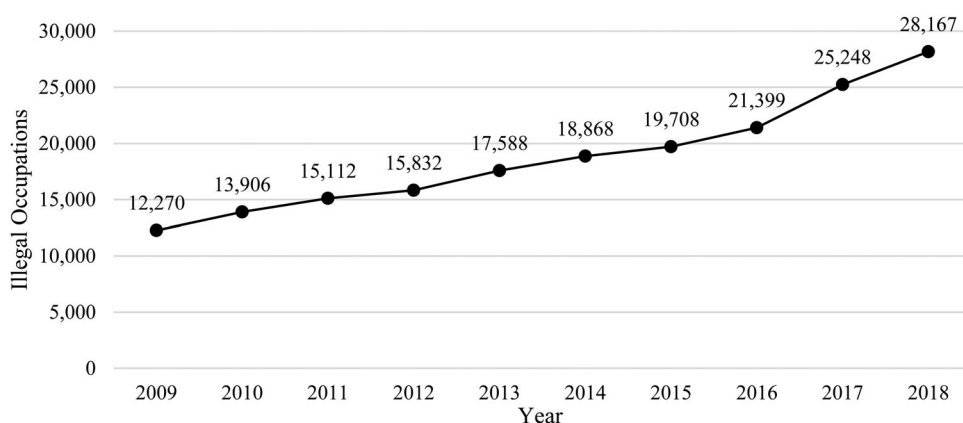


Figure 1. Illegal occupations traced and monitored per year in Bogotá, 2009–2018.

photography between 2009 and 2018. The increasing trend suggests that many impoverished families continuously seek to solve their housing problem in the informal market, most likely because they are unable to purchase subsidized homes or afford rents in the city.

At the end of the last century, there was a radical change in the national social housing policy. Before, the Colombian government directly produced housing for the low-income population through different public entities such as the *Instituto de Crédito Territorial* (ICT), *Caja de la Vivienda Popular* (CVP) and *Banco Central Hipotecario* (BCH). However, in the 1990s the government initiated a set of neoliberal reforms that liquidated or transformed these public entities to prevent the government from directly building low-cost housing projects.

Such reforms sought to follow the Chilean ABC model and set the government only to finance the production of low-cost housing through demand-side subsidies. The rationale was to achieve a greater efficiency and save public resources. Nonetheless, the municipal administrations continued programs of legalization, titling and improvement in neighbourhoods of informal origin that existed before the 1990s, while also working in many others that developed more recently. In the case of Bogotá, nowadays different institutions – coordinated by the SDHT – manage all these programs.

The government continues to tolerate housing informality acknowledging that many households continue to rely on unstable low-paid jobs in the informal sector. As a result, they lack means to save or have access to the formal banking sector. In addition, the cost of land in the city and its surroundings continues to rise and public investments in urban infrastructure are insufficient (Torres-Tovar *et al.*, 2009, p. 42).

Methodology

To carry out the analysis, this study used several sources with quantitative data about public management in the housing sector during six different city administrations, from 1998 to 2018. The quantitative results of the *Plan de Desarrollo Distrital* (PDD)

were addressed first. PDDs contain the Mayor's strategic list of government policy targets and are mandatory in Colombia since 1989 (Law 9 of 1989). The Mayor formulates the PDD at the beginning of each tenure, and includes specific goals that allow citizens to oversight the performance of city management.

Second came non-governmental reports around these same goals and achievements, which were drafted by the NGO *Bogotá Cómo Vamos* (BCV).² BCV developed reports of local administrations since 1998. These reports come from an annual citizen perception survey, and since 2004, through an annual accountability report prepared by researchers from the academic sector. Both the survey and the report include sections dedicated to housing. These sections focus on the perception and results of administrations on issues such as low-cost housing production and legalization and improvement of neighbourhoods of informal origin.

Likewise, BCV reports contain quantitative data pertaining the housing sector provided by the government through different indicators. Some of these indicators are: housing deficit, new housing starts, figures around titling of land in informal settlements, and the resettlement of families located at risk due to landslides or floods. For this paper data from the reports of 2017 and 2018 were considered (Ceballos Ramos *et al.*, 2018, 2019).

