

# The Political Origins of Slum Growth and Segregation in Cities

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## Abstract

A growing literature in distributive politics finds that segregation in cities has major implications for public goods provision and distributive outcomes. But why are some cities much more segregated than others in the first place? In this paper, I explore the political origins of the segregation of the poor across cities in Brazil. I first argue that both neoliberal economic reforms in the 1990s and the era of social housing programs in the 2000s were federal initiatives that had segregative effects. However, the partisan ideologies of local mayoral coalitions distort how federal policies impact the development of cities. Depending on how the timing of federal policies (i.e., critical junctures) coincided with mayoral coalitions that happen to be in power at the time, cities became either more or less segregated. Using a close-elections RDD and a panel survey of municipal governments, I first show that during the neoliberal era (1990s), cities that happened to be governed by leftist mayors experienced reduced segregation, while those governed by centrist and right-wing coalitions became more segregated. In contrast, the effect of mayoral partisanship on segregation flips during the roll-out of the federal social housing program, *Minha Casa, Minha Vida* (MCMV). Cities governed by the Left at the time (2008-2012) became *more* segregated, while those governed by centrist and right-wing coalitions reduced segregation by opposing the MCMV. The findings highlight the unintended consequences of popular policies, such as social housing programs, and how the timing of federal policies and municipal partisan coalitions interact to create divergent patterns of urban development.

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# 1 Introduction

Segregation by race and class is a fundamental and persistent characteristic of cities in both the developed and developing world. Spanning multiple disciplines, a growing literature documents the multi-faceted effects of segregation on intergroup relations as well as its effects on broader socioeconomic and political outcomes. Segregation limits access to public goods (Trounstein 2018; Xu 2020), causes higher poverty rates and lower graduation rates (Cutler and Glaeser 1997, Ananat 2011, Sampson 2012, Burch 2014), and reduces intergenerational mobility among minority groups and the poor (Chetty and Hendren 2018<sup>a,b</sup>). Studies in the political geography literature in Political Science have shown that segregation bolsters negative perceptions of out-groups (Oliver and Wong 2003; Enos 2017), reduces inter-ethnic group trust (Kasara 2013), undermines cross-class coalitions for collective public goods by encouraging private services (Xu 2020), and affects both patterns of ethnic voting on the part of voters (Ichino and Nathan 2013) as well as those of ethnic targeting on the part of politicians (Bates 1983, Kimenyi 2006, Posner 2005). The cross-cutting effects of segregation have been well-documented in the literature. However, again, our understanding of the *causes* of such physical urban geographies remains much more limited. Why are some cities much more segregated than others in the first place?

Existing theories on the causes of residential segregation largely emphasize economic mechanisms, such as household incentives to sort into neighborhoods according to their willingness and capacity to pay for local public goods and services (Tiebout 1956) or their preferences for neighbors of the same race or socioeconomic status (Schelling 1971). This seminal literature, however, largely disregards the role of politics in shaping the geographic layouts of cities (Trounstein 2018). In addition, much of the literature focuses primarily on race-based segregation in the United States, documenting the phenomenon of “white flight” from neighborhoods receiving black in-migrants (Cutler et al. 1999, Charles 2006, Bayer et al. 2007, Boustan 2010) and local land-use regulations that intend to “redline” neighborhoods along racial lines (Trounstein 2020). There is, instead, limited attention on how the determinants of class-based segregation are distinct. Although forms of segregation of the urban poor are pervasive throughout developing cities in Latin America and elsewhere in the Global South, these patterns have been understudied.

In this paper, I study patterns in the class-based segregation of the poor across cities in Brazil, one of the most urbanized and socioeconomically unequal countries in the world. I first argue that social housing programs, popular across the Global South, created more segregated cities because units were built in bulk

where land is cheapest on urban peripheries. The segregative effects of these federal social housing programs are magnified in cities that happened to be governed by leftist mayoral coalitions, strong proponents of the policy. Instead, cities governed by centrist and right-wing mayoral coalitions that actively rejected the federal social housing policies became less segregated. For different reasons, I argue that real estate market liberalization during the neoliberal decade in the 1990s, likewise, increased urban segregation. Yet, the federal policy, once again, has contradictory effects across cities, depending on the local mayoral coalition in power. In particular, the effect of mayoral partisanship flips during the neoliberal era relative to that during social housing. Cities governed by leftist mayoral coalitions implemented local zoning regulations in a manner that limits free market forces, reducing segregation. Centrist and right-wing coalitions, instead, reinforced the segregative effects of federal policies that liberalized and privatized urban housing markets. I emphasize that the effects of federal policies on the development of the city are not uniform. Rather, the central argument is that the coincidence (i.e., timing) of federal policies with mayoral partisan coalitions generates divergent trajectories of urban development across cities.

I empirically test the argument and its implications on a larger scale, using a geocoded database of Brazil's *Minha Casa, Minha Vida* (MCMV) social housing units and an administrative panel survey of municipal governments that measures their housing strategy and zoning laws. I combine these different datasets with a fuzzy regression discontinuity design (RDD) in the design of the MCMV social housing program and a close-elections regression discontinuity design (RDD) analysis of the effect of mayoral partisan coalitions across administrations over time. The results first show that during neoliberal housing market liberalization (1996-2000), centrist and right-wing mayoral partisanship causally reduced the adoption of municipal zoning laws that protect centrally located slums from eviction. Left-wing partisan coalitions inclusive of the *Partido dos Trabalhadores* (PT), instead, induced zoning regulation favorable to social interests and also the legibility (i.e., documentation) of households in *favelas* (slums).

Coding measures of class-based segregation using the 2000 and 2010 censuses, I confirm that Left-wing PT-affiliated coalitions causally reduced urban segregation in the 1990s, while centrist and right-wing mayoral administrations increased it. In contrast, leftist coalitions increased segregation in the late 2000s (2008-2012) during the roll-out of the federal social housing program, MCMV. Yet, centrist and right-wing mayoral administrations, instead, causally reduced segregation during the same period. Last, I confirm that the MCMV social housing program (2008-2012) directly increased urban segregation measured in 2010. In

addition, I show that centrist PSDB mayoral partisanship causally reduced the construction of housing units during this period, while left-wing PT partisanship had no effect on the magnitude of units constructed. The findings highlight the theorized effect of left-right mayoral partisan coalitions on the growth and segregation of the poor living in informal “slum” settlements.

Much of the growing literature on urban politics involves studies of distributive politics within an urban setting. For instance, the earlier tomes of the literature (see ???) have been a survey of “who gets what, when, how” (?). Within Comparative Politics, recent research conducted in cities of the developing world can be divided into three themes: clientelism and political intermediation, urban informality and the rule of law, and local public goods provision (Post 2018). Similar to the literature on U.S. cities, the focus has been on understanding the distribution of power within the city and when especially the poor and marginalized receive services and other policy benefits. As Post (2018) notes in her review, besides the rich Economics literature on the local determinants of clustering of agglomeration economies, a political economy focus on the local *politics* behind urban growth has been missing from the Political Science literature. There has been especially limited attention on the politics behind how cities *physically* and *geographically* develop. Yet, as discussed previously, patterns in the geographic development of the city itself affect the very nature of urban politics.

A contribution of this study is that it addresses this gap. With some exception (see Trounstein (2018)), much of the literature on the causes of urban segregation, in particular, focus on isolated, albeit excellent case studies of the phenomenon in one or two U.S. metropolitan areas (see ??????). Beyond case studies, this literature does not offer systematic analyses of the insights advanced. More systematic studies of the causes of racial segregation in the U.S. are available (see ???), but as discussed, they largely disregard the political mechanisms behind such developments. A related literature has focused on national level policies exclusively, such as the effects of the Federal Housing Administration underwriting guidelines (?) or the Home Owners’ Loan Corporation neighborhood investment ratings (?) on segregation. Yet, this literature obscures the substantial subnational variation (Trounstein 2018) and has been exclusively U.S.-focused. With an emphasis on *political* agency, variation across cities, and urban Brazil, this study examines some of the more understudied areas of the literature. It, therefore, builds on budding literature on urban land markets in the Global South (?????????) as well as the related literature on the determinants of urban informality and urban development (Zhang 2013; Post 2018; Nathan 2019; Paller 2019; Jaros 2019; Liu and Zhang 2020;

Zhang 2021).

