

Rio de Janeiro Residents Associations and Recent Favela Real Estate Trends

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**Lincoln Institute of Land Policy
Working Paper**

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Lincoln Institute Product Code: WP13GS1

Abstract

Favelas in Rio de Janeiro have been targeted by public policies in the last four years designed to improve quality of life through improved public safety, transportation, housing, and social infrastructure. This paper analyzes real estate pricing data in seven favelas with wide geographic distribution, topographical situation, and public policy presence. Socio-economic indicators are correlated with a spatial descriptive analysis and hedonic regression to create a price index and suggest contemporary trends in Rio's informal real estate market in the context of the city's larger property boom.

Keywords: favelas, informal markets, real estate prices, Rio de Janeiro, UPP, Morar Carioca

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Rio de Janeiro Residents Associations and Recent Favela Real Estate Trends

Introduction

With over a century of history, the favelas of Rio de Janeiro have long provided an affordable housing option for the city's urban poor. Due to both natural and built environment features, however, the supply of land in any given favela is finite. Topographical factors, such as location on a steep hillside or alongside a body of water, coupled with manmade boundaries—from adjacent, dense, formal or informal neighborhoods to urban infrastructure like roadways and railroads—create conditions that limit favelas' geographical expansion. While there is some degree of vertical growth, especially in older favelas, it is usually at a generational pace, as parents build a new housing unit on top of the current one for a child's family. High-rise condominium or apartment building styles, the default housing type in Rio's formal sector, are not present even in flatter favelas, as it is difficult to acquire the necessary capital to finance such construction, not to mention likely intervention from state regulatory authorities. In favelas with a particularly close proximity to jobs, houses may be subdivided into smaller units known as kitchenettes for single workers or couples with small families. Ultimately, however, most favelas have an existing, finite housing stock that transacts on a vibrant, if informal, real estate market, where houses change hands even if the squatted land underneath does not.

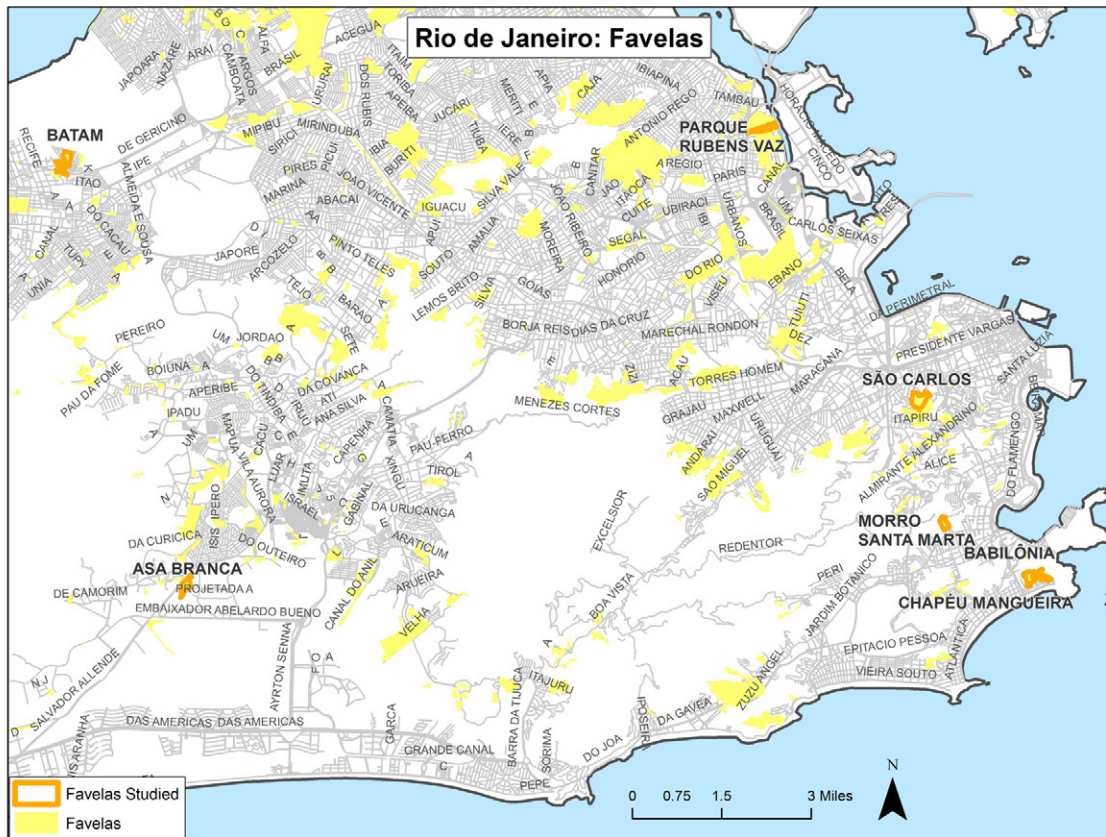
This paper investigates current trends in the informal real estate market by analyzing records from seven favelas dispersed across the city. Although many such transactions are sealed on a handshake, there exists a formal mechanism in this informal market. Residents' associations, which have "*fê público*" (public faith) to conduct internal community business and serve as external mediators with the government, register real estate transactions, usually for a fee in the case of a sale, and for free in the case of a donation, subdivision, registration of ownership, or other service. The president of the residents' association in question signs the document, which is locally recognized in the case of any ownership dispute, and can also serve as a bulwark against eviction in the case of public infrastructure programs that appropriate land. These benefits, as well as the trappings of legality that having such a document provides, incentivize many residents to pursue this method of registering their real estate transaction. Given their long history and strong local reputation, residents' association records thus represent a largely untapped, if uneven in quality and consistency, source of data on Rio's informal real estate market.

As Rio de Janeiro undergoes a historic boom in property values, some of which is driven by public interventions in the informal sector, it is of great interest to better understand the impact of new public policies on the informal market, where anecdotal evidence already suggests that changes in real estate values are affecting the socio-spatial dynamic of some favelas. There is a constellation of oftentimes complementary and codependent infrastructure, security, and social service programs underway in Rio's 763 favelas, home to 1,393,314 people, 22.03% of the city's population, as Rio prepares to enter the world's spotlight during the 2014 World Cup and 2016 Olympic Games (IGBE, 2010). Many of these policies, in addition to affecting the value of favela real estate, have required the indemnity of existing residents for land appropriation or to

remove residents from areas deemed unsafe. A better understanding of the informal market would thus assist policymakers in more fairly assessing the value of such properties. Moreover, with increased government presence in favelas through these programs, long-term goals, like land tenure regularization, are becoming more realistic. Thus, more knowledge of the quality and completeness of residents' association property transaction records, as well as the institutional capacity of such organizations, help project their future role in such programs.

In order to better understand both qualitatively and quantitatively the real estate data maintained by residents' association in Rio de Janeiro's favelas, the researcher conducted three months of fieldwork in Rio. He worked in a study selection of seven favelas with wide geographic distribution, topographical situation, and public policy presence: Asa Branca, Babilônia, Batam, Chapéu Mangueira, Maré-Parque Rubens Vaz, Santa Marta, and São Carlos-Mineira. The research was performed through semi-structured interviews, firsthand observation during business hours, and extensive computerized data entry of paper records. The end results provided a more nuanced understanding of how residents' associations functions vis-à-vis real estate transactions and recordkeeping, and indicated some positive trends in favela real estate changes over the last decade.

Figure 1: Geographical Location of Study Sites in Rio de Janeiro



Map: Arthur Acca-Pidolle

Literature and Historical Review

Residents' Associations

There is an extensive academic literature in a cross-section of the social sciences on Rio favelas' socio-political organization and their relationship with government. After decades of official neglect or active eradication, the state made overtures to addressing the problems of favelas starting in the 1950s through an agreement with the Catholic Church (Segadas, 1989). In the early 1960s, the Lacerda state government administration sanctioned the creation of 80 favela residents' associations (Ibid) to serve as "the internal arm of local authority, the liaison between the community and the government and the voice of the favela community in public matters" (Perlman, 2010). The state government and the new associations signed agreements that led to water and electricity service, investments that encouraged the first masonry construction (Segadas, 1989). By 1963, there was already a supra-association organization, the Federation of Favela Associations of Guanabara State (Faferg), which later became the Federation of Favela Associations of Rio de Janeiro State (Faferj). Since the associations' inception, the state limited their political function—they would not have party affiliation, for example—and focused on an administrative role to mediate the implementation of such improvement programs at the government's discretion (Machado, 1967, 2011).

The 1964 coup d'état that established the Brazilian military dictatorship, and the 1968 hardening of that regime, further subsumed residents' associations into the state apparatus, as they were placed under the auspices of the State Secretariat for Social Services, which only recognized a single association in each favela. During this period, associations were largely toothless as removal policies were carried out, destroying 60 favelas and displacing upwards of 100,000 residents (Segadas, 1989; Machado, 2002). Candidates for office had to acquire an attestation from the State Security Secretariat in order to be vetted for election (Machado da Silva, 2002). The changing political conditions limited the agitation for improved services that had defined the more active and organized associations earlier in the decade (Perlman, 1976).

By the end of 1970s, residents' associations had a strictly clientelistic relationship with the government, agreeing to provide votes in the token elections that the military dictatorship had begun allowing. However, the softening of the dictatorship also spurred civil society to action, and parallel residents' associations, as well as a newly reconstituted Faferj, organized themselves. With redemocratization, however, residents' associations were ultimately caught up in an extenuated form of clientelism, trading votes for promises of improved urban services (Gay, 1993; Nascimento, 2007). They were also beset by a new series of actors, from the pernicious influence of narco-trafficking organizations to the more benign involvement of NGOs (Grynszpan, 2004). In many cases, narco-traffickers disrupted the nascent democratic evolution of these organizations by co-opting them and installing their own, loyal presidents who must negotiate with the whims of the armed faction that controls the community (Perlman, 2010; Silva & Rocha, 2007). That said, exceptions to domination either by narco-traffickers or the more recent phenomenon of extortionist militias can be found across Rio (Silva & Rocha, 2007).

Public Policies

The arc of government attitude toward favelas has changed completely over the course of the 20th century and accelerated in the early 21st century. From favelas' birth in 1897 as a response to a broken government promise of housing in exchange for military service, they have been considered alternatively as a visual stain on the city's landscape, a public health threat, and dens of criminal behavior and political subversion. The 1937 Federal District Building Code (at the time, Rio was the capital of Brazil) formally declared all favelas illegal and announced demolition as the official policy response to their existence (Silva and Barbosa, 2005). Other than the aforementioned brief interlude of Church and state-sponsored improvements in the 1950s and early 1960s, this policy was maintained until the 1980s, when political liberalization resulted in the first direct gubernatorial elections in 20 years. Under the Brizola administration, whose electoral base drew heavily from favela residents, the first in a long and ongoing series of infrastructure upgrades were made in water and sewer hookups (Proface, organized by the water utility), trash collection (Comlurb na Favela, organized by the municipal trash collection agency), and public lighting (Programa Luz, organized by the electricity utility) (Machado, 2002; Burgos, 2004; Nascimento, 2007). There was also a first attempt at land regularization, Cada Família, Um Lote (For each family one plot of land), which only reached 3.5% of its 400,000 family goal (Cavallieri, 1986; Araújo, 1989).

In the mid-1990s, the City of Rio de Janeiro signed an agreement with the Inter-American Development Bank (IDB) to fund the Programa de Urbanização e Assentamentos Populares (Urban Upgrading and Social Housing Program—Proap), also known as Favela-Bairro (Favela to Neighborhood). The end result were two five-year phases, whose total invested value exceeded US\$600 million, focusing on physical infrastructure improvements, such as road, alleyway, and footpath paving; water, sewer, and electricity connections; recreation, sports, educational, and leisure facilities; and public space improvements (Brakarz et al, 2002). Favela-Bairro was widely praised, especially abroad, and received numerous urban planning and innovation awards. It was accompanied by another land tenure regularization program, Programa Morar Legal (Live Lawfully Program), which regularized 24,000 households (SMU, 2005). A parallel upgrading effort focusing on favelas with 100–500 households, Bairrinho (Little Neighborhood), followed the Favela-Bairro methodology at a smaller scale (Costa et al, 2004).

Favela-Bairro efforts continue in a third phase with IDB funding in a program known as Morar Carioca (Living Like a Carioca), which is Rio's social legacy for the 2016 Olympic Game. Administered by the Municipal Housing Secretariat, the program purports to upgrade all favelas in Rio by 2020 (EPA, 2012); however, the initial round of funding only covers 30 favelas and six “loteamentos irregulares” (irregulated settlements) through a US\$150 million loan. The end results should include land title regularization for 18,000 households with the issuance of 3,000 property titles (IDB, 2010). Complementary to Morar Carioca, the Municipal Public Works Secretariat is overseeing the Bairro Maravilha (Marvellous Neighborhood) program, whose street and sidewalk paving, tree planting, sewage, and drainage efforts include both favelas and formal neighborhoods that have been historically neglected by municipal authorities, particularly in the North and West Zones (UPP Social, 2011). Finally, the federal government's Accelerated Growth Program (PAC) has, in two phases, built large-scale transportation infrastructure (aerial

cable car, high-capacity elevator), public facilities like libraries, and new public housing in selected favelas.