Results

Outcomes of policies focused on new construction of affordable units for purchase

These programs deal with the provision of urbanized land and the production of new low-cost housing units suited for the ABC program. Over 20 years, there have been many variations in strategies, sets of goals and achievements. Before analysing the results, it is important to clarify the price range of affordable homes for purchase that apply for the subsidies of the ABC program in Colombia. The price cap is set in number of monthly minimum wages to address the inflationary increase of prices. However, the maximum price of an affordable unit, set in minimum wages, has also been increasing overtime.

Back in the 1990s the city had no clear definition for affordable homes, but the projects financed with public funds had to present units with prices between 50 and 70 national monthly minimum wages (SMLV).³ Starting in 2003, the national government set two official price caps for new units to benefit with demand-side subsidies: 1. *Viviendas de Interés Prioritario* (VIP) with a price cap of 70 SMLVs and 2. *Viviendas de Interés Social* (VIS) with a price cap of 135 SMLVs. These limits remained valid until 2019. However, the national government currently introduced a reform to once more increase caps for VIP to 90 SMLVs, and for VIS to 150 SMLVs in cities with more than one million inhabitants. In both cases, families should have a maximum income of 4 SMLVs to obtain public subsidies.

In addition to the ABC subsidy system, in 1998 the city created a land bank called *Metrovivienda*, which is in charge of acquiring vacant land in peri-urban areas, building streets and providing utilities, and then selling it to private developers for the construction of VIP and VIS new units. In the case of large-scale projects,

Table 2. Summary of indicators in construction of new housing.

Mayoral administration and political affiliation	Goal	Achievements	Success rate (%)
<i>1. Urbanized land provision for the development of VIP and VIS units (hectares)</i>			
1998–2000: Peñalosa I (Centre)	2,160	317	15
2001–2003: Mockus II (Centre)	320	100	31
2004–2007: Garzón (Left)	500	119	24
2008–2011: Moreno-López (Left)	440	224	51
2012–2015: Petro (Left)	470	99	21
2016–2019: Peñalosa II (Centre) ^a	80	67	84
Total 1998–2018	X	926	X
<i>2. VIP and VIS housing unit starts (number)</i>			
1998–2000: Peñalosa I (Centre)	3000	0	0
2001–2003: Mockus II (Centre) ^b	–	7100 ^c	–
2004–2007: Garzón (Left)	70,000	67,145	96
2008–2011: Moreno-López (Left)	74,920	60,831	81
2012–2015: Petro (Left)	70,000	47,017	67
2016–2019: Peñalosa II (Centre) ^a	60,000	30,553	51
Total 1998–2018	X	212,646	X

^aData until the end of 2018.^bThere were not set goals for this period.^cDoes not include units in projects of private initiative.

Source: Own work based on PDD achievement reports and the quality of life report 2019 of Bogotá Cómo Vamos. .

Metrovivienda also managed the project's master planning by means of a policy tool known as *Plan Parcial* (PP).⁴ In the period 1998–2015 Metrovivienda only worked on undeveloped land, but starting 2016 and facing shortages of low-cost lands zoned for urban expansion, Metrovivienda merged with the city's Urban Renewal Company (ERU) to acquire land within the city limits to develop affordable units.

Table 2 has two parts. The first one approaches provision of urbanized land for the development of VIP and VIS units. It identifies goals and achievements of each city government in supplying urbanized land suitable for the development of social housing. In these results, it was observed that the land provided presented significant fluctuations between administrations. There were periods with a higher provision such as 1998–2000 (Peñalosa I) that achieved 317 hectares, and 2008–2011 (Moreno-López) that achieved 224 hectares. However, in the other administrations land provision was lesser, around 100 hectares per Mayoral term. The fulfilment of goals is in general very poor, each administration set unattainable targets, not taking into account the great heterogeneity in the shape and size of lots and diversity of owners, all these factors made development much harder.