The paper also relates to the budding literature on social housing programs (see, for example, ?????). Much of the mainstream media and academic literatures praise large-scale social housing programs for their welfare effects. The second core contribution of this paper is that it demonstrates that these programs can still have unintended consequences in exacerbating the spatial exclusion of the poor. It cautions that even during periods of robust pro-poor politics, “good intentions” –normatively speaking– on the part of pro-poor parties may still have detrimental outcomes. Last, this study builds on the more theoretical literature on critical junctures ?? within the broader historical political economy literature, providing applied examples of how the role of timing and sequencing that is central to theories of critical junctures, and illustrates its applications to understanding federalism and intergovernmental relations and the politics of urbanization. Notably, the effect of the critical juncture itself may not be uniform. Rather, its effect is often structured by its co-occurrence with other contextual conditions. Sweeping federal reforms are limited by how local politics constrain or augment their effects, resulting in divergent trajectories of urban development across cities.

## 2 Theory

Cities across the developing world vary in their degree of segregation along class lines. While some cities are characterized by a wealthy core and a ring of informal “slum” settlements segregated on its periphery, others are much more spatially integrated (non-segregated), with pockets of the informal poor interspersed between the wealthier quarters of the city. In Brazil, the notorious *favelas* are a result of decades of rapid migration of the rural poor to the country’s cities throughout the 1900s and early 2000s that political leaders could not or actively chose not to account for. Under authoritarian rule in Brazil (1964-1985), migration-driven urbanization occurred in tandem with more centralized urban planning, resulting in rather uniform spatial configurations across cities of comparable size. In contrast, with decentralization, the introduction of direct elections for municipal governments during the post-democratization era, autonomous mayors in the 1990’s, 2000’s, and 2010’s pursued different policies at specific points in time that either reduced or reinforced class-based segregation in cities. I focus on this recent period of decentralized governance.

As Figure 1 below shows, urban politics in Brazil during the post-democratization era can be divided into two main phases of federal policy. First, the 1990s was characterized by the increasing involvement of the

private sector and market forces, as Brazil embraced another decade of neoliberal economic policies. Second, the roll-out of *Programa Minha Casa, Minha Vida* (PMCMV), the large-scale social housing program in Brazil, in 2009 began a new phase of urban development. I first consider how these two phases of federal policy shaped the development of cities, before unpacking how local partisan coalitions in cities distorted their effects.

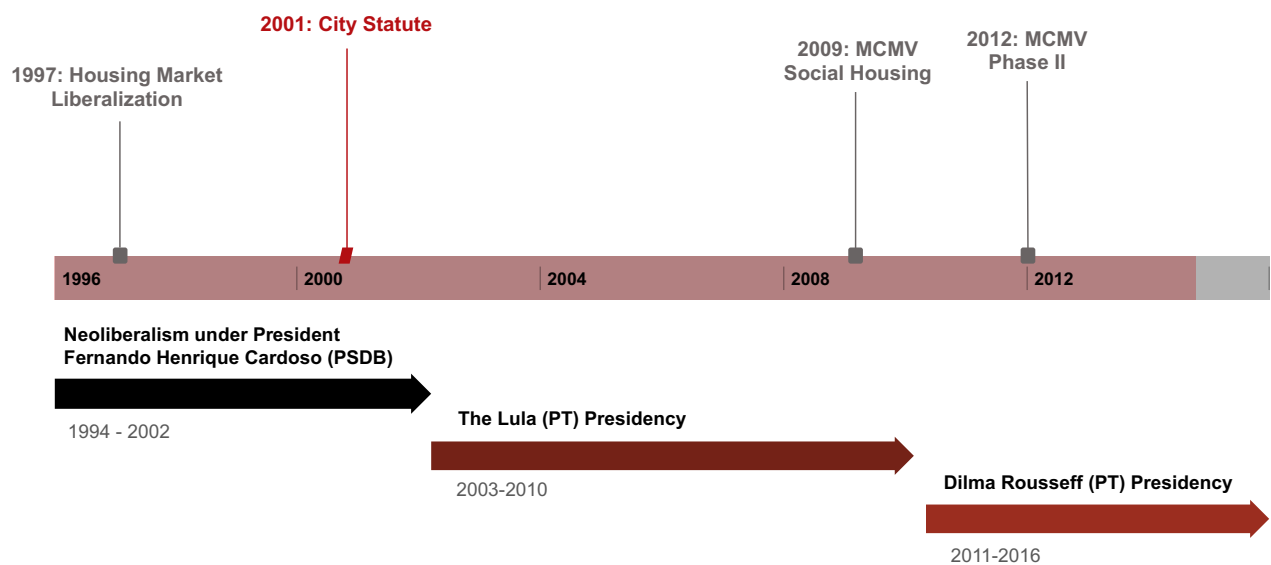


Figure 1: Timeline of Federal Policy

## 2.1 Neoliberal Housing Market Liberalism

Breaking with nearly a century of import substitution industrialization, Latin American governments throughout the 1980s and 1990s embraced, instead, market-oriented neoliberal reforms in response to the growing debt crisis. In Brazil, the administration of Fernando Collor de Mello (1990-1992) (PMDB) pursued privatization and the opening of domestic markets to free trade. Despite the interruptions in this process from Collor's eventual impeachment, the Fernando Henrique Cardoso (1994-2002) administration (PSDB) renewed a consistently neoliberal economic agenda. The roots of neoliberalism in Brazil are, therefore, closely tied to the partisan ideology of centrist parties –namely, the Brazilian Social Democracy Party (*Partido da Social Democracia Brasileira*-PSDB) and the Brazilian Democratic Movement Party

(*Partido do Movimento Democrático Brasileiro-PMDB*) (Power 1998).

Under the neoliberal model, social needs were met through private means that are subject to market forces. For instance, the top-down state privatization of social security and certain services, such as the health care and education systems, is associated with the neoliberal policies of conservative centrist and right-wing parties throughout Latin America in the 1980s and 1990s (Madrid 2003; Weyland 2007; Levitsky and Roberts 2011).<sup>1</sup> Neoliberalism signified the reduction of public expenditure on social policy, which provides targeted poverty relief to the lower tranches of the income distribution who were unable to meet their needs using private market-based alternatives (Levitsky and Roberts 2011). In cities, free market ideology took form as the privatization of urban public space (Caldeira and Holston 2005). To illustrate a specific consequence of neoliberalism for urban housing: the neoliberal period culminated in the Fernando Henrique Cardoso administration's *Sistema Financeiro imobiliário* (SFI), passed in 1997 under *Lei* (Law) 9.517/1997. Providing a series of financing tools to stimulate real estate financing, the SFI was a form of liberalization of urban land and housing markets (Otto 2015). Thus, liberalization meant deregulation, a laissez-faire stance toward also real estate interests locally. Notably, it enabled the participation of a wide array of both domestic and international private financial institutions (e.g., savings, commercial, and investment banks as well as mortgage loan companies) and non-financial institutions (e.g., securitization companies) that previously did not have access to urban real estate markets in Brazil (Otto 2015).