Much of this most recent infrastructure investment has been facilitated by a major change in the socio-political order of Rio's favelas. Beginning in 2008, police units under supervision of the State Security Secretariat have, with Special Forces and sometimes military assistance invaded favelas run by narco-traffickers with overwhelming force and established a permanent police presence. Known as Pacifying Police Units (UPP), the program has 26 units, including all of the favelas in the South Zone, Tijuca, and downtown areas, as well as large, high profile favelas in other parts of the city, serving a total population of 295,415. It is anticipated to expand to 40 units by 2014. The most recent research—only one full-impact study has been conducted thus far—affirm anecdotal reports that violent crime, particularly homicides, have decreased with the UPP, while non-violent crime has increased, perhaps a function of increased reporting. While UPP continues apace, its parallel effort to diagnose and connect newly pacified favelas with municipal services, UPP Social, has suffered from a lack of resources and authority to make decisions after being demoted from state government to municipal aegis. Thus, concerns that the provision of social services is not keeping pace with policing efforts remains a major concern as the UPP program expands (Cano, 2012).

Informal Markets

The existing literature on informal markets in Rio includes both challenges to traditional economic theory and factual description of how such markets work. Pedro Abramo (2001, 2003, and 2007) has written extensively on how informal markets counteract basic assumptions of urban real estate economics. In analysis applicable not only to Rio, but to many Latin American cities, Abramo explains an alternative understanding of market dynamics that produce informal markets alongside formal ones, thus introducing heterodoxy in neoclassical urban economic theory. On the descriptive side, Janice Perlman, in her monograph *It All Depends: Buying and Selling Houses in Rio's Favelas* (2010) compares the process for purchasing residential real estate in the formal and informal markets and concludes that the distinction is blurry: There are elements of formality in the informal markets and elements of informality in the formal market. As for the particulars of informal market transactions, she affirms the central role of the residents' association in certifying the transaction. Moreover, she explains that most buyers are internal or have social/family ties to that favela or are "trading up" to a better favela, property turnover is low, supply and demand determine price, and the final price is generally paid in a single cash payment.

Abramo's field research supplements his theoretical work. He directs the Observatory of Real Estate and Land Policies (OIPSOLO) at the Federal University of Rio de Janeiro's Institute for Urban and Regional Planning and Research. Their methodology consists of a sample set of 15 favelas that represent a cross-section of neighborhood hierarchy, urban development, topographical characteristics, size, and presence of upgrading programs. In 2005–2006, a research team then interviewed every head of household that bought, sold, or rented a piece of residential real estate in those favelas within the last six months, in addition to residents of houses currently up for sale. The resulting database included qualitative and quantitative information on how buyers and sellers connect, who buys and who sells (by gender and income),

the percentage of renters vs. owners, the motivations for buying and selling in particular favelas, how purchases are financed, and the value of such properties. Results indicate that a variety of factors, including existing kin networks, proximity to employment, and desire to own instead of rent create a locational preference for favela communities, even when compared to equally-priced smaller housing located in more privileged areas of the formal city or larger housing located in more distant areas of the formal city. Favelas, in short, are competitive real estate markets even with the formal sector. (Ramalho, 2006; Abramo and Pulici, 2009).

Finally, another existing method for assessing the value of Rio's informal real estate consists of observations of publicly displayed advertisements of houses for sale. Often located at the residents' association, such "for sale" signs are a typical method of informing the public about residential properties on the market. Assessments of Favela-Bairro's impact on property values in upgraded favelas, such as the PBLM study on phase II with projections for phase III, have used this methodology, along with informal "sweepings" of the favela to confirm the information found on advertisements, as well as gather word of mouth references from residents and merchants, for a total of 292 observations across 8 favelas and 3 irregular settlements. Residents' association records were used as a last resort, if available, as many of the favelas studied were extremely small and did not possess such records. (PBLM, 2008).

The other major assessment of Favela-Bairro's impact (Borba, 2005) does not reveal its methodological details, but purports to have studied recorded real estate transactions for a total of 143 observations. The results suggested a 97% increase in value per meter squared of properties that benefitted from Favela-Bairro. Moreover, formal sector properties in the proximity of treated favelas benefitted from a 20% increase in the meter-squared value of existing properties and a 172% increase in the value of vacant lots. This study highlights both the willingness of researchers in the informal sector to use small sample sizes to draw conclusions, as well as the possibility of determining the impact of informal sector investments on formal sector markets.

Methodology

Research Plan

The main focus of the researcher was to gain access to the paper records in residents' associations under the belief that they represented a consistent, written, and verified record of the actual price of transactions in favelas that would permit a rapidly collected, robust database with historical and current information. The OIPSOLO methodology is excellent but wider ranging than the goal of this study, and also extremely resource and time intensive. By focusing on buyers and sellers within the last six months of the research period, it also provides a snapshot rather than a historical view of prices. The PBLM methodology raises some doubts, as asking prices are unlikely to equal actual sale prices. Similar to the OIPSOLO methodology, the researcher sought to incorporate a wide geographical and topographic distribution with a mixture of public policy coverage. The end result includes data collection in 7 favelas across the South Zone (Santa Marta, Babilônia, Chapéu Mangueira), West Zone (Asa Branca, Batam), North

Zone (Maré-Parque Rubens Vaz), and Center (São Carlos-Mineira). 1,394 individual records were tabulated, of which 995 had pricing information.

In order to gain access to the records, the researcher relied on his existing extensive network of contacts at NGOs and public agencies that work in favela communities to facilitate introductions to residents' associations. Such social capital is vital to gaining the trust of an association president, and therefore permission to collect the data. In exchange for authorization, the researcher offered to share the results of his labor, namely a copy of the digitized records, to both the association in question and the contact who facilitated the introduction.

Records were entered into Microsoft Excel by the researcher, with the exception of Parque Rubens Vaz, for which two people were hired for data entry, noting date, type of transaction, value (if applicable), and description of property (if any). They were then analyzed in Microsoft Access to calculate the distribution of sales vs. other transactions and chart changes in price over time both in non-adjusted Brazilian reals and in 2012 Brazilian reals adjusted by the Special Broadened National Index of Consumer Prices (IPCA-E).¹

Barriers and Challenges

Residents' associations vary widely in their institutional capacity, organizational competence, professionalism, and recordkeeping diligence. Association presidents were difficult to reach, and when reached, difficult to schedule appointments with. On several occasions, the researcher would travel to a favela for an appointment, only to have it canceled upon arrival. Information, such as the number of documents in the register, was rarely forthcoming over the telephone and almost entirely unavailable via e-mail, necessitating in-person visits that occasionally resulted in the tabulation of very incomplete archives. Records were almost exclusively on paper, the vast majority printed or mimeographed, though two associations provided the Microsoft Word documents from which the printed record had been produced. However, such digital files were only for the most recent of transactions.

Presidents varied widely in their acceptance of the researcher and his motivations, including one case, São Carlos-Mineira, where tabulation began and was halted mid-process for reasons that the president refused to explain. Other presidents kept the records in their personal residence rather than the association building, which was generally a sign of disorganization and made access more difficult. Tabulation was usually conducted in the association office, generally during the chaotic environment of sometimes-limited daily business hours, but occasionally in quieter off-hours or in private residences.

Archives themselves varied widely in quality, organization, and completeness. Abrupt changes in association leadership, especially from the narco-trafficking era to the UPP era, often resulted in the destruction or misplacement of older archival records, making quantitative analysis pre- and post-UPP particularly challenging. The records in Batam, a favela formerly controlled by a militia, were burned by the ruling faction when the UPP arrived. More complete archives tended to provide descriptive information, such as square meterage or number and type of rooms, more

¹ Multipliers obtainable at http://www.portalbrasil.net/ipca_e.htm.

consistently. Records were rarely kept in any chronological or geographic order and handwritten amendments or revisions were occasionally illegible. In rare cases, the information presented on a document unseemed incorrect, such as two transactions of the same property where the most recent seller was different from the most recent preceding buyer. However, association presidents generally made themselves available to resolve such questions. Finally, each association has its own template, which sometimes changed from administration to administration, making the comparison of documents across favelas difficult, as terminology and descriptive norms vary considerably. In addition, changes to Brazilian monetary policy over time—in particular the switch between multiple currencies from the 1980s to present—required the selection of an inflation calculator to adjust all prices into present-day values, a challenge not unique to historical real estate pricing research (Raff et al., 2012).

Qualitative Observations

Per the literature, in 2012, residents' associations remain a focal point of favela communities for social, cultural, recreational, and civic activities. All seven favelas had physical spaces that housed the residents' associations, usually located in a prominent area of the community. During business hours, which generally included a morning and afternoon period while closed during lunchtime, the associations were hives of activity.² Daily mail delivery, sorting, and collection was the most common activity observed, in addition to inquiries about job opportunities and real estate listings, storage for sports equipment, request for documents, and socialization. Association leadership generally maintained multiple staff on hand to assist with association activities. In the case of favelas that are recipients of ongoing public policies (see Table 1), the association office was a frequent recipient of technical or outreach staff from public agencies, as well as contractors for engineering and construction firms performing the work. Announcements about public meetings, planning documents, and maps of interventions were generally posted in a prominent location inside the association. The researcher did not observe UPP police enter the association building during any of his research visits; all UPPs have their own station elsewhere in the community.

Real estate transaction records were generally kept in folders either in filing cabinets or desk drawers, in many cases in locked rooms. They were considered an important association resource that contained confidential information, which should be handled accordingly. The researcher was not permitted to take records outside the association building and an association staffer or family member of the president was required to be present during tabulation. Despite the general respect given to the register, the actual archives were usually quite disorganized and frequently misfiled in the wrong year or address. None of the associations had a digital record of their paper files nor had they performed any kind of tabulation or analysis to understand the quantity or value of transactions. Besides searching by hand, there was no mechanism for quickly pulling up a specific document by name or address.

² The researcher visited the associations of Babilônia, Chapéu Mangueira, Santa Marta, São Carlos-Mineira, Asa Branca, and Maré-Parque Rubens Vaz on multiple occasions each during business hours. Batam was visited only once and on a Saturday, when the association was closed but made available to the researcher.

The transaction documents themselves varied from favela to favela, and sometimes within favelas if an administration had changed hands (see Appendix I for sample document). Properties were referred to varyingly as “imóvel” (property), “posse” (ownership), “benfeitoria” (improvement), and “casa” (house). Descriptions were sporadic in the case of associations with small records and more consistent in the case of associations with larger records. São Carlos-Mineira, for example, almost always recorded the number and type of rooms; Maré-Parque Rubens Vaz almost always recorded the square meterage and whether or not the property included roof access. Property lines occasionally used non-standard measurements, such as a Babilônia document that delineated a property “from the guava tree to the banana tree.” However, addresses were used consistently throughout, reflecting internal street naming and occasional inconsistencies even if not recognized by the city. Santa Marta, for example, had some streets renamed when the electricity utility, Light, regularized service for all residents. The register, however, largely reflects the old names. One of the principal streets of Maré-Parque Rubens Vaz had two spellings: Massaranduba/Maçaranduba. Street numbers were generally present, though “s/n” (no number), would occasionally appear. In the frequent case of multiple units at a single address, a letter designation (for example, “10-A”), apartment number, or house number (“Casa 1”) would be provided. With an accurate map, it would be possible to locate almost all properties listed in the register.

Table 1: Overview of Transaction Records in Study Set

Favela	No. Records	Sales (%)	Period of Register	Association Fee	Size M ²	No. and Type of Rooms	Roof Access
Asa Branca	245	57.1	2000–2012	R\$300	Frequently	Occasion-ally	Occasion-ally
Babilônia	69	65.2	2009–2011	10%	Rarely	No	No
Batam	30	16.7	2009–2011	3%	Rarely	Frequently	No
Chapéu Mangueira	13	92.3	2010–2012	3-5%	Occasionally	Occasionally	Rarely
Maré-Parque Rubens Vaz	679	82.2	1996–2012	R\$250	Frequently	Rarely	Frequently
Santa Marta	153	53.6	2003–2012 (missing 2005–2006)	Not Known	Rarely	Rarely	No
São Carlos-Mineira	243	53.1	2007–2012	Not Known	Rarely	Frequently	Occasionally

Prices were listed in the currency at the time—almost always Brazilian reais, as the vast majority of documents date from after the implementation of the Plano Real. Older documents have prices in both cruzados and new cruzados. On rare occasions, the document indicates that the buyer will pay a down payment and then regular installments though no legal provision for repossession is indicated if the buyer reneges on the installments. The documents often include a copy of a bank slip or receipt to indicate that payment was received. Occasionally properties were exchanged for material goods, like automobiles or motorcycles, as well as other real estate. Exchanged properties included locations in the formal sector in more distant parts of Rio (such as a Babilônia house exchanged for a property in the West Zone neighborhood of Realengo) or even other states (such as an Asa Branca house exchanged for a property in the capital of the neighboring state of Espírito Santo). Per Abramo’s conclusions, these observations affirm that favelas are not always the housing option of last resort.