Table 3 aims to explain these goals and achievements fluctuations. It names and describes the most important large-scale housing projects in the period of study. For each project, the table shows the number and type of subsidized units, the year approved and the start of construction, specifying also whether the initiative of the project was from the city, the national government or private development companies. The table evidences that Metrovivienda, the public land bank, managed the larger and older projects: *Ciudadela El Recreo* (2000), *PP Ciudadela El Porvenir* (2002), and *Ciudadela Nuevo Usme* (2001). They sum up more than 35,000 units and explain the good results of the first administrations. On the other hand, the success of the later period (2008–2011) may be explained due to the management of two other large projects: *PP Tres Quebradas* (2009) and *PP Campo Verde* (2011) – although in practice, *PP Tres Quebradas* had many legal conflicts that prevented starting its construction.

Table 3. Highlighted affordable housing projects in Bogotá 1998–2018.

Project's name	VIP (#)	VIS (#)	Total (#)	Year approved	Year building starts	Initiative
<i>Projects located in the southern peri-urban areas</i>						
PP Ciudadela El Porvenir	21,164	0	21,164	2002	2004	City
Ciudad Verde ^a	10,500	10,500	21,000	2009	2011	National
PP Tres Quebradas	10,816	2720	13,536	2009	Not started	City
Ciudadela El Recreo	11,623	0	11,623	2000	2002	City
PP Campo Verde	6129	0	6129	2011	2014	City
PP San José de Maryland	1199	4095	5294	2013	2015	Private
Ciudadela Nuevo Usme	4325	0	4325	2001	2009	City
PP Finca El Recreo	0	3700	3700	2004	2005	Private
PP La Palestina	715	2858	3573	2010	2017	Private
PP San Ignacio	0	3033	3033	2007	2008	Private
<i>Projects located in central areas</i>						
Plaza de la Hoja	457	0	457	2014	2015	City
Victoria Parque	93	217	310	2015	201	City
					6	

^aProject in neighbouring city of Soacha.

Source: Own work based on data from Metrovivienda (2011), Consuegra *et al.* (2015), Acosta Restrepo and Henao Padilla (2011).

Recent governments had lower achievements, around 100 hectares per Mayoral term, most likely because they relied more on private developers initiatives facing a weakened land bank. Developers can also buy unused land to formulate PPs for subsidized units in cooperation with the city, these processes are faster, but the scale of the projects is smaller. It is important to highlight the larger privately managed projects, such as the *PP San José de Maryland* (2013) with more than 5000 subsidized homes; *PP Finca El Recreo* (2004); *PP La Palestina* (2010); and *PP San Ignacio* (2007), with more than 3000 homes each. Another downside of private initiatives is that these projects produce more VIS units – which have a higher cost – and are therefore not accessible to the lowest-income families.

In Table 3, other smaller projects not managed within the standard practices were included. In the first place, *Ciudad Verde* (2009), built in the neighbouring city of Soacha, that adjoins Bogotá to the south-west is underlined. In this case, the national government of rightist president Álvaro Uribe (2002–2010) made the initiative. He introduced a reform called ‘Social Interest Housing Macro-projects’. This new law allowed the national government to formulate housing projects directly, on top of local zoning and norms. Due to its scale of around 21,000 homes and its proximity to Bogotá, *Ciudad Verde* supplied the demand for low-cost housing in the city.

The displacement of production of low-cost housing to neighbouring municipalities is an increasing trend. According to data from the SDHT between 2005 and 2010, there was an annual average of 2915 subsidized units built in neighbouring municipalities, whilst between 2011 and 2016 the number increased to 14,396 (Alcalde Mayor de Bogotá D.C. & ONU Habitat, 2019, p. 26). Soacha and other neighbouring municipalities are part of an unplanned conurbation process with Bogotá. From such phenomenon derive social, economic and political problems due to the absence of adequate planning at all levels: municipal, departmental and national. For instance, Soacha does not have the facilities, roads, transit lines, nor financial capacity of Bogotá, but each year receives an increasing number of families that work in Bogotá.

Nonetheless, the Ciudad Verde macro project advanced without considerations to the situation described. Only in 2013, a new BRT line connected Soacha with Bogotá, but its closest trunk station is still more than 2 km away from Ciudad Verde, served only through crowded feeder buses. As result, many people must spend an average of three hours a day to get to work and back home (Lopera-Pérez & Moncada-Sánchez, 2017).