To observe the effects of the housing market liberalization (i.e., the SFI) in the late 1990s, in particular, I plot in Figure 2 trends in urban real estate markets across 39 Brazilian cities over time using a database of commercial real estate establishments provided by the University of São Paulo's *Centro de Estudos da Metrópole* (CEM). Beginning the late 1990s under the new SFI regulation scheme, the number of private real estate actors participating in land grabs and construction expanded considerably. Deregulation of the local real estate market, therefore, induced its uncontrolled growth, driven by competitive profit maximization. As illustrated in Figure 2, the construction of commercial real estate units expanded.

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<sup>1</sup> Although Brazil never fully embraced neoliberalism, voters still attribute the privatization of important public enterprises with Fernando Henrique Cardoso and his centrist party, the *Partido da Social Democracia Brasileira* (Brazilian Social Democracy Party-PSDB).

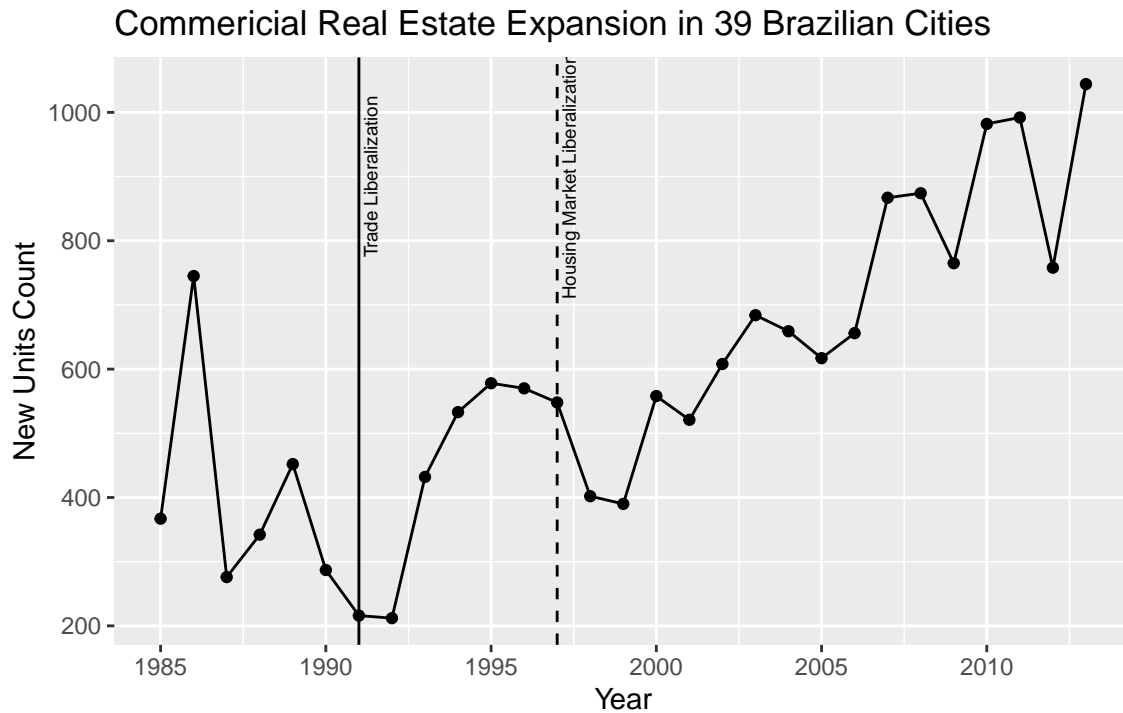


Figure 2: Commercial real estate expansion

It is clear that neoliberal housing market liberalization resulted in a surge in the construction of housing, overall. However, its effects on the supply of housing for the urban poor, in particular, are less clear. The incentives for housing construction can be such that liberalization reduces the housing deficit for all segments of the urban populace. Alternatively, the expansion of the formal commercial real estate market in the city can, instead, crowd out the market for *informal* housing that caters to the poor. Drawing on interviews with public servants and local politicians across cities, I argue that the effects of housing market liberalization were two-fold. First, this federal policy induced informality, the rapid growth of *favelas*. Since the onset of industrialization in Brazil, urban development throughout the 1900s took form as a duality between the formal and the informal city: the creation of a legal and regulated city for the upper classes and an illegal and unregulated one for the working poor (Caldeira and Holston). Deregulation and privatization restructured the supply of urban housing around households at the upper tranches of the income distribution, thereby, increasing the housing deficit for low-income families. As interviewed *Vereador* (City Councilor) Silvio Humberto remarks, during this period, more of the in-migrating poor from the countryside were, instead, compelled to produce housing informally, as supply for low-income housing failed to meet demand in the



formal market.<sup>2</sup> In fact, despite the considerable growth of the formal market, it paled in comparison to the explosion of informality. The majority of the 4.4 million residential units built in Brazil between 1995 and 1999 were those excluded from the formal market (Fernandes Moreira and André Leme 2000).

Second, I argue that in the urban centers, the expansion of the formal market also threatened the existence of long-standing centrally-located informal settlements. Although Brazil's 1988 Constitution recognized the "rights to the city" for the informal poor and marginalized, it fell short of specifying how local governments would implement these goals in practice.<sup>3</sup> As a result, throughout the 1990s, the residents of the *favelas* and *cortiços* continued to live in conditions of precariousness without formal rights to their land. The shift in supply to focus on housing for the wealthy and for commercial interests, in turn, concentrated real estate investments in the most central, high density areas of the city.<sup>4</sup> Growing valuation and real estate speculation of land in the city center spotlighted the illegality of squatters in the *cortiços* and *invasões*.<sup>5</sup> These communities were often pressured to sell their land or were even violently razed and forced to relocate to the urban peripheries. Therefore, for many cities, the decade of neoliberal housing market liberalization occurred in tandem with the eviction of centrally located *favelas*, *invasões*, and *cortiços* ("slums").

## 2.2 Social Housing and the Legacies of the Left

Moving forward from the 1990s, I next consider the more recent period of social housing (2008 onwards) under the Brazilian Worker's Party's leadership at the federal level. In contrast to the neoliberal economic reforms of the 1990s, experiments with social housing across the Global South are strongly associated with the political Left. In recent decades, leftist federal governments across the Global South have adopted large-scale centralized social housing programs, such as India's Affordable Housing for All Programme (or *Pradhan Mantri Awas Yojana* (PMAY)), South Africa's Reconstruction and Development Programme (RDP) for Housing, and Brazil's *Minha Casa, Minha Vida* (MCMV). Although lauded for reducing the housing shortage, these social housing initiatives are often designed without more holistic considerations of the well-being of the poor. For example, housing units are often built without ensuring residents' access to

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<sup>2</sup> Author interview with Vereador Silvio Humberto (PSOL) in Salvador, Brazil on July 31<sup>st</sup>, 2019.

<sup>3</sup> Author interview with João Alberto Cantero, *Diretor, Departamento de Edificações, Secretaria Municipal de Serviços e Obras* (Municipal Secretariat of Services and Public Works) on July 7th, 2017.

<sup>4</sup> Author interview with Heliana Lombardi Artigiani, *Departamento de Controle da Função Social da Propriedade, Secretaria Municipal de Urbanismo e Licenciamento* (SMUL) (Municipal Secretariat of Urbanism and Licensing) on July 7th, 2017.

<sup>5</sup> Author interview with Guilherme Pedroso Nascimento Nafalski, *Secretário Executivo* (Executive Secretary), *SEOC-SMUL, Prefeitura de São Paulo* on July 4th, 2017.

Author interview with Marcos Camargo Campagnone, *Secretário Adjunto - Gabinete, Secretaria Municipal de Urbanismo e Licenciamento* (SMUL) (Municipal Secretariat of Urbanism and Licensing) on June 29th, 2017.

basic infrastructure, such as transportation networks, schools, and health clinics. For Brazil, for instance, existing work has shown that MCMV housing units tend to be concentrated on peripheral tracts of land (Stiphany and Ward 2019) and may contribute to urban sprawl (Biderman et al. 2019).