Contrary to Perlman 2010's claim that there is a consistent fee charged by the association of 5% for non-members and 3% for members, the researcher only found that to be the case in Chapéu Mangueira (see Table 2). In other favelas, the fee ranged from 3% to 10%. The latter was the case in Babilônia, where the high fee was explicitly put in place to discourage sales out of concerns about real estate speculation. Although buyers and sellers could still contract outside of the association, the benefit in Babilônia, which is currently undergoing intensive Morar Carioca public works, is that the association works in close consultation with the Municipal Housing Secretariat and can thus affirm that a property is not going to be appropriated before signing a transaction document. Buyers on handshake agreements run the risk of finding out that their property will be lost due to eminent domain. In both Asa Branca and Maré-Parque Rubens Vaz, the association fee is a fixed amount. The president of the Asa Branca Residents Association in fact claimed that the Brazilian Civil Code fixes the allowable transaction fee to a maximum of R\$300, though the researcher was unable to confirm that claim. More importantly, these two communities, which presented robust archives, also have likely more reliable data sets, as the fixed fee, unlike the percentage fee, does not encourage sellers to list a lower price than was actually paid in order to save on the association payment. Presidents of associations with percentage based fees concede there is no way to know if the price listed on the document is the actual final price, but on the whole did not think such a practice was widespread nor would it invalidate the reliability of their archives.

Spatial Descriptive Analysis

The seven favela study sites were analyzed geospatially for relevant socio-economic statistics made available from the Brazilian census, including median monthly income of head of household and homeownership rates. Collectively, they illustrate some common trends among favela communities vis-à-vis their adjacent formal neighborhoods. In general, favelas are poorer than nearby formal areas of the city. Oftentimes, favelas are islands of poverty surrounded by exceptionally wealthy areas. This phenomenon does not, however, correspond with homeownership, which can vary widely depending on the specific circumstances of the favela.

All seven favelas in the study had monthly incomes (see figures 6–12) in the lowest two ranges, below 750 BRL and 751–1,500 BRL. Census tracts within favelas did vary between these two categories—only Batam was uniformly in a single range, the lowest—highlighting the potential for heterogeneity within favelas. However, in the context of their vicinity, it is clear that some favelas are concentrations of low income surrounded by wealth. Such is the case of Babilônia, Chapéu Mangueira, and Santa Marta, all located in the affluent South Zone. Of particular note is the transitional census tract that physically connects these favelas to the adjacent neighborhood. In both cases, it has a median monthly income for head of household in the 1,501–3,000 BRL range, while nearly all census tracts in the rest of the neighborhood are above 3,000 BRL, the highest category established by the census. Asa Branca presents a slightly similar situation. The favela itself is divided into two census tracts, one below 751 BRL and the other in the 751–1,500 BRL range. However, its vicinity is not uniformly in the 3,000+ BRL range. Although a significant portion, composed of newly built high-rise condominiums whose labor pool is largely drawn from Asa Branca, is in this range, other areas vary between the middle two income brackets and include some pockets of the lowest bracket. These indicators reflect the emerging

status of this neighborhood, whose overall affluence is not established as in the older, traditional South Zone neighborhoods.

By contrast, both Maré-Parque Rubens Vaz and São Carlos-Mineira are located in considerably less affluent areas of Rio. The former is a tranche of an otherwise nearly universally low-income complex of favelas, the Maré, east of Avenida Brasil and west of the canal. However, even when one crosses Avenida Brasil into the formal neighborhood to the west, incomes rise only slightly into the next bracket. There are no highest income census tracts near to Parque Rubens Vaz. Some 3,000+ BRL tracts cluster along the edges of the São Carlos-Mineira vicinity, but proximity to downtown, which despite recent revitalization efforts remains, especially on its west side, a lower income area, keeps São Carlos-Mineira's incomes in line with nearby formal census tracts, as well as the rest of São Carlos.

The income data correlates interestingly with homeownership patterns in favelas (see figures 13–18).³ The historic favelas of the South Zone, which are surrounded by affluent census tracts, show high rates of homeownership while the surrounding neighborhoods show considerably less. Babilônia and Chapéu Mangueira combined correspond to three census tracts, each of which is in the top three brackets for homeownership. Meanwhile, nearby Copacabana, one of the densest and most populated high-rise neighborhoods of Rio, includes many census tracts with homeownership rates below 65%. High incomes do not necessarily mean high rates of ownership, nor do low incomes imply low rates of ownership, especially in the expensive South Zone neighborhoods. Indeed, the Babilônia census tract with the lowest monthly median income actually has the highest rates of ownership. In favelas, low income may correspond to higher rates of homeownership for less attractive properties further from the favela entrance, whereas more desirable areas closer to access points are occupied by aspirational renters earning higher incomes. This phenomenon appears to be at work in Asa Branca, where exceptionally low rates of homeownership—one tract below 65% and the other 65.1–75%—are due to the booming construction industry and its demand for short-term labor. In established neighborhoods, menial jobs performed by favela residents, such as maids and doormen, are long-term and provide more stability.

Despite low incomes, Batam boasts exceptionally high homeownership—both tracts above 85%—in an area with high rates overall, excepting one census tract. Further from the CBD and with less overall economic opportunity, Batam simply does not present a particularly attractive rental market. Maré-Parque Rubens Vaz is more moderate in its rates, adjacent to other census tracts within the Maré complex that have high rates, as well as to others with low rates. As an amalgamation of several different favela communities, each area within the Maré is different. However, the history of Parque Rubens Vaz as a resettlement zone by the National Housing Bank in the 1980s does make it surprising that there are not more homeowners and highlights the alacrity with which formal title can revert to informal activity. Finally, São Carlos-Mineira presents a mixed portrait of homeownership rates near a sea of renters who occupy the depressed real estate along the west end of downtown Rio.

³ In this context, homeownership should be understood as owner-occupied rather than rented, even if the owner does not have formal title.

Table 2: Background on Favelas in Study Set

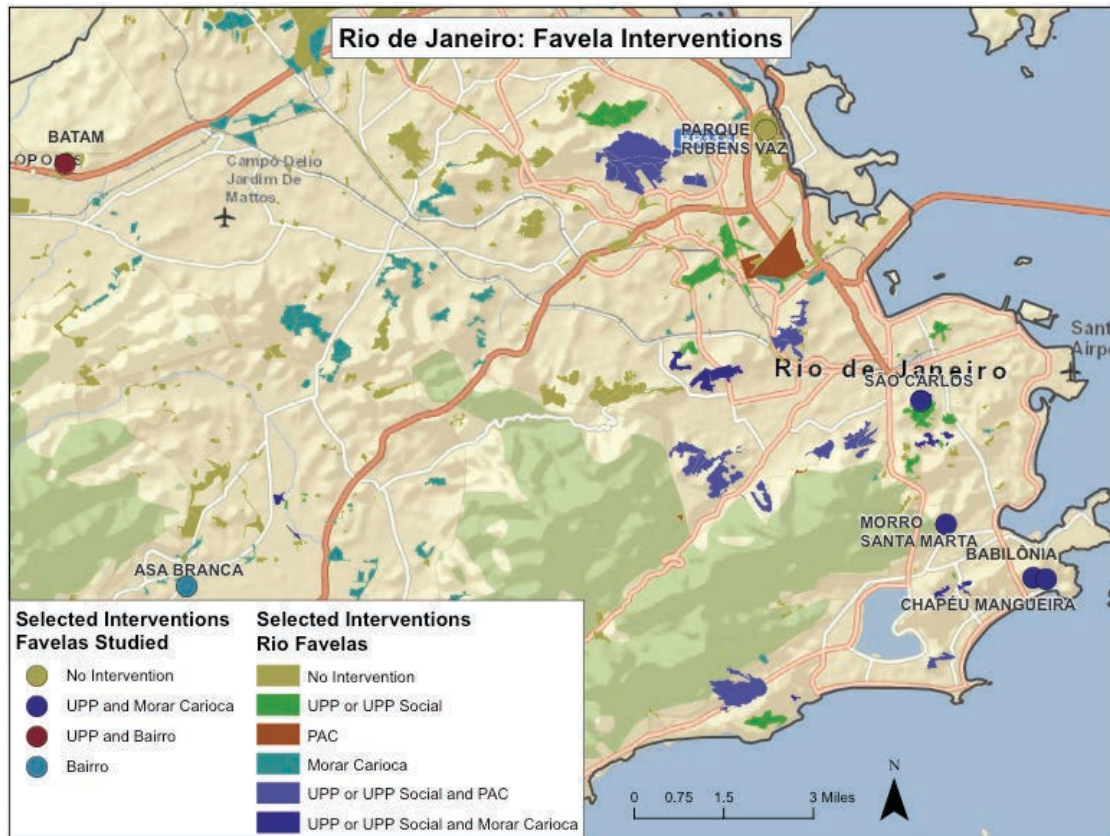
Favela	Location	Households ⁴	Association Building	UPP	UPP Social	Morar Carioca	Bairro Maravilha
Asa Branca	West Zone	1069	Yes	No ⁵	No	No	Yes
Babilônia	South Zone	777	Yes	Yes, 6/10/2009	Yes	Yes	No
Batam	West Zone	1,027	Yes	Yes, 1/15/2009	Yes	No	Yes
Chapéu Mangueira	South Zone	401	Yes	Yes, 6/10/2009	Yes	Yes	No
Santa Marta	South Zone	1,176	Yes	Yes, 12/19/2008	Yes	Yes	No
Maré-Parque Rubens Vaz	North Zone	1,708	Yes	No	No	No	No
São Carlos-Mineira	Center	673	Yes	Yes	Yes	Yes	No

The seven favelas profiled in turn represent a spectrum of policy interventions, the details of which were discussed in the public policy literature review and will be reviewed here again briefly. They included the Police Pacification Units (UPP), a security program, and accompanying UPP Social, a social service program. Infrastructure improvements come in several flavors, including large-scale projects from the federal PAC program, long-term targeted favela upgrading in Morar Carioca, and general improvements to neglected areas of the city with Bairro Maravilha. Orchestrated by a constellation of state, local, and federal actors, these public policies form a web that are present in a variety of configurations throughout Rio. Due to their overlapping nature, it is difficult to extrapolate the impact that any one public policy has on real estate pricing, especially as many programs' purported impacts—especially relating to the built environment—vary widely in implementation. UPP is perhaps the most consistent as it always brings roughly the same package of police and military officers for the express purpose of evicting armed narco-trafficking operations.

⁴ All data obtained from the 2010 IGBE Census of Subnormal Agglomerations. In the case of São Carlos-Mineira, the Census provides an overall assessment for São Carlos Complex, broken into sectors on a map. The sectors that most closely correspond to the observed outline of Mineira were then added together to provide the household count for Mineira.

⁵ Asa Branca does not experience armed drug trafficking, thus it is peaceful even without the presence of UPP.

Figure 2: Favela Study Sites and List of Public Policy Interventions



Map: Arthur Acoca-Pidolle

Empirical Analysis

Anecdotal evidence is rife with claims that favela real estate is undergoing a similar boom to Rio’s formal market, especially in hillside favelas near privileged neighborhoods with seaside views. Newspaper reports after the November 2011 police and military invasion of Rocinha declared that rents had jumped 20–30% and prices would jump 10–20% (Rangel, 2012; R7, 2011). The most alarmist reports claimed a 50% increase in house prices within three days based on the new asking price of a single property (Bastos et al, 2011). Recently, these price rises have garnered international media attention over plans to build luxury condominiums and hotels in particularly well-located favelas (Barchfield, 2013). The researcher’s experience did not bear out such immediate changes in the favelas where pre- and post-UPP prices are observable in the register, such as Babilônia and São Carlos-Mineira. Certainly, however, prices did go up, which is discussed below in further detail, and there were some eye-raising transactions, such as the March 2012 purchase of a 365 m² house in Chapéu Mangueira by a non-Brazilian buyer for R\$195,000 (US\$95,000). This is an extremely large sum for a property without legal title.