On the other hand, during the leftist administration of Mayor Petro (2012–2015), city strategies changed towards subsidizing, not only homes but also the land where they sit-on, building on public properties. This new strategy allowed the development of low-cost housing projects in central areas connected to transit, but available land was smaller and scarce. From this initiative emerged projects such as *Plaza de la Hoja* (2014) and *Victoria Parque* (2015), both in the centre of the city, adjacent to BRT stations. Nonetheless, limitations for the use of public lands made these projects much smaller, only building between 300 and 500 VIP and VIS units.

At this point, public controversy regarding these projects arose between Mayor Petro and the Minister of Housing, Germán Vargas Lleras. The Minister viewed such projects as a waste of public resources, he preferred to finance larger social housing projects in the peripheries. As a way to attack Petro's views, Vargas Lleras removed from a new housing law (Decree 1077 of 2015) the compulsory percentage of land allocated for social housing in urban renewal projects inside Colombian cities. Later, the next centrist administration of Peñalosa – elected with the support of Vargas Lleras – did not continue with Petro's program.

The second part of Table 2 shows the achievements in subsidized housing starts, including both public and private financed projects. In the table it is possible to observe that housing starts is the only indicator where city governments have been closer to meet their targets – at least between 2004 and 2011. These two leftist administrations achieved more than 60,000 VIP and VIS units in their terms. That was also the apogee of the public land bank (Metrovivienda), while governments that are more recent achieved much less, with a declining Metrovivienda that eventually disappeared in 2016.

To further understand these results, Figure 2 shows three fluctuating curves that state the number of housing starts in the city each year by type of units, subsidized, not subsidized and total. When analysing the curves, a clear relation of subsidized housing starts with the overall climate of the construction sector in the city may be identified. The housing market in the city was booming between 2004 and 2011 – with the exception of the global crisis of 2009 – however, since 2012, as the real estate market has become colder, the production of both subsidized and not subsidized units has decreased. In 2018, it is at its lower pace since 2005, in spite of increasing funds allocated nationally to demand-side subsidies.

Outcomes of policies focused on the improvement of informal settlements

Table 4 does a follow-up of goals and achievements of the different strategies that deal with upgrading informal settlements. It compiles data from four different programs: resettlement of families in risk-prone areas, legalization of settlements, titling of properties and improvement of neighbourhood infrastructure. The four programs

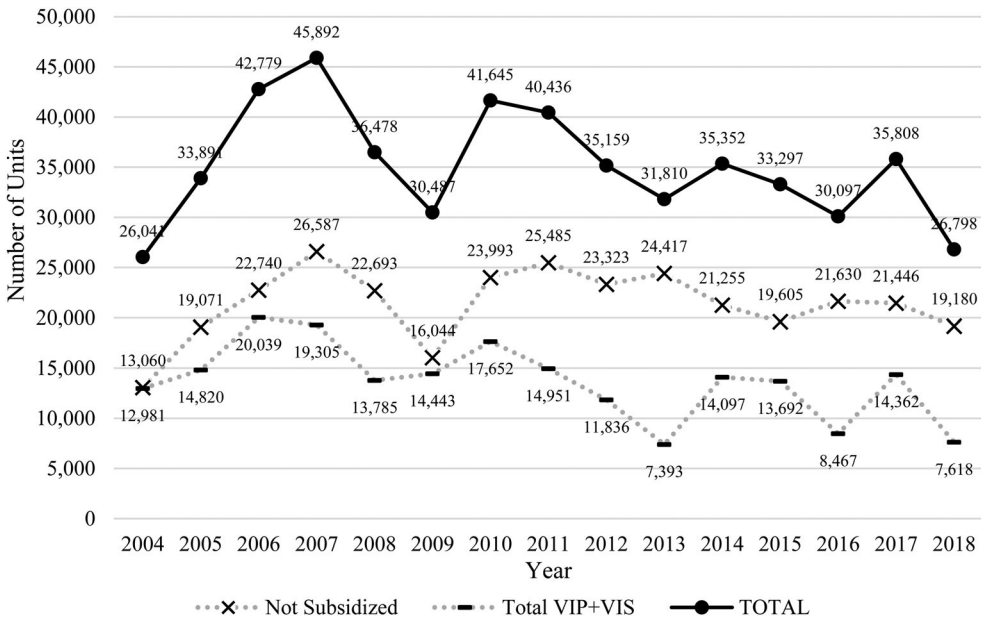


Figure 2. New housing starts in Bogotá per type of unit 2004–2018.