Consistent with these observations, I argue that large-scale social housing programs induce urban segregation in developing cities. As Delios Malheiros, former Vice Mayor of the Brazilian city of Belo Horizonte, explains in an interview:

They are so so far from city center, the formal city... In the [MCMV] model, when they are removed from their original homes to a more isolated [location]... they lose their integration with their neighborhood ...their people. They need to have many units in the MCMV to have the good price, because the price [can be] super reasonable R\$45,000-50,000 per house. They need to build many units in order to have low price, and it's impossible to build [this many] these units in the central area.”<sup>6</sup>

Thus, the mechanism that explains the segregative effects of social housing programs is the pricing incentives: units are constructed in bulk where land is cheapest. Beyond this claim, which is consistent with existing findings, the focus of this section is on delineating the politics behind how and why this occurs. Because they are highly visible programs that are amenable to credit claiming, social housing programs are strongly partisan pieces of federal policy. At the federal level, the political party and politicians who proposed such social housing subsidies go to great lengths to symbolically brand these programs as a core legacy of the party. Such partisan branding, in turn, affects patterns in the implementation of these programs locally.

Signed into federal law during Luiz Inácio Lula da Silva's ("Lula") second term in 2008, PMCMV is considered to be a hallmark policy of Brazil's Worker's Party (PT). On March 25, 2009, Lula's Chief of Staff, Dilma Rousseff, held a widely televised launch of the program (Stefani 2021), cementing the initiative as a cornerstone of the party's poverty alleviation agenda. It was clear that the program was a core strategy for the party to regain political capital (Andrade 2011), and the PT was very effective in its credit-claiming efforts. Besides tying MCMV to the PT, the publicized launch, likewise, served to bring Chief of Staff Dilma Rousseff into the spotlight shortly before the PT announced her candidacy for the upcoming presidential elections in 2012 (Stefani 2021). As discussed previously, given the party's ties to the Landless Workers' Movement

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<sup>6</sup> Author interview with Delios Malheiros (PV, PSD) (left-wing), Former Vice Mayor and State Deputy of Belo Horizonte, on July 23<sup>rd</sup>, 2019.

(*Movimento dos Trabalhadores Rurais Sem Terra*-MST) and to the offshoot urban squatters' movement, the Homeless Workers' Movement (*Movimento dos Trabalhadores Sem Teto*-MTST), the MCMV satisfied a long list of campaign promises for the PT. Through the program, the PT promised public funds to realize the "Brazilian dream" of home ownership even for the very poor.

Such partisan branding of social housing programs has observable consequences in their patterns of implementation across cities. Subnational executives who are co-partisans praise and push forward the federal program, while those affiliated with the opposition coalition often do everything in their power to restrict its effects locally. Municipal co-partisans are inherently strong proponents of these federal programs, at times, even using the program to tie their own personalistic politics to the party of the President. This form of reverse credit-claiming involves using the PMCMV as symbol for signaling to constituents that the mayor is affiliated with the PT and is generously supported by the federal government.<sup>7</sup> In addition, even when opposition mayors approve of the PT's social housing agenda, they are often restricted in the quantity of social housing units they can build, given the PT's strategy of selective inter-governmental financing for the program.<sup>8</sup> Although leftist mayoral coalitions were generally against free-market capitalism and heavily regulated local housing markets, intergovernmental alignment, in this case, offset these effects. PT mayors, in particular, embraced the PMCMV and even allowed private real estate interests to capitalize on the program. The result of such patterns of partisan politics was that mayors affiliated with the PT coalition built more MCMV housing units. Thus, cities that happened to be governed by the PT or by affiliated parties at the time (2009 onward) became much more segregated.

**Hypothesis 1** *The Minha Casa, Minha Vida social housing program increased socioeconomic segregation.*

**Hypothesis 2** *During the roll-out of the MCMV, mayoral coalitions (2008-2012 electoral mandate) aligned with the President's coalition increased segregation.*

**Hypothesis 3** *During the roll-out of the MCMV, mayoral coalitions (2008-2012) de-aligned with the President's coalition had no effect on segregation.*

## 2.3 Theory II: Mayoral Partisan Coalitions

Yet, because the local Left ideologically rejects free-market capitalism, these mayoral coalitions put in place more land-use and zoning regulations to restrict the effects of federal neoliberal economic reform on

<sup>7</sup> Author interview with Gabriel Azevedo (Independent), current City Councilor (*Vereador*) of Belo Horizonte, on July 19<sup>th</sup>, 2019.

<sup>8</sup> Author interview with *Vereador* (City Councilor) Gilson Reis (PC do B) of Belo Horizonte, on July 22<sup>nd</sup>, 2019.

the local land and housing market within their city. They used a series of local policy tools to constrain the effects of the market and designated centrally located land for “social functions,” a measure that ensures against the evictions of squatter settlements. Conversely, cities that happened to be governed by centrist (PSDB) and right-wing coalitions fully embraced market liberalization, implementing minimal regulations for governing local real estate markets. Deregulation and privatization restructured the supply of urban housing around households at the upper tranches of the income distribution, thereby, increasing the housing deficit for low-income families. Growing valuation and real estate speculation of land in the city center spotlighted the illegality of squatters in the *cortiços* and *invasões*.<sup>9</sup> The other immediate effect was gentrification and the eviction –by market forces– of centrally located squatters. Thus, the laissez-faire stance of conservative mayoral coalitions not only induced informality, the rapid growth of *favelas*, but also increased their segregation on the city’s periphery. Conversely, I expect that the effects of the neoliberal period on the growth of informality and segregation were much more limited in cities that happened to be governed by leftist mayoral coalitions affiliated with the PT.

**Hypothesis 4** *During the decades of free-market neoliberal reforms, Leftist mayoral coalitions reduce slum growth and the segregation of the poor.*

**Hypothesis 5** *Centrist and right-wing mayoral coalitions induce the growth of informal settlements (i.e., favelas, cortiços, loteamentos) and increased class-based segregation.*

The argument spotlights how the timing of this phase of federal regulation –i.e., the concurrence of this critical juncture in federal policy with the local coalitional politics that happened to be at play at the time within each city– is essential. Next, beyond the spatial implications of how left-right political ideologies map onto support for deregulation, I argue that intergovernmental partisan alignment provides exceptions to the theoretical prepositions above. A large body of studies in federalism and intergovernmental relations have observed how partisan alignment across levels of government increases intergovernmental transfers to local aligned jurisdictions (see, for instance, Ansolabehere and Snyder (2006), Solé-Ollé and Sorribas-Navarro (2008), Arulampalam et al. (2009), Berry, Burden, and Howell (2010), Brollo and Nannicini (2012)). My claim differs from that of these existing studies in that I argue that patterns of partisan alignment and

<sup>9</sup> Author interview with Guilherme Pedroso Nascimento Nafalski, *Secretário Executivo* (Executive Secretary), *SEOC-SMUL, Prefeitura de São Paulo* on July 4th, 2017.

Author interview with Marcos Camargo Campagnone, *Secretário Adjunto - Gabinete, Secretaria Municipal de Urbanismo e Licenciamento* (SMUL) (Municipal Secretariat of Urbanism and Licensing) on June 29th, 2017.

de-alignment condition the effect of sweeping federal policies on the development of cities locally. In particular, these patterns of alignment can even counteract the disparate effect of local partisan ideology on urban development. In the next section, I illustrate this claim with an application to federal social housing programs that are popular across the Global South. I derive the hypotheses, drawing from this example and qualitative evidence from three city cases.