More rigorous academic research has also indicated that rents in three of the largest favela complexes have risen 6.8% faster than formal city rents since the beginning of the UPP (Neri,

2011). Researchers have also correlated the effect of UPP installations, and subsequent changes in the homicide and robbery rates, with formal sector house prices. Claudio Frischtak and Benjamin Mandel’s January 2012 Federal Reserve Bank of New York Staff Report, “Crime, House Prices, and Inequality: The Effect of UPPs in Rio,” indicated that property values in neighborhoods adjacent to UPPed favelas increase 5.8% more than in the rest of Rio in neighborhoods. Frischtak and Mandel’s work covers four UPP/neighborhood pairs where the researcher worked. However, percentage increase as compared to non-UPP adjacent neighborhoods is not a statistic readily comparable to the data present here, which instead shows percent change over time of house prices. That said, the Rio Housing Syndicate (SECOVI-Rio) maintains monthly records of house prices in Rio’s formal neighborhoods beginning in July 2009. These changes can be compared to the observed changes in house prices during a similar period in the study set of favelas. Although three favelas did not produce enough observations to be statistically relevant (Babilônia, Batam, Chapéu Mangueira), demonstrable rises in housing prices are visible in the other four favelas (Asa Branca, Maré-Parque Rubens Vaz, Santa Marta, São Carlos-Mineira).⁶ Figure 4 indicates that while prices increased in all four favelas for which there were sufficient observations, the change in values in adjacent formal neighborhoods greatly outpaced the change in values in favelas. In the case of favelas with UPP, their increase adhered closer to the formal sector increase.

The only favela for which there is consistent square meterage data, Maré-Parque Rubens Vaz, also indicates that the price per square meter grows at half the rate of the overall change in house prices. However, in the long view over 15 years, Maré-Parque Rubens Vaz shows a linear increase of 300%, from R\$5,000 to R\$20,000 (see Figure 8). Rubens Vaz also provides sufficient data on whether or not a given property has access to a roof (153 observations, or 22.5% of all observations). As Figure 26 shows, properties with roof access—and thus the potential to build another unit on top of the existing unit—are 29.4% more valuable than properties without roof access.

In addition, despite limited observations, it is possible to construct a price index based on a hedonic regression for the seven study sites, as well as a specific one for Maré-Parque Rubens Vaz, the most robust data set.

Table 3: Comparisons of Percent Change in House Price Value by Favela/Neighborhood

Favela/Neighborhood ⁷	Percent Change, 2009-2012 (%)
Asa Branca	27.7
Barra da Tijuca, 54 m ²	110.9
Jacarepaguá, 46 m ²	71.9
Maré-Parque Rubens Vaz, all sales	31.25

⁶ See Figures 19-26 for graphical representations of price changes over time for all seven favelas, as well as the squared meter aggregate.

⁷ Source for formal neighborhood values was Secovi-Rio data for 1-bedroom units per m² from July 2009 and July 2012. July 2009 values were adjusted to June 2012 using the ICPA-E consumer price index, the same index for which all favela values were adjusted.

Maré-Parque Rubens Vaz, 25 m ²	15
Bonsucesso/Olaria/Ramos	N/A
Santa Marta	75
Botafogo, 45 m ²	101.3
São Carlos-Mineira	93.75
Centro, 41 m ²	118.8
All favelas, 37 m ²	13.3

Figure 3: Hedonic Regression Results in Contant BRL

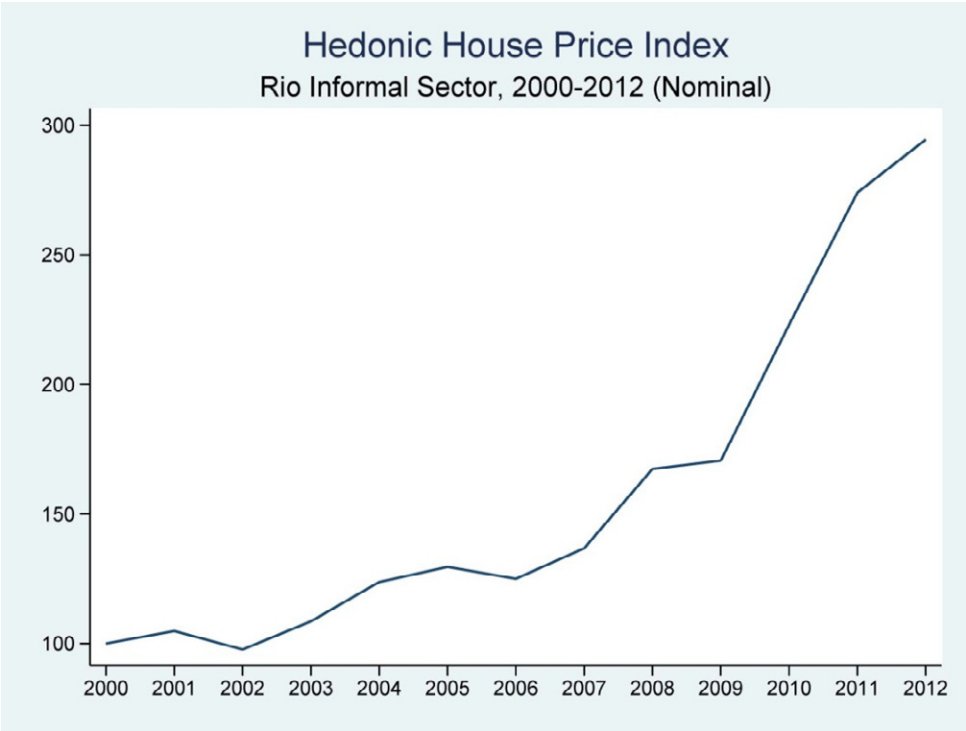
	All Favelas	Maré-Parque Rubens Vaz
	(1)	(1)
Log Area	0.573*** (0.0869)	0.498*** (0.0943)
Right to Roof (ref.= no right to roof)	0.169* (0.0962)	0.186** (0.0758)
Rental	-0.08948 (0.1377)	-0.0771 (0.1226)
Neighborhood (ref.= Asa Branca)		
Babilônia	0.380*** (0.1271)	
Batam	-1.291*** (0.1624)	
Chapéu Magueira	0.714*** (0.2189)	
Santa Marta	-0.770*** (0.1277)	
São Carlos-Mineira	-0.232*** (0.0891)	
Maré-Parque Rubens Vaz	0.410*** (0.0700)	
Constant	7.029*** (0.4774)	7.497*** (0.4397)
Observations ⁸	1,060	559
R-squared	0.271	0.394

*** p<0.01, ** p<0.05, * p<0.1

Credit: Arthur Acoca-Pidolle

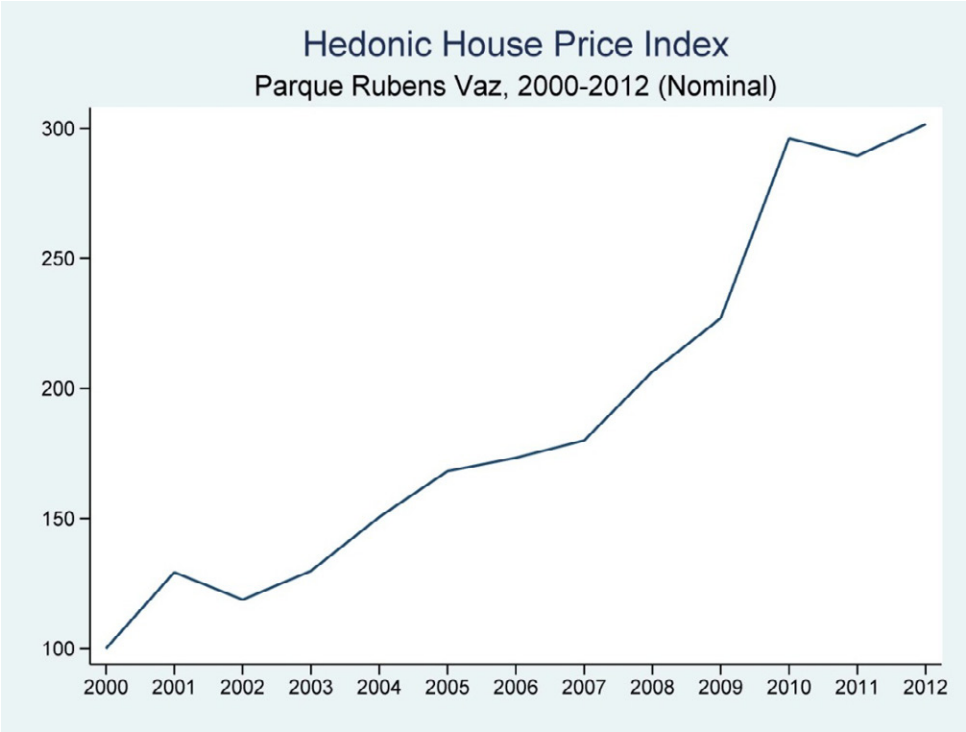
⁸ Only 1,060 observations, out of 1,432 total observations, were used in the hedonic regression. The unused observations were either non-monetary (such as donations) or pre-1999, before which year the data set has too few observations to be reliable.

Figure 4: Hedonic House Price Index, Rio Informal Sector, 2000–2012 (Nominal)



Credit: Arthur Acoca-Pidolle

Figure 5: Hedonic House Price Index, Parque Rubens Vaz, 2000–2012 (Nominal)



Credit: Arthur Acoca-Pidolle

Both indices indicate a tripling of prices over the last 12 years, though with a steadier rise in Maré-Parque Rubens Vaz, peaking in 2010, and a steeper rise overall beginning in 2009. Given the lack of UPP in Maré-Parque Rubens Vaz, it may be possible to attribute the more rapid rise in prices overall to UPP, which began in 2008 in Santa Marta and expanded in 2009 in Babilônia/Chapéu Mangueira, among others. However, in general the study sites appear to follow the trend lines of Rio's formal real estate market. That said, the rises in Rio's formal real estate market are at least partially attributable to the UPP policy, per the Frischtak and Mandel study. Thus, something of a virtuous cycle may be at work, where UPP in particular promotes a rise in prices for the formal market, in turn boosting values in the informal market as the rising tide lifts all boats.

Conclusion

Brazil's economic boom, Rio's historic moment, and public policy interventions that have improved the perception and reality of public safety have all contributed to unlocking the stagnant Rio real estate market in recent years. Such gains have been felt most acutely in the formal sector, though the researcher's study set suggests that real estate values in general are on the rise in the informal sector as well. The existing, high-quality research on UPP's effect in the formal market begs for similar research in the informal market. However, the absence of a register in most UPP communities makes such calculations very difficult to ascertain. Focus should be placed on communities, such as São Carlos, where the registers appear to be intact. The yet-to-be pacified Maré Complex communities also present an intriguing site for future research as there is much speculation that UPP will soon arrive and they possess extensive, detailed records. Priority should be placed on data collection in the Maré, as the upheaval of UPP's arrival could jeopardize the safety of the real estate registers. Finally, Santa Marta's reasonably strong register, as well as its unique status as the first UPP favela, encourages continued observation. Asa Branca, which has neither UPP nor drug trafficking, presents an important case of favela growth tracking, but not keeping pace with, the explosive growth in the most booming part of the city, where land supplies are high and major investments, like the Olympic Park, will be located.

As public policies related to infrastructure improvements are completed, future research should also attempt to delineate the boost that individual amenities, such as schools, transportation links, improved sidewalks and streets, and health clinics have on favelas. Despite sharing the same name, programs like PAC and Morar Carioca do not distribute their amenities equally as they tailor to the needs of individual favelas. More detailed research within individual favelas could also correlate price changes to the distance from certain new amenities, highlighting the heterogeneity within favela markets. Such precision research will require more time for houses to transact, however.

Given adequate observations, consequently, residents' association transaction registers can serve as a useful tool for researchers to chart price changes over time. Training and capacity building could educate residents' associations on the importance of maintaining accurate, organized registers and including as much information as possible on the transaction documents. Most associations had at least one computer available, which was oftentimes used to prepare the

document that was then printed, signed, and filed. As such, digital recordkeeping is not an unrealistic possibility and would provide a secondary source of the information in addition to the paper files. Although residents' associations have a checkered history in the complicated narrative of favelas' relationship to the state, they continue to perform their quotidian functions and matters like the price of a house have, thus far, not been contentious issues that would invite tampering. Their biggest challenge is maintaining institutional continuity when it comes to procedures and records. With 1,071 favelas according to the 2010 Brazilian Census, Rio de Janeiro remains a potential fountain of information on the price dynamics of the informal market, with applicability for Brazil and indeed all of Latin America.