addressed connect in the following way: First, the government identifies informal settlements and determines if they are located on risk-prone areas. If they are at risk, families start a resettlement program. If they are not, the settlements enter the second process: their legalization to become formal city neighbourhoods. In a third step, families located in legal neighbourhoods can access individual property of the land they occupy. In the fourth and final step, the government carries out programs to improve home structures – generally built without following the city’s construction regulations.

For the resettlement of families located in risk-prone areas, two entities within the city government are in charge. First, the Institute for risk management (IDIGER) is responsible for identifying families located in areas vulnerable to natural disasters, such as landslides, floods and torrential water flows caused by heavy rains. Based on this database, the CVP proceeds to relocate these families. The CVP recognizes a monetary amount to compensate families for the land they occupy, and then, adds up the vouchers from the ABC program to fund new homes for these families in another area.

Table 4 shows the quantitative goals and achievements of each government or Mayoral administration in the four programs. The establishment of the target depends on the number of families that IDIGER identified as vulnerable to natural hazards. These have fluctuated between 2000 and 4500 households per Mayoral term. Despite the efforts, the table evidences that no government has managed to get close to meeting the targets and solve the problem definitely. On average, each government has relocated about 550 families per year, summing up 9703 families in 20 years, which means an achievement rate of only 50% of the goal on average. Therefore, occupation of risk-prone areas by homeless families continues every year. According

Table 4. Summary of goals and achievements of improvement programs.

Mayoral administration and political affiliation	Goal (#)	Achievements (#)	Success rate (%)
<i>1. Families in risk-prone areas resettlement (number)</i>			
1998–2000: Peñalosa I (Centre)	2000	1423	71
2001–2003: Mockus II (Centre)	3860	1108	29
2004–2007: Garzón (Left)	2500	1501	60
2008–2011: Moreno-López (Left)	4545	3134	69
2012–2015: Petro (Left)	3232	506	16
2016–2019: Peñalosa II (Centre) ^a	4286	2031	47
Total 1998–2018	X	9703	X
<i>2. Settlements of informal origin legalization (hectares)</i>			
1998–2000: Peñalosa I (Centre)	–	N/D	–
2001–2003: Mockus II (Centre)	–	133	–
2004–2007: Garzón (Left)	–	339	–
2008–2011: Moreno-López (Left)	–	67	–
2012–2015: Petro (Left)	–	41	–
2016–2019: Peñalosa II (Centre) ^a	–	40	–
Total 1998–2018	X	620	X
<i>3. Titling of properties located in settlements undergoing legalization (number)</i>			
1998–2000: Peñalosa I (Centre)	2400	1151	48
2001–2003: Mockus II (Centre)	5000	4556	91
2004–2007: Garzón (Left)	50,000	1331	3
2008–2011: Moreno-López (Left)	6000	5123	85
2012–2015: Petro (Left)	6000	3757	63
2016–2019: Peñalosa II (Centre) ^a	10,000	4191	42
Total 1998–2018	X	20,109	X
<i>4. Improvement of housing structures in settlements undergoing legalization (number)</i>			
1998–2000: Peñalosa I (Centre)	–	N/D	–
2001–2003: Mockus II (Centre)	5000	737	15
2004–2007: Garzón (Left)	10,000	448	4
2008–2011: Moreno-López (Left)	10,000	3387	34
2012–2015: Petro (Left)	3000	1531	51
2016–2019: Peñalosa II (Centre) ^a	–	N/D	–
Total 1998–2018	X	6103	X

^aData up to the end of 2018.

Source: Own work based on government achievements reports and the quality of life reports of Bogotá Cómo Vamos (2019).

to data from IDIGER, in 2015 there were still 8233 families living at risk, and between 2015 and 2018, yet 507 new families settled in such areas, close to 130 per year.⁵

Settlements that are not located on risk-prone areas enter a program called *Legalización de Barrios*, or simply ‘legalization’. This program includes the mapping of settlements to enter the official city registry, and the identification of investments needed for their upgrade, such as utilities infrastructure (power, water and sanitation), roads and parks, and the official delineation of plots for their subsequent titling to each household. In this process, the CVP and the city planning office (SDP) collaborate.