## 2.4 City Case Studies: How Mayoral Coalitions Conditioned the Effects of Federal Social Housing

I illustrate the argument further by drawing on qualitative evidence on the case studies of the Brazilian cities of Salvador, Belo Horizonte, and Recife. In the 2008 municipal elections, the city of Salvador, a coastal city in the Northeast of Brazil, re-elected João Henrique Carneiro for the mayoral post by a narrow margin. Although Carneiro was a candidate for the *Partido do Movimento Democrático Brasileiro* (PMDB), a centrist party that was a part of Lula's federal coalition, the PMDB was an opposition party that operated against the local PT coalition in Salvador. In fact, Carneiro narrowly beat runner-up Walter Pinheiro of the PT in the second-round run-off elections that determined the mayoral race.

Carneiro initially adopted the strategy of gluing his image to the President himself, regularly evoking images of Lula during his re-election campaign.<sup>10</sup> In response, the local PT branch in Salvador even appealed to the Brazilian Electoral Court to bar Carneiro from using photos and symbolic imagery of the popular president.<sup>11</sup> In his efforts to piggyback off these successful years for the PT, Carneiro eagerly engaged in the construction of MCMV housing units. However, when it became clear that this was not a viable strategy, Carneiro switched gears, actively cutting local funding for the MCMV and disassociating with the program. During his tenure, City Hall refrained from approving tax exemptions for the MCMV, rendering the program largely inaccessible for the poor. In the end, the City Hall of Salvador only authorized the construction of 380 housing units during his administration in comparison to the average of 4,640 units across other Brazilian capital cities.<sup>12</sup> The PMDB's split from the PT coalition and the partisan competition that dominated local politics in Salvador at the time ensured that the MCMV program would be much less successful. The case example of Salvador, therefore, illustrates how the local partisan dynamics that happen to be place in 2009

<sup>10</sup>“Saiba mais sobre o prefeito reeleito de Salvador, João Henrique Carneiro,” *Folha de São Paulo*, October 26<sup>th</sup>, 2008 <<https://www1.folha.uol.com.br/poder/2008/10/460602-saiba-mais-sobre-o-prefeito-reeleito-de-salvador-joao-henrique-carneiro.shtml>>

<sup>11</sup>Ibid.

<sup>12</sup>Double-check values for Phase I under 3 minimum wages only.

structured the impact of this critical juncture in federal policy. Salvador largely avoided a trajectory of increasing segregation, given the limited impact of the MCMV in the city.

The case study of the city of Belo Horizonte presents a similar trajectory. In 2008, Marcio Lacerda of the left-wing *Partido Socialista Brasileiro* (PSB) party was elected by the same center-left coalition that dominated municipal politics in Belo Horizonte for the previous 16 years. Lacerda forged the coalition by inviting Roberto Carvalho from the PT to be his Vice Mayor (Mendoca Soraggi 2017). With the support of the former mayor of Belo Horizonte, Fernando Pimental, from the PT as well as of Governor Aécio Neves (PSDB), Lacerda was well-positioned to succeed during his first term.<sup>13</sup> Given this alliance –what was often called the “*Pimentécio*” alliance– Belo Horizonte under the Lacerda administration received substantial amounts of PAC financing for *Minha Casa, Minha Vida*.<sup>14</sup> A year into his first term, Lacerda built 483 social housing units during the onset of the program in 2009 compared to the average of 1,632 units built in that year in other capital cities in Brazil.<sup>15</sup>

However, local political dynamics in Belo Horizonte began to take a more contentious turn. Lacerda struggled to forge a consensus in policymaking with Vice Mayor Roberto Carvalho (PT), solidifying a burgeoning split between the PT and the PSB coalition locally.<sup>16</sup> The “*Pimentécio*” alliance between Lacerda (PSB), former mayor Fernando Pimental (PT), and Governor Aécio Neves (PSDB) shortly disintegrated during Lacerda’s initial years in office. Speaking to the popular Brazilian news outlet *O Globo*, Lacerda insisted he had a more passive role in the political rupture, “In reality, neither the PSDB nor the PT wanted the continuity of the alliance in the City Hall. I was a bit like a pawn in that giant dispute.”

Regardless of the extent of his agency in the dispute, this inflection point in local politics in Belo Horizonte impacted the implementation of the MCMV program in the city. After his split from the PT coalition, Lacerda actively undermined the MCMV program, especially during his second mayoral term (2012-2016). His Vice Mayor at the time, Delios Malheiros, reflects in an interview with me, “I think that the man is often misunderstood, unfortunately... Although from all directions, it looked as if he became

<sup>13</sup><https://g1.globo.com/minas-gerais/noticia/lacerda-diz-que-deixa-bh-apos-8-anos-com-as-contas-em-dia-e-atribui-a-gh.html>

<sup>14</sup>[https://www.correiobraziliense.com.br/app/noticia/politica/2010/01/14/interna\\_politica,166401/governo-prioriza-aliados-na-liberacao-de-recursos-para-moradia.shtml](https://www.correiobraziliense.com.br/app/noticia/politica/2010/01/14/interna_politica,166401/governo-prioriza-aliados-na-liberacao-de-recursos-para-moradia.shtml)

<sup>15</sup>Double-check values for Phase I under 3 minimum wages only.

<sup>16</sup>Author interview with Delios Malheiros (PV, PSD) (left-wing), Former Vice Mayor and State Deputy of Belo Horizonte, on July 23<sup>rd</sup>, 2019.

against the poor. My hands were tied as his Vice Mayor.”<sup>17</sup> In a Municipal Housing Council meeting at City Hall in 2016, *Vereador* (City Councilor) Edneia Aparecida de Souza expressed her indignation at the mayor’s inaction. She noted that although Lacerda pledged the construction of 26,000 MCMV housing units for low-income families, his commitment was nowhere close to being fulfilled nor were the emergency alternatives his administration presented to these families.<sup>18</sup> It was clear that beyond his own revised stance towards the MCMV program, Lacerda was also politically and financially constrained. Despite his history with then newly-elected Governor Fernando Pimental (PT) through their former “*Pimentécio*” alliance, Pimental reportedly refused to receive Lacerda at the governor’s office. In a media interview with the news outlet *Itatiaia*, Lacerda remarked, “I took there eight or ten issues that we should discuss and make decisions. The subway was one of them, and I didn’t have any answer. Since then, I haven’t been able to schedule a working meeting with the governor. I meet him, I call him, he says he’s going to score and he doesn’t score.”<sup>19</sup>.

It was clear that Lacerda’s rupture with the PT had consequences for the implementation of MCMV in Belo Horizonte. To deny Lacerda the political gains from building housing units, PT Governor Pimental went as far as to recommend his political base in the city to vote against a set of planned MCMV units for the *Capitão Eduardo* neighborhood in Belo Horizonte. “It is Belo Horizonte, the low-income population that is being harmed by something that I consider somewhat petty in terms of political attitude, not republican,” remarked the mayor in response in the interview.<sup>20</sup> It, therefore, does not come as a surprise that although Belo Horizonte initially received more PAC funding for the MCMV than any other city in 2009, the Lacerda government withheld funds and faced various impediments with PAC management during his tenure (Mendoca Soraggi 2017). Although Belo Horizonte residents lament the intractability of municipal politics under Lacerda, the timing of his administration and of his rupture with the PT, in particular, restricted the segregative effects of the MCMV in the city.

João Henrique Carneiro and Marcio Lacerda were from the centrist *Partido do Movimento Democrático Brasileiro* (PMDB) party and the left-wing *Partido Socialista Brasileiro* (PSB), respectively. Therefore, at most, the municipal leadership in Salvador and Belo Horizonte during the 2008-2012 period could only form

<sup>17</sup> Author interview with Delios Malheiros (PV, PSD) (left-wing), Former Vice Mayor and State Deputy of Belo Horizonte, on July 23<sup>rd</sup>, 2019.

<sup>18</sup> Minutes from the June 16, 2016 meeting of the *Conselho Municipal de Habitação* (Municipal Housing Council) at City Hall. Source available at <http://portal6.pbh.gov.br/dom/iniciaEdicao.do?method=DetalheArtigo&pk=1166196>.