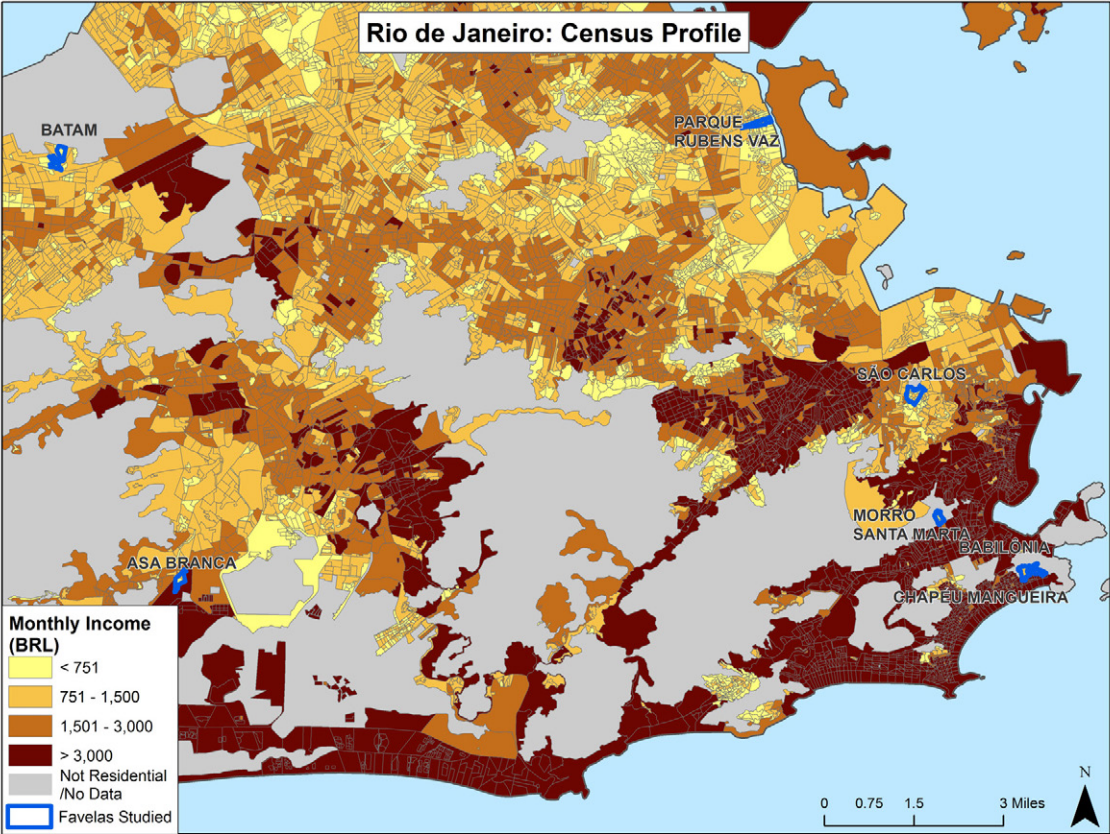
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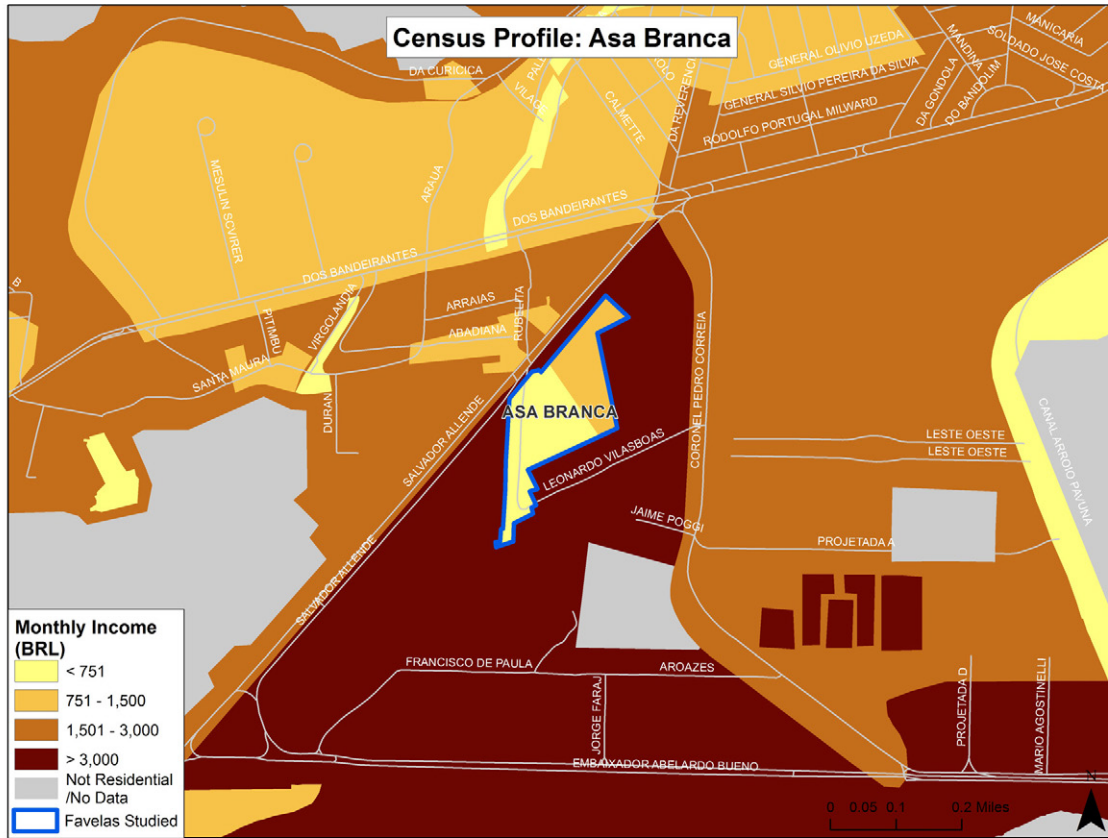
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Figure 6: Census Profile, Rio de Janeiro



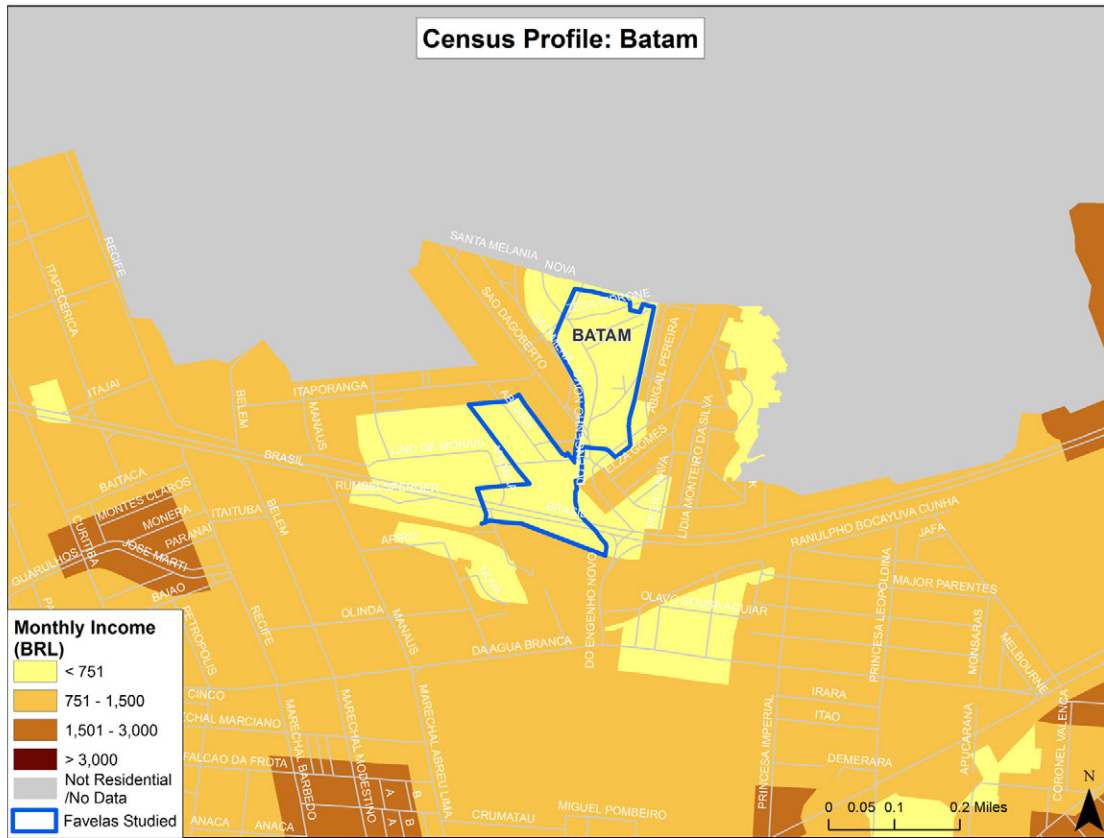
Map: Arthur Acoca-Pidolle

Figure 7: Census Profile, Asa Branca



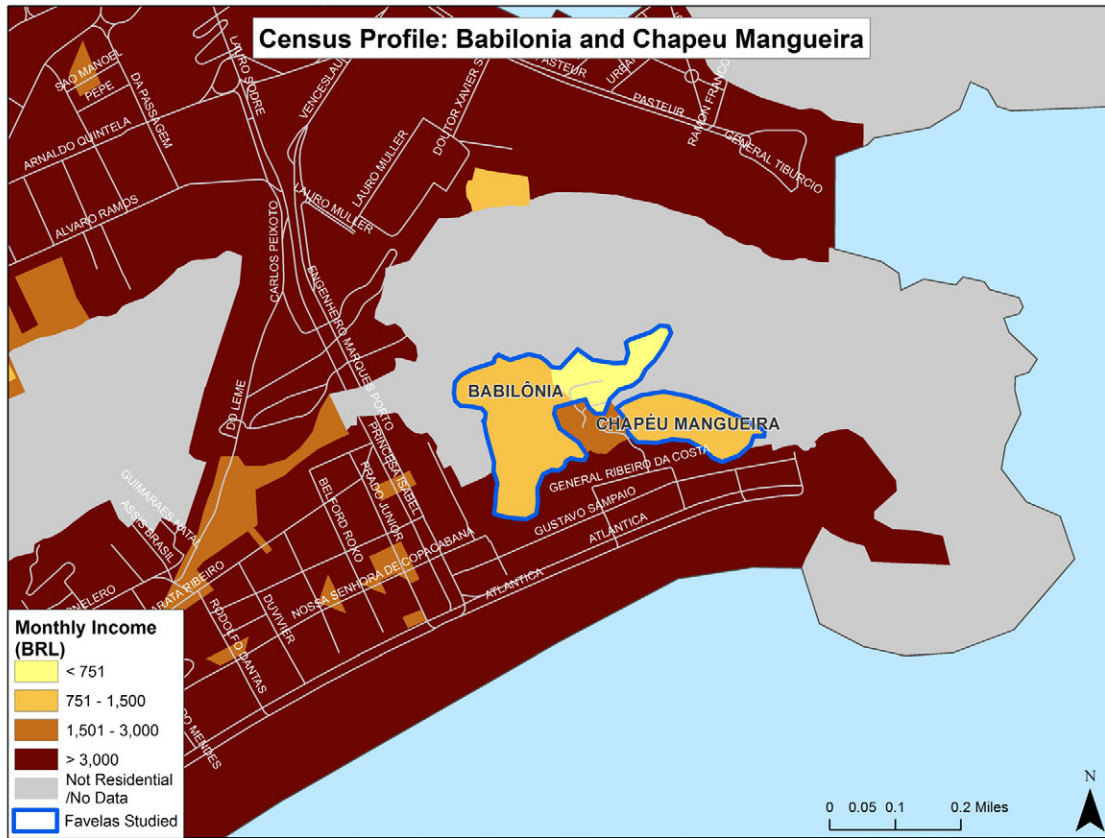
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Figure 8: Census Profile, Batam