The city measures the results of the legalization of informal settlements by the area in hectares that the city officially incorporates. Based on the documents, none of the Mayors has established clear goals in this program. However, Mayors are compelled to report the incorporated areas to the monitoring system defined by the so-called *Acuerdo 067 de 2002* (Agreement 067 of 2002). This database indicates that, in total, 620 hectares of informal settlements were legalized between 2001 and 2018 (for 1998–2000, no data in hectares was found, only in number of neighbourhoods, which reached 368).

Table 5. Improvement programs undergone by the different city administrations (1998–2019).

Mayoral administration	Highlighted program
1998–2000: Peñalosa I (Centre)	<i>Programa de Desmarginalización</i> : Building of roads, bridges, parks, utility infrastructure, health and education facilities.
2001–2003: Mockus II (Centre)	<i>Obras con Saldo Pedagógico (OSP)</i> : A program developed in his first mayoral term. Public bid for community-based initiatives of public space improvements
2004–2007: Garzón (Left)	<i>Mejoramiento Integral de Barrios</i> : Coordinated legalization, titling and home improvement programs
2008–2011: Moreno-López (Left)	<i>Áreas Prioritarias de Intervención (API)</i> : Coordinated legalization, titling and home improvement programs in strategically designated areas
2012–2015: Petro (Left)	<i>Mejoramiento Integral con Cultura Participativa</i> and <i>Barrio de Colores</i> : Continuation of the API program plus an experimental improvement program aligned with community initiatives in the <i>Chiguaza</i> area. Introduction of the facade embellishment program <i>Barrio de Colores</i>
2016–2019: Peñalosa II (Centre)	<i>Intervenciones Integrales de Mejoramiento (IIM) y Habitar</i> : Continuation of the API program accompanied by its renaming IIM. Enhancement of the facade embellishment program, rebranded as <i>Habitar</i>

Source: Own work based on PDD achievement reports (Acosta Restrepo & Henao Padilla, 2011) and the quality of life reports of Bogotá Cómo Vamos (2019).

The numbers show that from 2001 to 2007 the informally developed area incorporated by the city was quite large, nonetheless, there are many settlements still left behind. According to data from the CVP, in 2018 on the peri-urban areas of Bogotá there were 149 hectares occupied by settlements pending legalization, these are home to thousands of families without access to proper water, sanitation or roads.⁶

On the other hand, programs that seek to improve legalized informal settlements are far more difficult to assess regarding targets and goals through quantitative indicators. As a response, Table 5 was developed. It highlights the various programs implemented by each city administration and their differences. The aims were to describe – in a few words – the most important project undergone by each Mayoral administration. According to the table, there are more continuities than breaks in improvement strategies. The programs of the different city administrations are, generally speaking, the same one – sometimes with different names: to select strategic areas for a coordinated intervention with resettlement programs, relocation of families at risk, legalization, titling and housing improvement. Currently informal origin settlements in Bogotá are almost fully serviced with utilities and their conditions are much better than in similar areas in other Colombian cities and in Latin America, proving the success of the continuity of these programs along different Mayoral administrations.

Besides the improvements, two innovative strategies seem to stand out in the 20-year period evaluated. First, there was a rising concern for implementing neighbourhood improvement programs that align with communities' visions and incentivize public participation. The main example of a program that sought to address this need is *Obras con Saldo Pedagógico* (OSP) 'Public Works with a Pedagogical Profit' implemented by Mayor Mockus in his first term (1995–1997). This program financed

neighbourhood-level public space interventions in a public bid restricted to local community organizations. The Mayor aimed to ‘teach’ neighbours how to draft a project for a public bid, while developing public spaces that effectively generated a strong sense of belonging (Ceballos Ramos, 2008). Despite its innovations, the program did not have continuity and a program known as *Eco-barrios* replaced it. *Eco-barrios*, however, was more focused on improving relationships among neighbours, with programs of conflict resolution and spiritual life.