<sup>19</sup> [https://www.itatiaia.com.br/noticia/apos-queixa-de-lacerda-sobre-pessimo-relacionamento-pimentel-promete-dialogo-fb\\_comment\\_id=713264885440148\\_715761748523795](https://www.itatiaia.com.br/noticia/apos-queixa-de-lacerda-sobre-pessimo-relacionamento-pimentel-promete-dialogo-fb_comment_id=713264885440148_715761748523795)

<sup>20</sup> [https://www.itatiaia.com.br/noticia/apos-queixa-de-lacerda-sobre-pessimo-relacionamento-pimentel-promete-dialogo-fb\\_comment\\_id=713264885440148\\_715761748523795](https://www.itatiaia.com.br/noticia/apos-queixa-de-lacerda-sobre-pessimo-relacionamento-pimentel-promete-dialogo-fb_comment_id=713264885440148_715761748523795)



a political coalition with the *Partido dos Trabalhadores* (PT). In contrast to the experience of Salvador and Belo Horizonte, the city of Recife in the state of Pernambuco in the northeast of Brazil happened to elect a mayor from the PT party himself. Winning the mayoral post by a wide margin, João da Costa Bezzerra Filho's (PT) leadership of Recife ensured a different experience for the city during the era of the PMCMV.

da Costa did not hesitate with the implementation of the MCMV in Recife. Unlike his colleagues who governed Salvador and Belo Horizonte, da Costa did not have doubts regarding whether promoting the MCMV would work for or against his political interests nor did he doubt the support of the federal government and "Lula" himself. Whereas João Henrique Carneiro (PMDB) struggled to evoke imagery of the President and claim credit for the MCMV without fighting legal battles with the local PT party in Salvador, da Costa did not face such barriers to reverse credit claiming. In fact, Lula himself personally visited the Metropolitan Region of Recife (MRR) in 2008 to inaugurate the MCMV in the historic city of Olinda within the MRR. Then the mayor-elect of Recife, da Costa was invited to stand alongside the President and his predecessor, mayor João Paulo Lima e Silva (also PT) of Recife, at the ribbon-cutting ceremony.<sup>21</sup> The event also included the participation of the federal Ministers of the Civil House (*Ministra da Casa Civil*) and Lula's successor to the presidency, Dilma Rousseff (PT), Lula's Minister of Cities (*Ministro das Cidades*), Márcio Fortes, and his Minister of Justice (*Ministro da Justiça*), Tarso Genro.<sup>22</sup>

Such public demonstrations of federal support both encourage and facilitate the municipal governments' implementation of the MCMV locally. da Costa was in a position to reverse credit claim and ride on the coattails of "Lula" and the PT popularity at the federal level by actively embracing the MCMV. His administration moved quickly to implement the MCMV as soon as possible: his Secretary of Housing, Heraldo Silva, announced a meeting to tell the public about all the housing options under the MCMV during the first day the MCMV agenda arrived on da Costa's desk at the *Prefeitura* (City Hall).<sup>23</sup> These public demonstrations of federal support also ensures a consistent inflow of financial support to the municipality for the MCMV over time. It provides reassurance to the municipal administration that its political promises of building social housing will not be hollow. As expected, the da Costa administration was able to consistently finance the MCMV in Recife by taking advantage of inter-governmental transfers through the

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<sup>21</sup>"Prefeito João Paulo Participa de Entrega de Casas com Presidente Lula," Prefeitura do Recife, [http://www.recife.pe.gov.br/2008/12/02/prefeito\\_joao\\_paulo\\_participa\\_de\\_entrega\\_de\\_casas\\_com\\_o\\_presidente\\_lula\\_164942.php](http://www.recife.pe.gov.br/2008/12/02/prefeito_joao_paulo_participa_de_entrega_de_casas_com_o_presidente_lula_164942.php)

<sup>22</sup>Ibid.

<sup>23</sup>"PCR convida servidores para reunião sobre programa habitacional," Prefeitura do Recife, May 25, 2009, [http://www.recife.pe.gov.br/2009/05/22/pcr\\_convida\\_servidores\\_para\\_reuniao\\_sobre\\_programa\\_habitacional\\_166795.php](http://www.recife.pe.gov.br/2009/05/22/pcr_convida_servidores_para_reuniao_sobre_programa_habitacional_166795.php).



federal *Programa de Aceleração do Crescimento* (Growth Acceleration Program, or PAC), Lula's infrastructure program for broader economic and infrastructure investment projects.

In addition, almost all of da Costa's MCMV projects in Recife also had public partnerships with the *Caixa Econômica Federal*, the federal state-owned banking institution of Brazil. In fact, the president of the CEF at the time, Maria Fernand Coelho, often accompanied da Costa at the inauguration events for the MCMV in different communities across the city. With the *favelas* in the communities of *Coelhos* and *Vila Brasil*, for example, the CEF pledged R\$29 million in financial resources, alongside the Recife *Prefeitura*'s (City Hall) commitment of R\$11 million.<sup>24</sup> As a public announcement made by the Recife *Prefeitura* notes, the inauguration event in *Coelhos* and *Vila Brasil* symbolizes a partnership between the *Prefeitura* and the CEF, through the support of the National Housing Fund within the Growth Acceleration Program (PAC).<sup>25</sup>

Throughout his tenure as mayor, da Costa continued to reverse credit claim, using the MCMV to remind the public of his ties to the popular President. In his speech pledging the City Hall's commitment to the construction of MCMV housing units in the community of *Esacorregou Tá Dentro* in Recife, da Costa clarified to the public, "We already have the money, we have the project and the commitment of the president, the governor, Caixa [the Federal Bank] and our City Hall. This is the result of two things: the first is your struggle, through the movement of struggle for housing... And the second is the commitment of President Lula, the Minister of the Civil House, Dilma Rousseff, coordinator of the *Minha Casa, Minha Vida* program..."<sup>26</sup> During his administration, Recife built an unprecedented number (i.e., over 45,000) social housing units under the MCMV. Therefore, while Marcio Lacerda struggled, in practice, to implement the MCMV in Belo Horizonte and João Henrique Carneiro actively disassociated with the PT and the MCMV program in Salvador, the da Costa administration used the MCMV to transform social housing in Recife. In doing so, Recife became a much more socioeconomically segregated city, as the *Prefeitura* relocated a proportion of the city's poor to the new housing units on the periphery.

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<sup>24</sup>"Prefeito anuncia licitação para construção de habitacionais nos Coelhos e Vila Brasil I," Prefeitura do Recife, [http://www.recife.pe.gov.br/2009/05/08/prefeito\\_anuncia\\_licitacao\\_para\\_construcao\\_de\\_habitacionais\\_nos\\_coelhos\\_e\\_vila\\_brasil\\_i\\_166633.php](http://www.recife.pe.gov.br/2009/05/08/prefeito_anuncia_licitacao_para_construcao_de_habitacionais_nos_coelhos_e_vila_brasil_i_166633.php).

<sup>25</sup>Ibid.

<sup>26</sup>"Boa notícia. João da Costa assina a construção de 446 novas moradias no Recife. Caixa diz que nunca antes na história construiu-se tanto," *Jornal do Comércio*, December 12, 2009, <https://jc.ne10.uol.com.br/blogs/jamildo/2009/12/12/boa-noticia-joao-da-costa-assina-a-construcao-de-446-novas-moradias-no-recife-166633.php>.