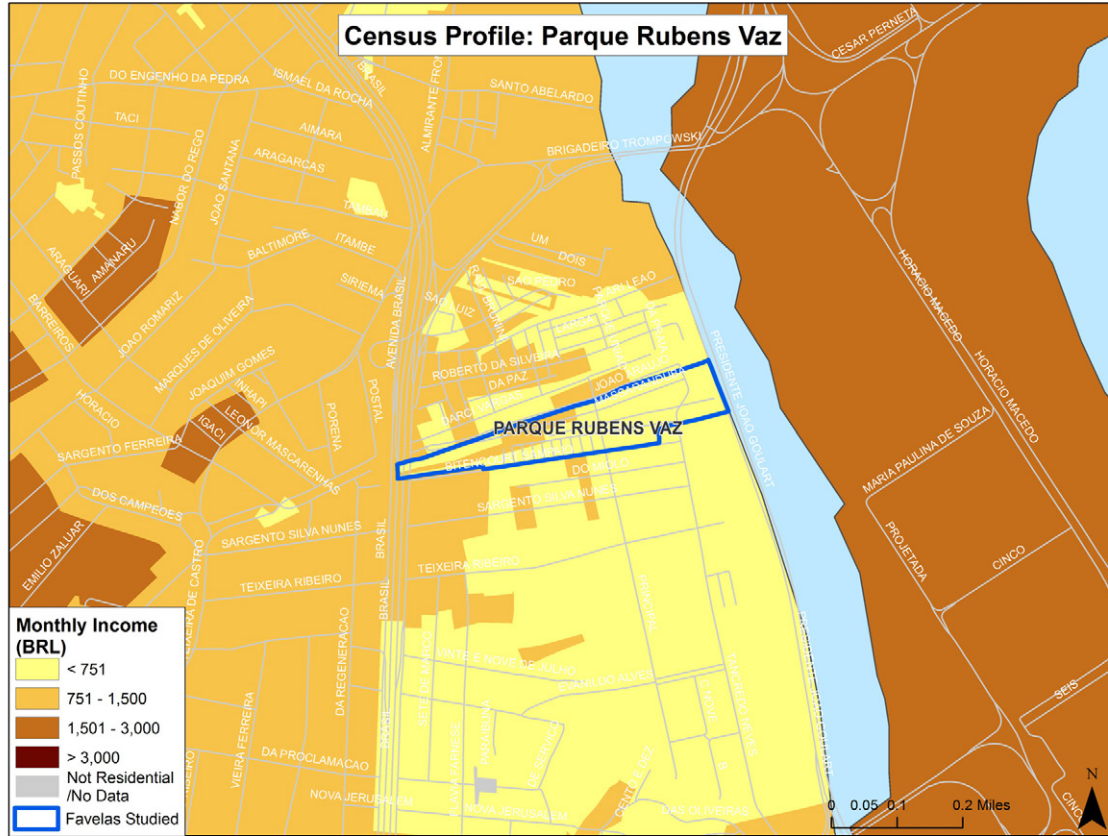
Map: Arthur Acoca-Pidolle

Figure 9: Census Profile, Babilonia and Chapéu Mangueira



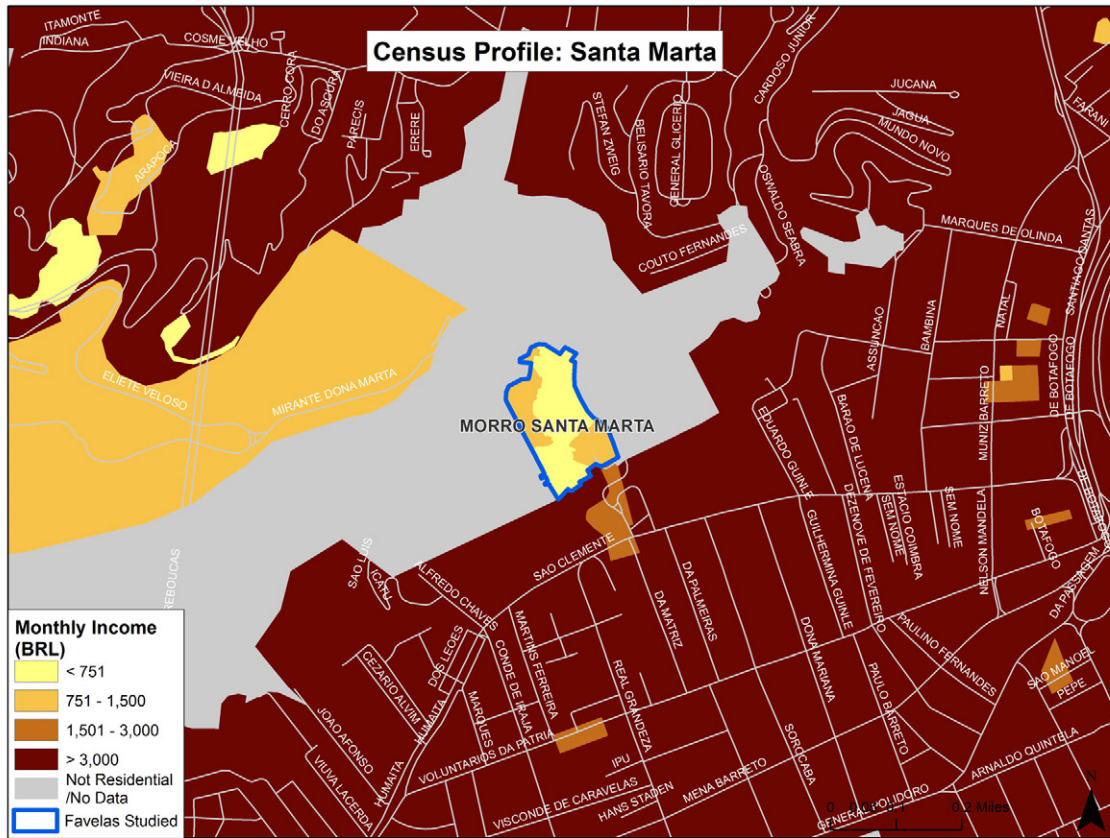
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Figure 10: Census Profile, Parque Rubens Vaz



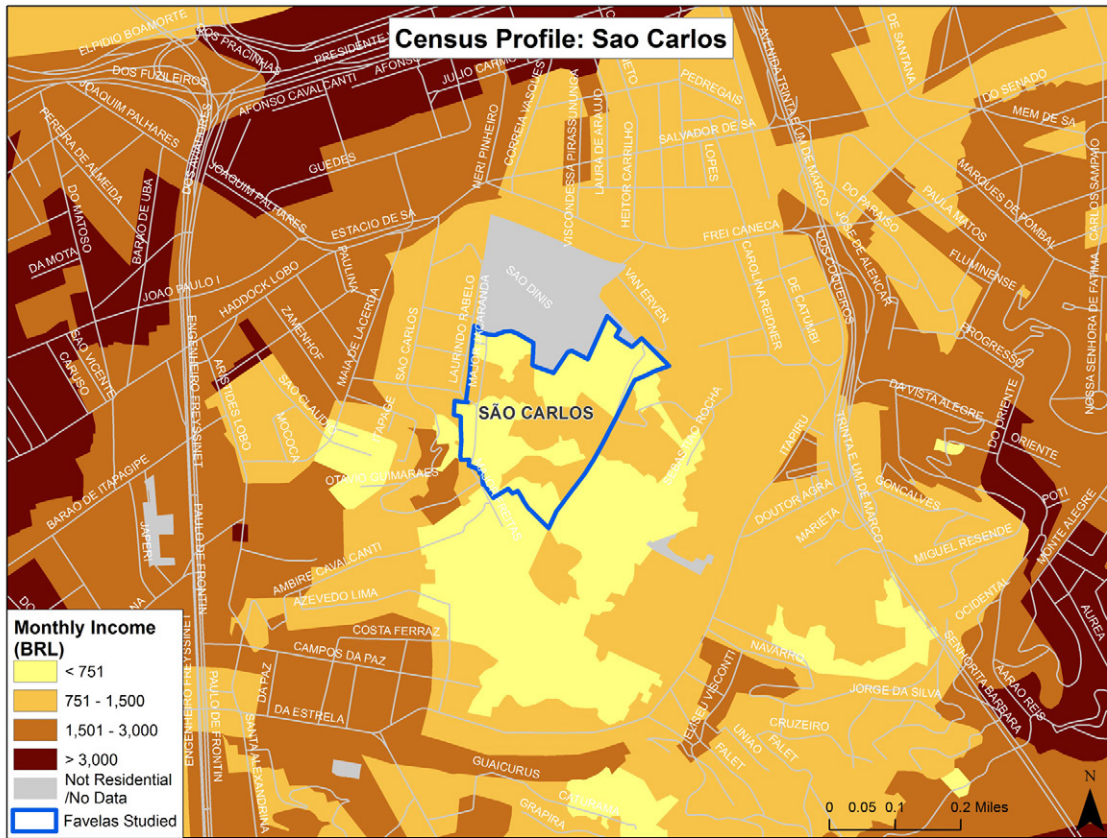
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Figure 11: Census Profile, Santa Marta