The second innovative improvement program since 2012 is the embellishment of facades through painting with bright colours and muralism. This program, first known as *Barrio de Colores*, and then as *Habitarte*, intervenes the facades of informal settlements in two ways. First, through micro-murals in specific walls, showing cultural and historical values of each neighbourhood. Secondly, through “macro-murals” or large-scale interventions, and supposes painting all the facades of a neighbourhood in a coordinated manner to create a work of art that people observe from a distance. These initiatives took large public budgets and became the picture to show off used by governmental advertisement campaigns, inside and outside informal neighbourhoods, nonetheless, their results – beyond aesthetics – are difficult to assess.

Conclusions and final remarks

The present paper analyses the outcomes of two approaches to affordable housing policies in Bogotá during the last two decades. The first aimed at producing low-cost housing by partial public funding of units built by private developers with a price cap, using demand-side subsidies. The second centred in the legalization and improvement of neighbourhoods of informal origin. Documents such as governmental and independent public management accountability reports were reviewed. This section seeks to identify some conclusions and remarks from the study while comparing the outcomes of these approaches with other practices worldwide.

The first finding suggests that overcoming the quantitative deficit did not solely respond to policies aimed at encouraging the formal sector’s production of new low-cost housing but also, to a large extent, to the legalization of informal settlements. According to the data obtained by this project, in Bogotá the formal sector incorporated 926 hectares of land to the city in the period 1998-2018, whilst the city legalized 620 hectares of land occupied by informal settlements. According to this, the informal sector may have contributed to at least 40% of new land to cope with the housing shortage. In addition, there is a growing supply of informal rental units produced by vertical expansions of self-built houses in legalized informal settlements. Data from the EM of 2017 shows that in southern localities – which gather most of informal settlements in Bogotá – almost half of the population live in rental accommodation, i.e. Ciudad Bolívar with 48%, Usme with 47% and Bosa with 46%. According to official figures (Ortíz, 2019), between 2012 and 2016 the city’s planning office identified more than 10 million square meters of illegal expansions made on houses, most of them, in settlements of informal origin. These may correspond to more than 30,000 new units added yearly to the city’s housing market in the shadow, a figure that could also compromise the methods used to measure housing needs.

In terms of low-cost house construction initiatives of private developers, results in housing production were high in the 2000s but have been decreasing in recent years. In the 2005–2011 period, there were between 15,000 and 20,000 VIP and VIS starting construction per year, but since 2012, this figure has decreased to an average 14,000, a couple of years have statistics below 10,000. This decrease may respond to a larger crisis in the real estate sector. High costs of both land and housing may have been causing such crisis, but also overproduction of housing and decreasing demand. It is important to determine the real causes of the crisis since these may lead to a change of focus in policies and a reorientation of public funds.

In respect to improvement of settlements of informal origin, authorities use the traditional model of legalization, property titling and home improvement policies that date back to the 1970s. In 20 years, there were few innovations in upgrading schemes. It is important to highlight the embellishment of facades program that has received large media attention, but its evidence-based contributions are still insufficient. It is also worth mentioning the OSP program, aimed at effectively integrating community initiatives into large-scale upgrading programs. However, apart from the OSP program, governments have done little to achieve greater participation of communities and private sector for upgrading neighbourhoods with low-income population.

As stated before, Bogotá grew in the last two decades at least 40% by the means of informal settlements. This brings forward great challenges for authorities. First, many of these informal settlements continue to locate on risk-prone areas. In 20 years, the government has managed to relocate around 10,000 families but there are still about 8000 located at risk, increasing at a rate of more than 100 families per year. Secondly, the improvement of self-built homes also seems to be an unattainable goal. In 20 years, the government improved around 6000 houses in legalized settlements, while the qualitative deficit may be more than ten times more.

The aforementioned results support the findings of McTarnaghan *et al.* (2016) and Gilbert (2011), in relation to the new challenges of the housing sector in Latin America. Specifically, regarding the now primarily peri-urban location of both legalized informal settlements and new formal subsidized housing. On the other hand, they also support the view that states that the formal building sector through the ABC program has been unable to eradicate informal urbanization.