### 3 Data and Research Design

#### 3.1 Summary of Datasets and Variables

To test the qualitative insights derived from semi-structured interviews on a larger scale, I draw on a series of different historical and administrative data sources. First, I calculate measures of the segregation of the poor living in informality using Brazil's 2000 and 2010 censuses. Second, I use elections data available from Brazil's *Tribunal Superior Eleitoral* (TSE) (Electoral Court) on the universe of political candidates for mayoral office in the 1996 and 2008 municipal elections. Third, I use a novel panel survey of municipal governments available from Brazil's MUNIC database to measure the adoption of different municipal zoning and land-use policies that affect the protection and eviction of *favelas*. Combining these datasets, I code measures of the margin of victory of municipal partisan coalitions inclusive of Brazil's Worker's Party (PT) and of the PSDB party to conduct a close-elections regression discontinuity design for estimating the effects of partisan coalitions during the 1996-2000 and the 2008-2012 mayoral administrations on 1) land-use and zoning policies, and 2) on the actual socioeconomic segregation of the city.

I supplant these main analyses with an evaluation of the historical trends in urban real estate markets, using a geocoded database (shapefiles) of commercial real estate launches for 39 Brazilian cities between 1985 and 2013 made available by the University of São Paulo's *Centro de Estudos da Metrópole*. Last, I also use an administrative database of geocoded MCMV housing units, quantity of units contracted, date of contract with developer, and other measures available from Brazil's *Ministério das Cidades* (Ministry of Cities) to study the effects of the social housing program. In the following sections, I discuss the databases, coding, and estimation strategies in greater detail.

#### 3.2 Measuring Class-Based Segregation

I use the *seg* package in R, census tract data available from Brazil's *Instituto Brasileiro de Geografia e Estatística* (IBGE) and the U.S. Census Bureau, and shapefiles of administrative boundaries to calculate four different measures of segregation: the *spatial dissimilarity*, the *spatial information theory*, the *interaction*, and the *isolation* indices for municipalities (i.e., cities) in Brazil, commuting zones in the U.S., and neighborhoods in São Paulo. Commonly used indices in Sociology, Economics, and Urban Planning, these four measures vary in the extent to which they measure the two main conceptual dimensions of segregation, or “spatial distance:” 1) spatial exposure (or spatial isolation), and 2) spatial evenness (or spatial clustering)

(see Appendix A1 for a more thorough discussion). I invert the segregation indices to reflect integration (non-segregation), or *reduced* “spatial distance” to the poor, and I use the labels “integration” and “reduced ‘spatial distance’” interchangeably.

As a concept, “spatial distance” directly captures cognitively perceiving the poor. I confirm that these socioeconomic integration indices strongly predicts the rich’s frequency of physical encounter with the poor in the streets, using original survey measures of contact collected in my face-to-face survey. I use the methodologies detailed in Reardon and O’Sullivan (2004) and (Garcia-López and Monreno-Monroy 2018) as a specific reference for constructing the measures. I reserve the technical details regarding these definitional dimensions of integration and the exact calculation of these indices for Appendix A1. I focus on the segregation of the poor, using the 25<sup>th</sup> percentile of income as a threshold.<sup>27</sup> However, I test the robustness of the results to using different thresholds of income. To give a sense of the extent of variance in

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<sup>27</sup>Given discrepancies with Brazilian census data, I use the 20<sup>th</sup> percentile of income for calculating integration across Brazilian municipalities.

the index for municipalities across Brazil, the *spatial dissimilarity index* is mapped below:

**Spatial Distance Index (Segregation), (0 – 1)**

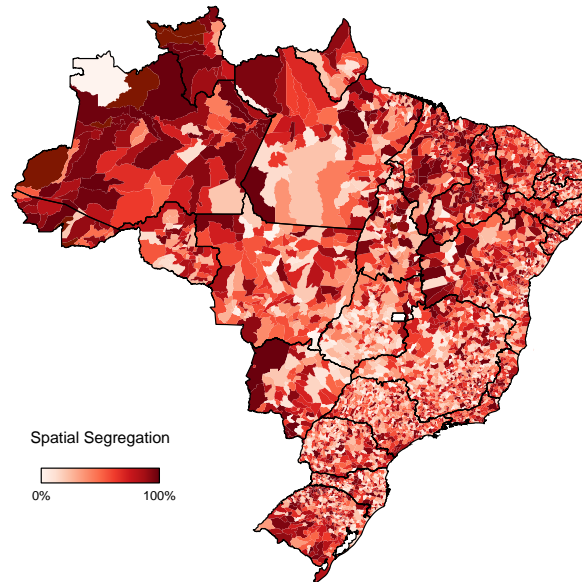


Figure 3: The Spatial Dissimilarity Index. Calculated using 2010 Brazil census tract data from *Instituto Brasileiro de Geografia e Estatística* (IBGE).

### 3.3 The Estimation: Measuring Mayoral Partisan Coalitions and a Close-Elections RDD

The empirical analyses focus on two mayoral mandates: 1996-2000 and 2008-2012. I estimate a close-elections regression discontinuity design (RDD) (Eggers 2015) to observe the effect of on mayoral partisan coalitions on municipal land-use regulation and segregation. The estimation allows for the comparison of municipalities in which PT- (or PSDB-) affiliated political coalitions barely won the mayoral election to those in which the aligned candidate barely lost. To do this, I use elections data on the winning and runner-up mayoral candidates in the 1996 and 2008 municipal elections to code indicator variables for whether the candidate is affiliated with partisan coalition inclusive of PT party (left-wing) or of the PSDB party (i.e., Fernando Henrique Cardoso's centrist party). I then create the forcing variable,  $MVP_{it}$ , which captures the margin of victory of the PT coalition. The forcing variable is continuous around the discontinuity threshold, with the  $MVP_{it} > 0$  if the mayoral candidate from the PT or is in a local electoral coalition with the PT wins

the election and  $MVP_{it} < 0$  if not.

The sample of municipality-years used in the model is determined by two main criteria. First, the RDD analysis must be restricted to electoral races where there exists at least one mayoral candidate aligned with one or more of the senators. Second, as recommended in (Imbens and Lemieux 2008), since I apply a local linear regression with a triangular kernel, the sample of municipalities used in the estimation is restricted within the optimal interval  $MVP_{it} \in [-h, +h]$ , defining the margins of “close elections.” This optimal bandwidth is calculated for each independent variable separately according to (Calonico et al. 2014). The local linear regression with triangular kernel is a non-parametric fit in a local data space at the cut-point  $MVP_{it} = MVP_0$  and a set bandwidth around  $MVP_0$  (in this case, zero). The value of  $\hat{S}_{it}(MVP_0)$  at the point  $MVP_{it} = MVP_0$  is estimated for each  $MVP_0$ , and the result is a smoothed conditional expectation function:

$$E[S_{it} | MVP_{it}]$$

The main model specification is as follows:

$$S_{it} = \alpha_0 + \pi_0 PT_{it} + \alpha_1 MVP_{it} + \pi_1 PT_{it} \cdot MVP_{it} + \theta X_{it} + \delta_t + \gamma_s + \eta_{it} \quad (1)$$

where:

- $S_{it}$  = Segregation measured in municipality  $i$  at time  $t$  (2000 or 2010); Zoning regulations (1999 only)
- $MVP_{it}$  = Margin of victory of mayoral candidate aligned with senator(s) in municipality  $i$  at time  $t$  (Forcing Variable)
- $PT_{it}$  = Indicator for PT-affiliated mayoral coalition in municipality  $i$  at time  $t$
- $X_{it}$  = A vector for time-varying controls for municipality
- $\delta_t$  = Year fixed-effects
- $\gamma_s$  = State fixed-effects
- $\alpha_i + \eta_{it}$  = Composite error clustered by municipality.