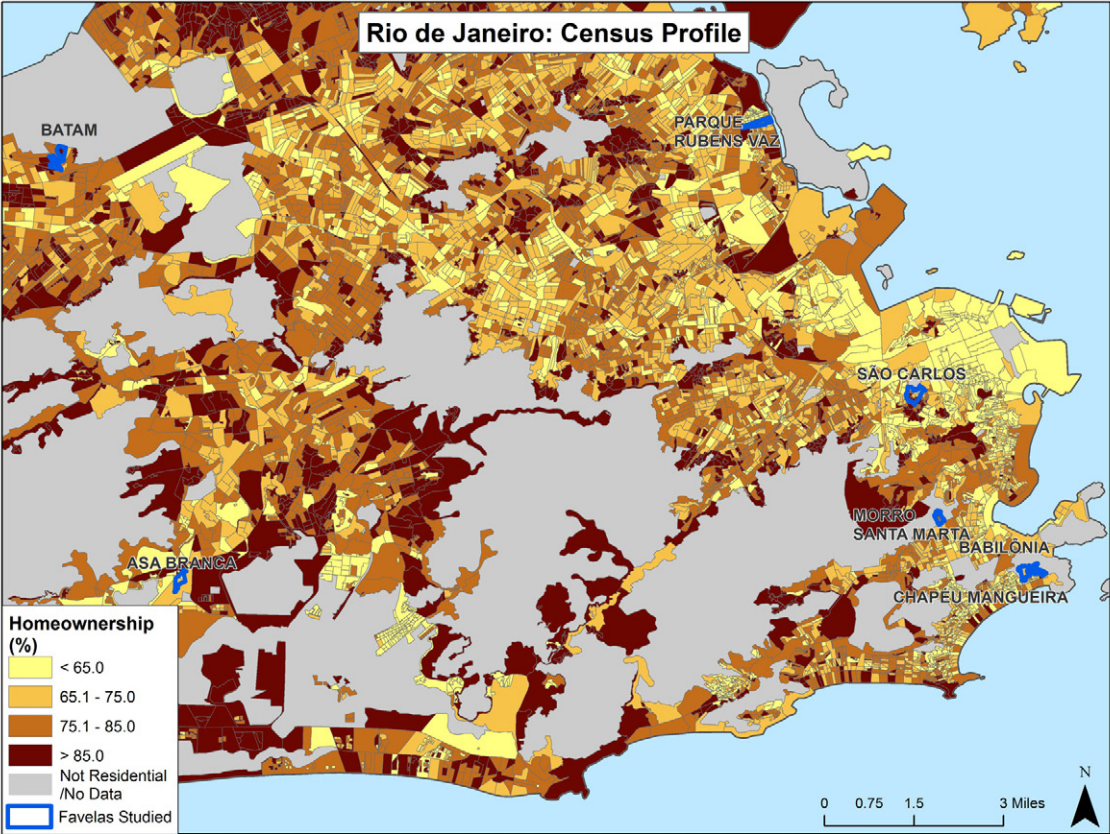
Map: Arthur Acoca-Pidolle

Figure 12: Census Profile, Sao Carlos



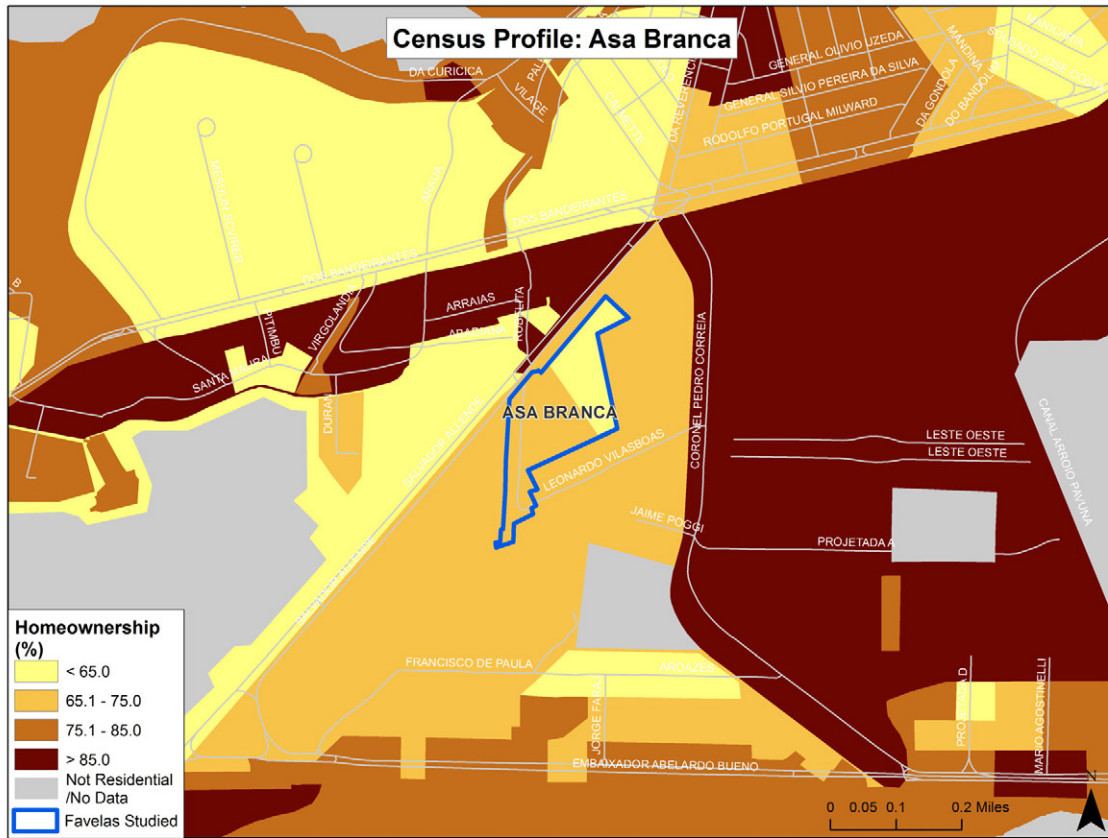
Map: Arthur Acoca-Pidolle

Figure 13: Census Profile, Rio de Janeiro



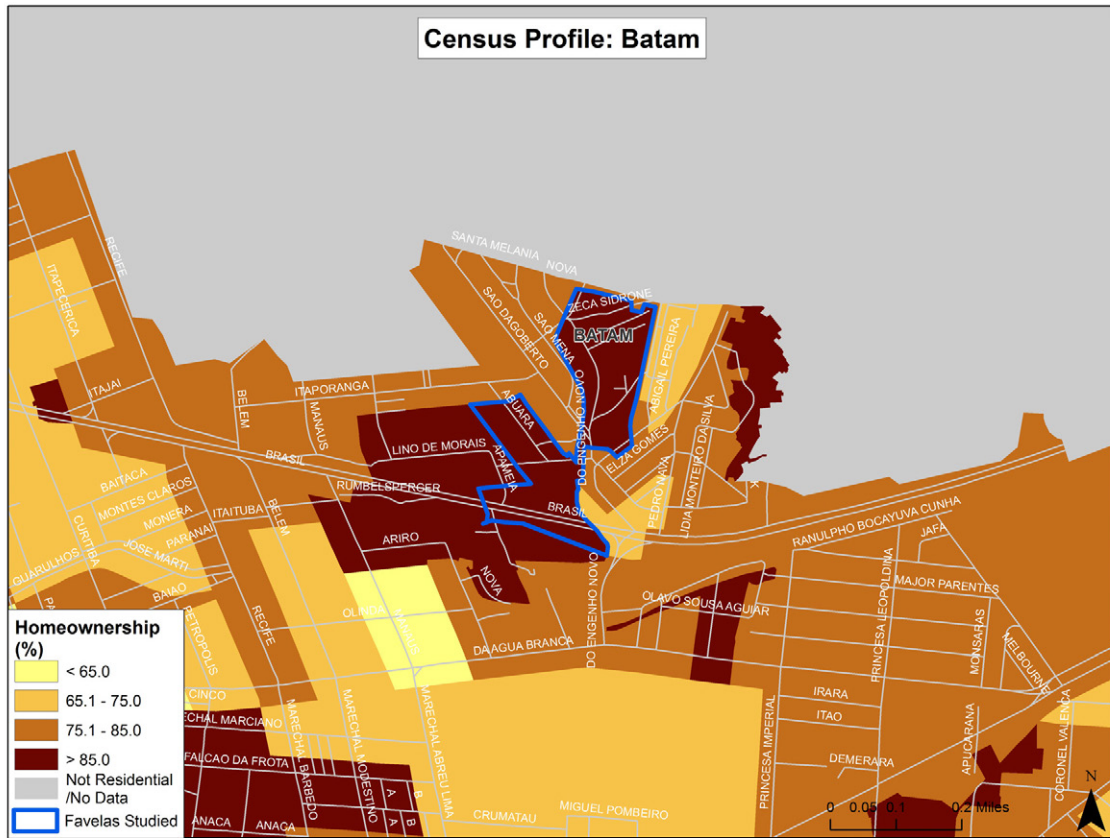
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Figure 14: Census Profile, Asa Branca