While the demand-side subsidies and improvement programs have dominated housing policies in Latin America for decades, other regions of the world have made different approaches. For instance, data gathered in this investigation allows a comparison between the outcomes of Bogotá and the city-state of Singapore. To confront its housing problem, since the 1960s Singapore approximated development by establishing the Housing & Development Board (HDB). As a public institution, the HDB bought land and built housing for middle and low-income Singaporean families.

Around the year 2000, Singapore overcame its housing deficit with top quality apartments in planned compounds connected to public transit. It has become perhaps, the best housing management practice in the world. According to Phang (2007), between 1970 and 2000 the HDB built 726,511 affordable units in Singapore,

with a rate of almost 25,000 units per year. From 2004 to 2018, the ABC program in Bogotá achieved to start 205,546 affordable units, an average rate of about 15,000 per year, only about two thirds of Singapore accomplishments, with a slightly larger population.

However, there are large differences between Bogotá and Singapore. Colombia is a presidential constitutional Republic while Singapore is a dominant-party parliamentary Republic. This means that the role of the State in housing in Bogotá remains much more limited. For instance, Bogotá has a yearly budget of about 79 million USD⁷ for all the public entities of the housing sector, while the HDB of Singapore manages 674 million USD in operations and investments each year, more than eight times more.⁸ Singapore is also a much wealthier city, it has a GDP per capita of 65,233 USD⁹ while Bogotá has a GDP per capita of 10,896 USD.¹⁰ More resources and the primary role of the State in Singapore may have led to its success in its housing policy in relation to those undertaken in Bogotá, where the private sector has a much more prevalent role.

In sum, results suggest that public housing interventions in this context must improve in the future. With a reduced quantitative deficit, the public sector should focus more on improving the quality of existing homes and neighbourhoods. New types of subsidies may be developed. For instance, focused on bringing low-cost housing to other city areas, and incentivizing the filtering of used units – perhaps through subsidies to pay the rent of low-income families in higher income areas–. On the other hand, neighbourhood improvement programs should change their focus and maybe leave aside small-scale public space improvements – such as muralism – to be able to emphasize on programs that efficiently catalyse private investment and local economic development.

Finally, the results of this study seem to suggest that informality, despite its benefits, also produces other problems. Perhaps governments should re-evaluate the types of support the State provides to informal urbanization.

Notes

1. Data from the results of the *Censo Nacional de Población y Vivienda 2018*. (Available at <https://www.dane.gov.co/index.php/estadisticas-por-tema/demografia-y-poblacion/censo-nacional-de-poblacion-y-vivienda-2018>, [Accessed September 2020]).
2. BCV was founded in 1997 as an alliance between the private sector, the media and one of the city's Universities (Pontificia Universidad Javeriana) to improve accountability of local administrations and promote transparency in the results of management. Their ultimate aim is to improve information available to citizens for the election of their local governments. This model has been very successful and has been replicated, first in the main cities of Colombia, and recently in other cities in Latin America. All BCV reports are available at <http://www.bogotacomovamos.org/>
3. In 2019, one SMLV corresponded to approximately \$250 USD.
4. PPs are planning tools akin to the Planned Unit Development (PUD) used in the United States. Their goal is the fair distribution of infrastructure costs and benefits from land valuation between the city and private developers.
5. This information was obtained from the *Plan de Desarrollo Distrital 2016–2019 'Bogotá Mejor Para Todos'* (p. 569), and data provided by the IDIGER to BCV in 2019.
6. Data provided by the SDHT, Subdirección de Barrios to BCV in 2018.

7. Calculations were made based on SDP, Programación y Seguimiento a la Inversión, available at <http://www.sdp.gov.co/gestion-a-la-inversion/programacion-y-seguimiento-a-la-inversion/seguimiento>, (Accessed September 2020).
8. Calculations were made based on HDB's Annual Reports, available at <https://www.hdb.gov.sg/cs/infoweb/about-us/news-and-publications/annual-reports> (Accessed September 2020).
9. Data from The World Bank available at <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=SG> (Accessed September 2020).
10. Data from Invest in Bogotá available at <https://en.investinbogota.org/why-bogota/general-facts-and-figures-bogota> (Accessed September 2020).

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No potential conflict of interest was reported by the authors.

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