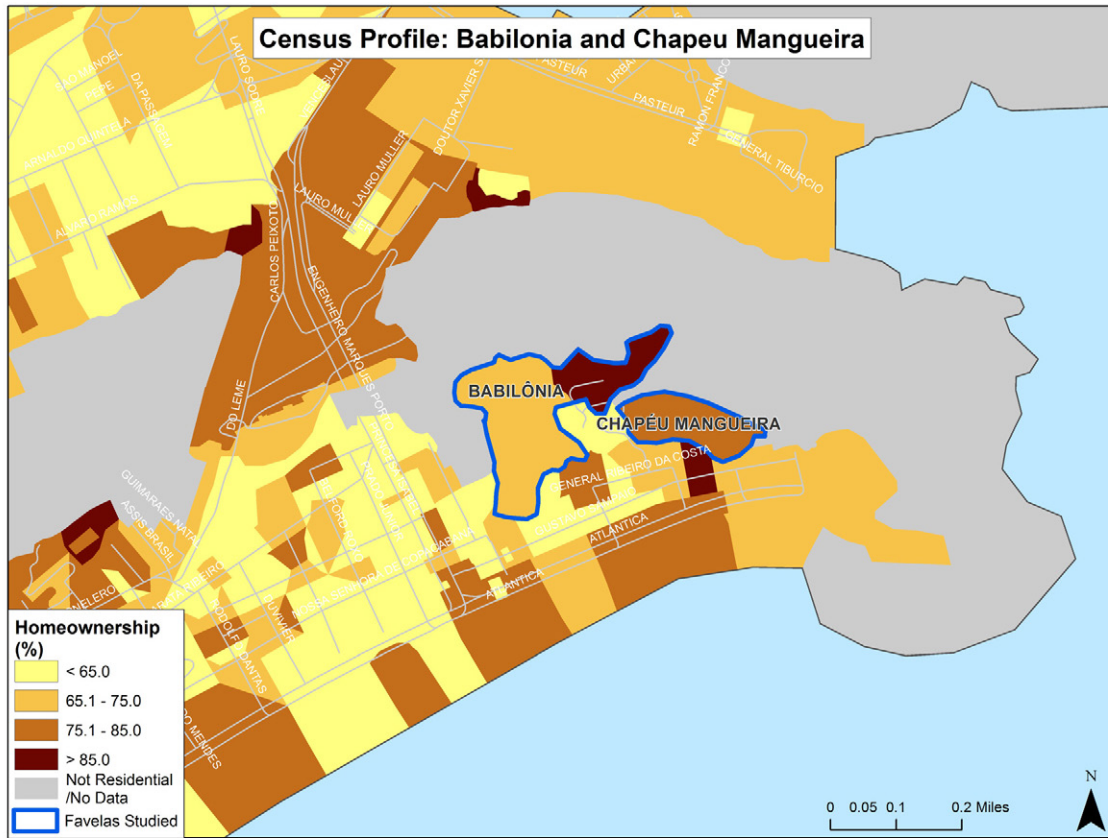
Map: Arthur Acoca-Pidolle

Figure 15: Census Profile, Batam



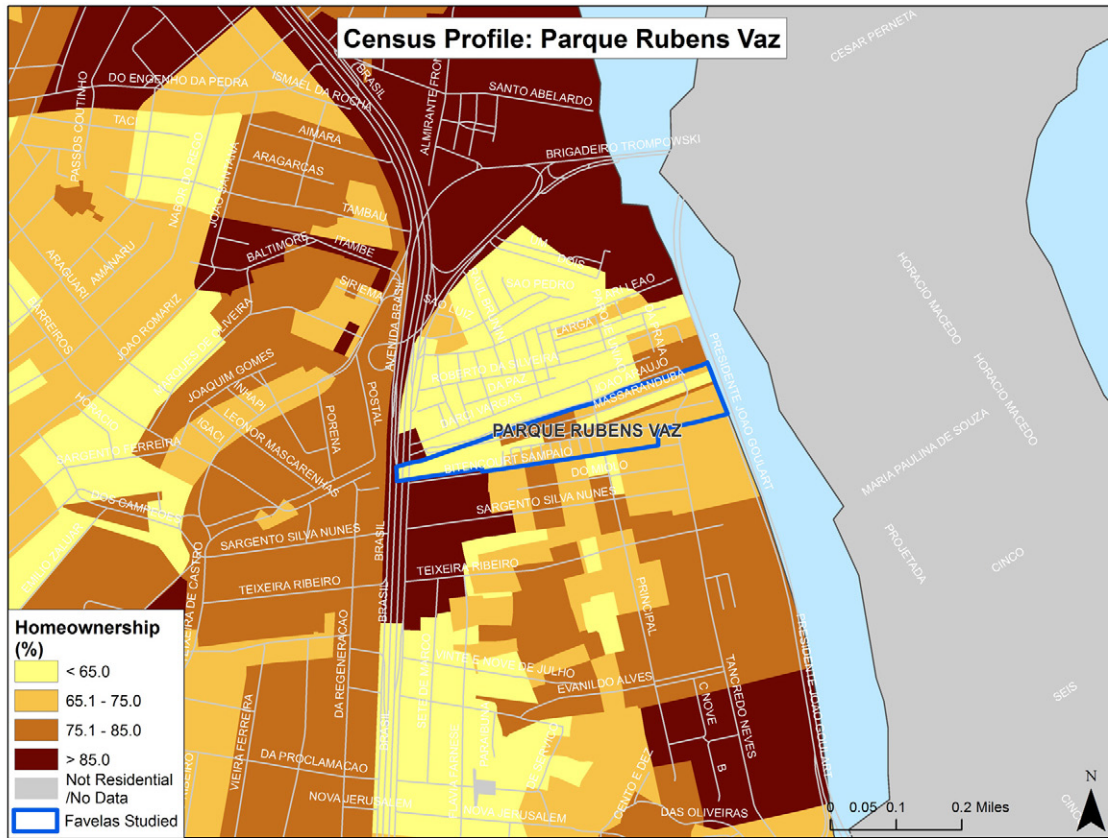
Map: Arthur Acoca-Pidolle

Figure 16: Census Profile, Babilonia and Chapéu Mangueira



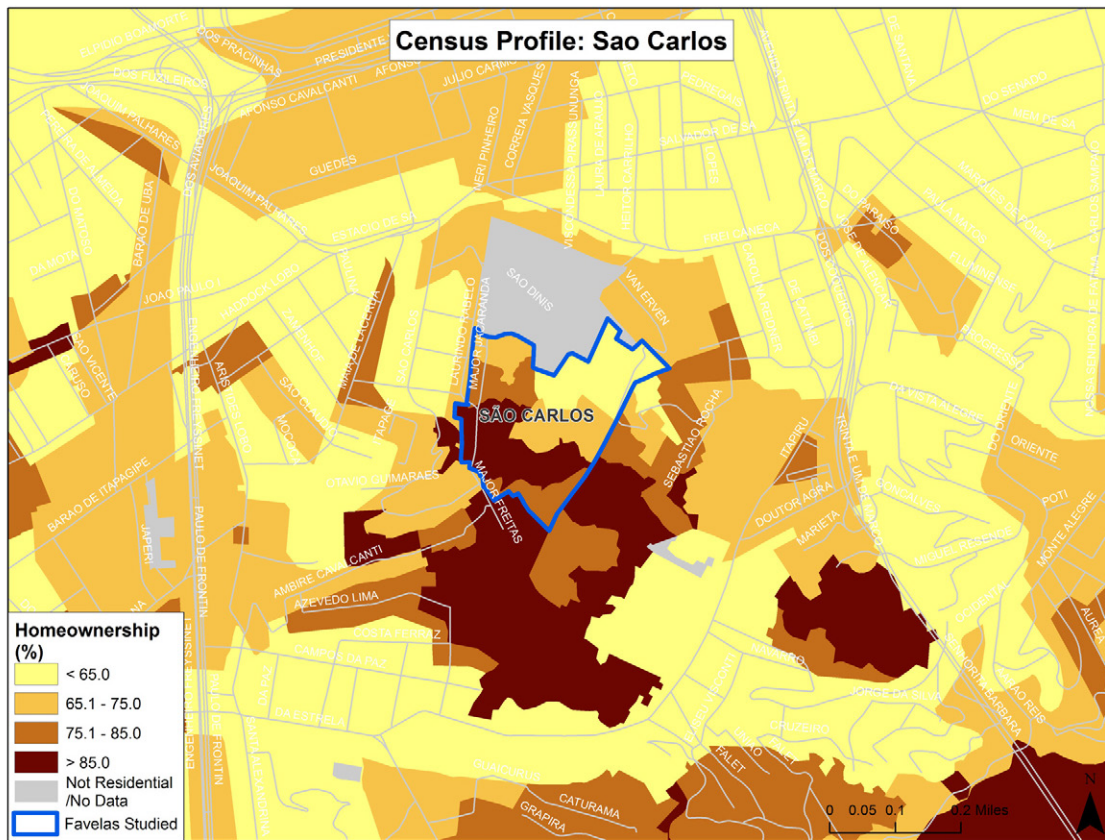
Map: Arthur Acoca-Pidolle

Figure 17: Census Profile, Parque Rubens Vaz



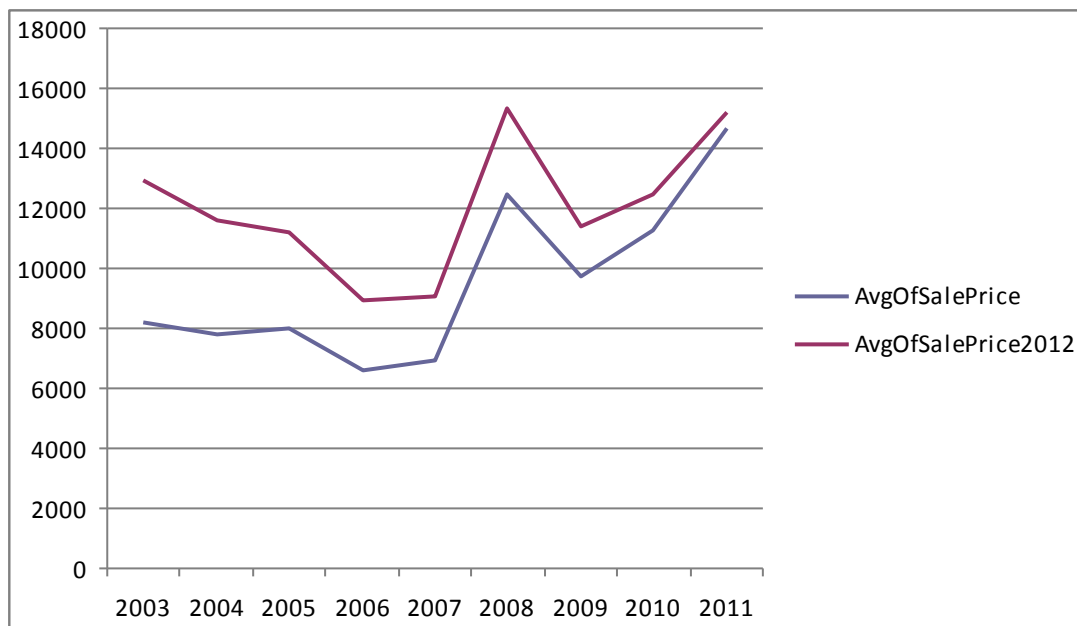
Map: Arthur Acoca-Pidolle

Figure 18: Census Profile, Sao Carlos



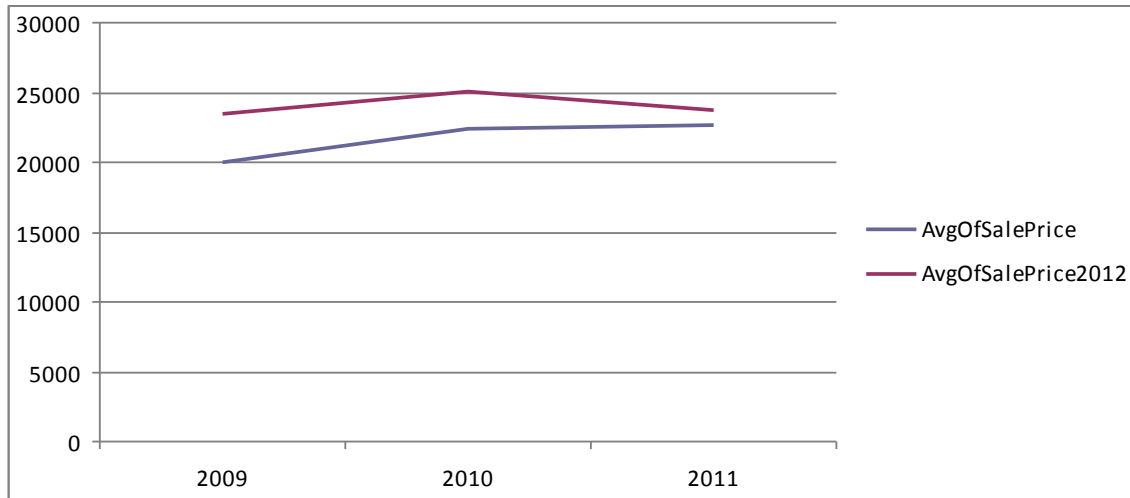
Map: Arthur Acoca-Pidolle

Figure 19: Asa Branca Price Changes, 2003–2011



Credit: Arthur Acoca-Pidolle

Figure 20: Babilônia/Chapéu Mangueira Price Changes, 2003–2011



Credit: Arthur Acoca-Pidolle

Figure 21: Maré-Parque Rubens Vaz Price Changes, 2003–2011



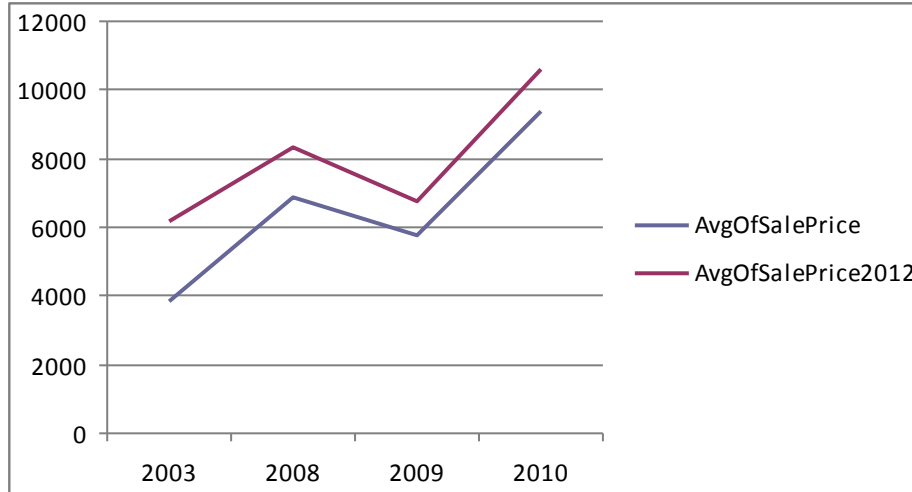
Credit : Arthur Acoca-Pidolle

Figure 22 : Maré-Parque Rubens Vaz Price Changes per m², 2003–2011



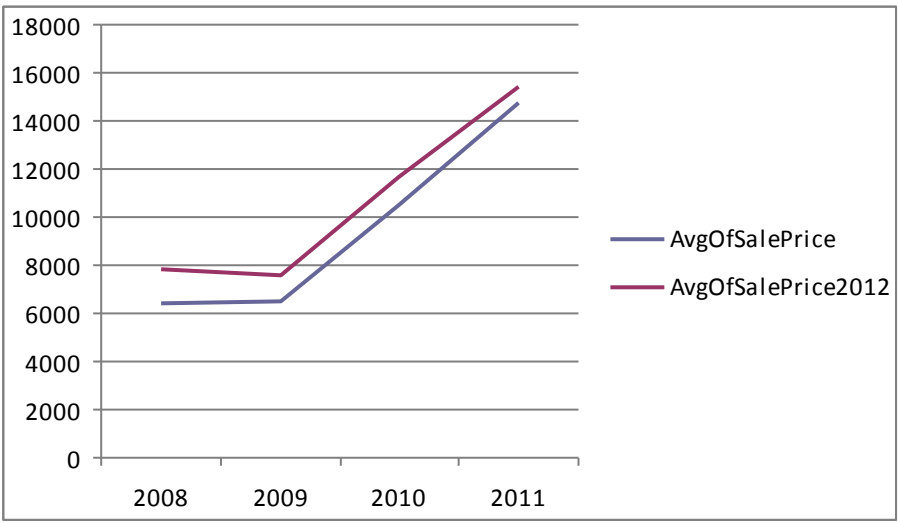
Credit: Arthur Acoca-Pidolle

Figure 23: Santa Marta Price Changes, 2003–2010



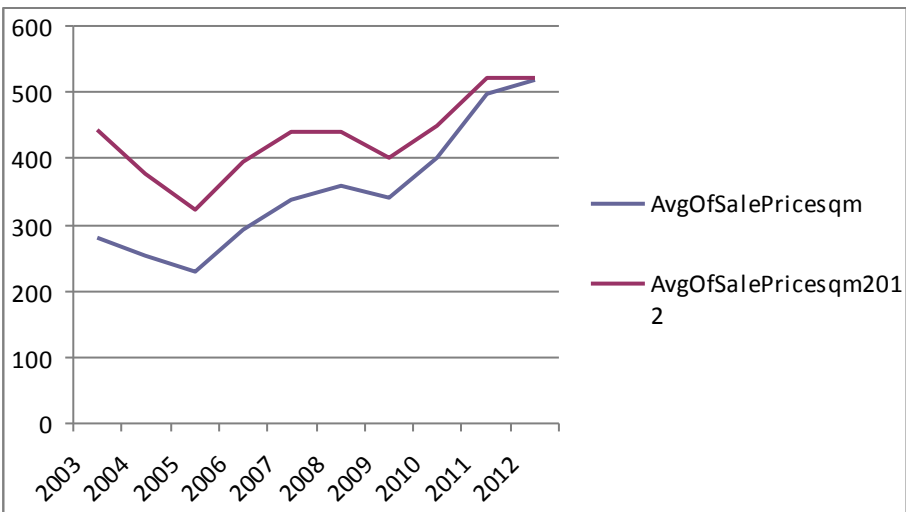
Credit: Arthur Acoca-Pidolle

Figure 24: São Carlos-Minera Price Changes, 2008–2011



Credit: Arthur Acoca-Pidolle

Figure 25: Change in Price per m² for All Favelas (with that data point), 2003–2011



Credit: Arthur Acoca-Pidolle

Appendix I

Fundada em 6 de junho de 1960 CNPJ 28.127.280/0001-12

REGISTRADA NO CONSELHO MUNICIPAL DA CRIANÇA E DO ADOLESCENTE – Nº 02/176/341

A.A.C.M. - Associação Amigos de Chapéu Mangueira

Rua Dr. Vitorino nº 4, Comunidade Chapéu Mangueira, Leme, Rio de Janeiro, CEP 22010-060



CONTRATO DE COMPRA E VENDA

Saiba quantos virem a este Vigésimo terceiro dia de setembro do ano de dois mil e onze , nesta cidade do Rio de Janeiro, reuniram-se as partes entre si, justas e contratadas a saber, a aqui denominada COMPRADORA, a Sra. Shirley Maria de Oliveira, brasileira, solteira , portador da carteira de identidade nº 214208753 do DETRAN do Rio de Janeiro, inscrito no CPF sob nº117546937-84, residente à Dr. João guerra 6 D, no bairro do leme, Rio de Janeiro – RJ e a aqui denominada VENDEDOR, Sr. Jose Carlos da silva Bernardino, brasileiro, casado , representante comercial, portador da carteira de identidade nº052769320 –IFP- RJ, inscrito no CPF sob nº652.790.027-15 , residente e domiciliado nesta cidade

1. Que o VENDEDORO é proprietário do descrito terreno lavrado através de posse e registrado na Associação de Moradores da Comunidade do Chapéu Mangueira e na Secretaria Municipal de habitação (SMH) objeto desta venda.
2. Que o imóvel foi vendido pelo preço de R\$50.000,00(cinquenta mil reais) na Rua Dr. silva N 5 casa B.
3. De comum acordo o pagamento será efetuado no ato da transação.

4. Que a taxa administrativa da Associação de 1% sobre o valor da venda do imóvel, será paga à vista pelo COMPRADOR em moeda corrente no valor de R\$500,00(quientos reais).
5. Que as partes interessadas passarão a responder neste ato, por todos os encargos e responsabilidades com a Associação de Moradores e órgão públicos que venham a recair sobre o imóvel (posse).
6. Que a presente transação é celebrada em caráter irrevogável e irretratável, extensivo aos herdeiros e/ou sucessores das partes interessadas, ficando convencionada pelos Artigos do Código Civil e legitimado pela Associação de Moradores.
7. Que todas as despesas de cartório e demais, ocorrerão por conta das partes individualmente.
8. Que as partes comprometem-se a respeitar todos os direitos e deveres, conforme o Estatuto da Associação de Moradores, associando-se e contribuindo com a mesma mensalmente.
9. Que as partes em comum acordo elegem o Fórum desta cidade como único, para dirimir todas e quaisquer questões advindas do presente contrato, bem como quaisquer litígios decorrentes dessa transação, renunciando a todos os demais por especiais que sejam. E por estarem justas e acordadas e para que se produzam os efeitos jurídicos, assinam o presente instrumento de transação em 3(três) vias de igual teor e forma, para único e mesmo fim de direito, na presença de duas testemunhas abaixo descritas.
10. **Uma casa na Rua Dr. silva N° 05 B que contem sala, 3 quartos, cozinha, 2 banheiros.**

Rio de Janeiro, 23 de setembro de 2011

Shirley Maria de Oliveira
CPF: 117.546.937-84

Jose Carlos da Silva Bernardino
CPF: 625.790.027-15

Testemunha Testemunha
RG: MG4342773 RG: 20935664-1

VALDINEI MEDINA
PRESIDENTE

“ASSOCIAÇÃO AMIGOS DE CHAPEU MANGUEIRA”