The identification assumption of the regression discontinuity design (RDD) is that of the continuity of average potential outcomes around the threshold:

$$E[S_{it}(d) \mid MVP_{it} = mvp] \text{ is continuous at } mvp \text{ around } MVP_{it} = c \text{ for } d = 0, 1 \quad (2)$$

Given this identification assumption of continuity holds, the average treatment effect (ATE) of PT-affiliated mayoral coalition can be identified as follows:

$$E[S_{it}(1) - S_{it}(0) \mid MVP_{it} = 0] \quad (3)$$

$$= \lim_{\eta \downarrow 0} E[S_{it} \mid MVP_{it} = \eta] - \lim_{\eta \uparrow 0} E[S_{it} \mid MVP_{it} = \eta] \quad (4)$$

In other words, election cases where the mayoral candidate affiliated with the PT barely wins have comparable unobservable characteristics with elections where the aligned candidate barely loses. Within the optimal bandwidth, each mayoral candidate in the sample has an equal chance of winning or losing the election by a narrow margin (Lee 2008). Although there may be a series of other covariates, such as candidate demographic attributes, campaign financing, and other unobservables, that could affect a candidate's probability of winning, the effects of these "predictable" variables are outweighed by random chance when elections are close (Brollo and Nannicini 2012).

I will employ a series of balance tests [to be done] to confirm that the population of cases on both sides of the discontinuity cut point are comparable in unobservables. I test for both continuity in baseline covariates around the treatment threshold and the density of the forcing variable to ascertain whether the identification assumption holds. To test for sorting at the discontinuity threshold, I also conduct both 1) a visual assessment of histograms of the forcing variable,  $MVP_{it}$ , and 2) a McCrary (2008) test. As the visual inspection of the histograms of the running variable show in Figure 2 (see Appendix), there are no bins that overlap at the threshold, confirming the absence of sorting. The McCrary test produces a p-value of 0.1678, so the null hypothesis cannot be rejected at the  $p < 0.05$  level.<sup>28</sup> In other words, as the plot of the test in Figure 3 below shows, there is no indication of manipulative sorting at the threshold. In sum, neither of these validity tests indicate any evidence of manipulative sorting around the cut-point,  $MVP_{it} = 0$ .

<sup>28</sup>The McCrary (2008) test estimates the density of the running variable on both sides of the discontinuity threshold and the log difference in height between the densities on either side. The test posits the null hypothesis of continuity in the densities of the forcing variable at the threshold against the alternative by aggregating kernel local linear regressions of the log of the density on both sides of the cut-point.

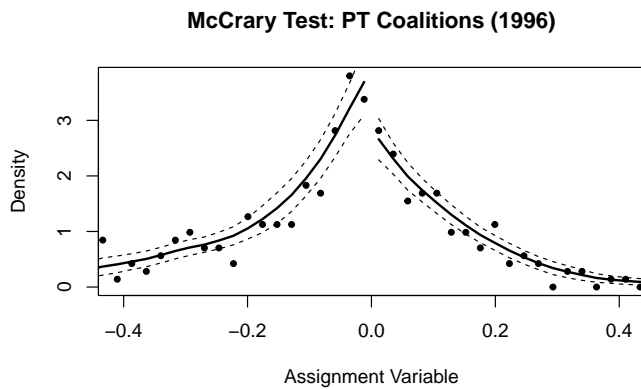


Figure 4: McCrary  $p$ -value of 0.1677978.

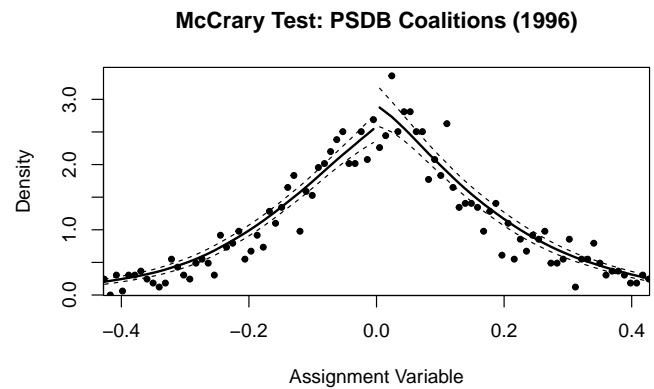


Figure 5: McCrary  $p$ -value of 0.2188964.

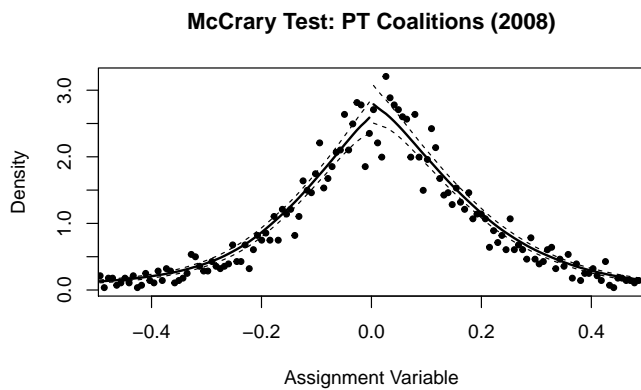


Figure 6: McCrary  $p$ -value of 0.3336608

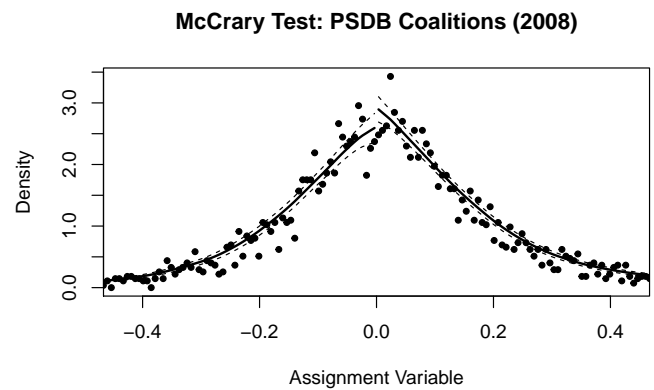


Figure 7: McCrary  $p$ -value of 0.1114635.

### 3.4 A Population Threshold in the Design of *Minha Casa, Minha Vida*

The MCMV program assigns differentiated social housing price ceilings to cities according to arbitrarily determined city population thresholds (e.g., 50,000 inhabitants). Using a fuzzy regression discontinuity design around the 50,000 population threshold, Gontijo et al. (2018) find that cities right above the 50,000 threshold have a higher average social housing price than those right below the threshold. In other words, the discrepancy between municipalities with population just below compared to just above the threshold captures a R\$25,000 difference in the price ceiling for enrollment in Minha Casa, Minha Vida. And since, the program caters to specific lower income brackets (i.e., Bracket II: 3 to 6 minimum wages, Bracket III: 6 to 10 minimum wages), this allows for an instrument for a housing price shock to specifically these income groups.

#### First Stage IV:

$$T_i = \alpha_0 + \lambda_1 1_{50,000} + f_1(Pop_i) + \epsilon_i \quad (5)$$

#### Second Stage:

$$Y_i = \alpha + \beta_0 \cdot T_i + f_1(Pop_i) + \eta_i \quad (6)$$

It is plausible that more MCMV housing units were constructed in cities above compared to below this threshold, hence MCMV had less of an impact on segregation for cities right above 50,000 compared to those below. I, therefore, use a fuzzy regression discontinuity design to estimate the effect of the construction of more MCMV housing units in cities right above of the thresholds on their socioeconomic segregation measured in 2010.

## 4 Empirical Results

### 4.1 Urban Politics under Neoliberal Market Reforms, 1996-2000

This section focuses on testing the theoretical predictions drawn from the qualitative case analysis regarding the post-democratization period. I begin by examining the 1996-2000 mayoral administration. As Figure 4.7 below shows, trends in commercial real estate expansion broadly illustrate how beginning with Cardoso's federal policy of housing market liberalization in the late 1990s, a difference emerges between cities governed by centrist or right-wing mayoral coalitions (salmon) and those by coalitions of the left (green). The growth in commercial real estate units starting in the late 1990s is largely concentrated in the former. Mayoral coalitions inclusive of the PT, in contrast, worked to limit the effects of market forces on local housing markets. Real estate expansion was, as a result, much more muted in these cities governed by the left at the time (green line).



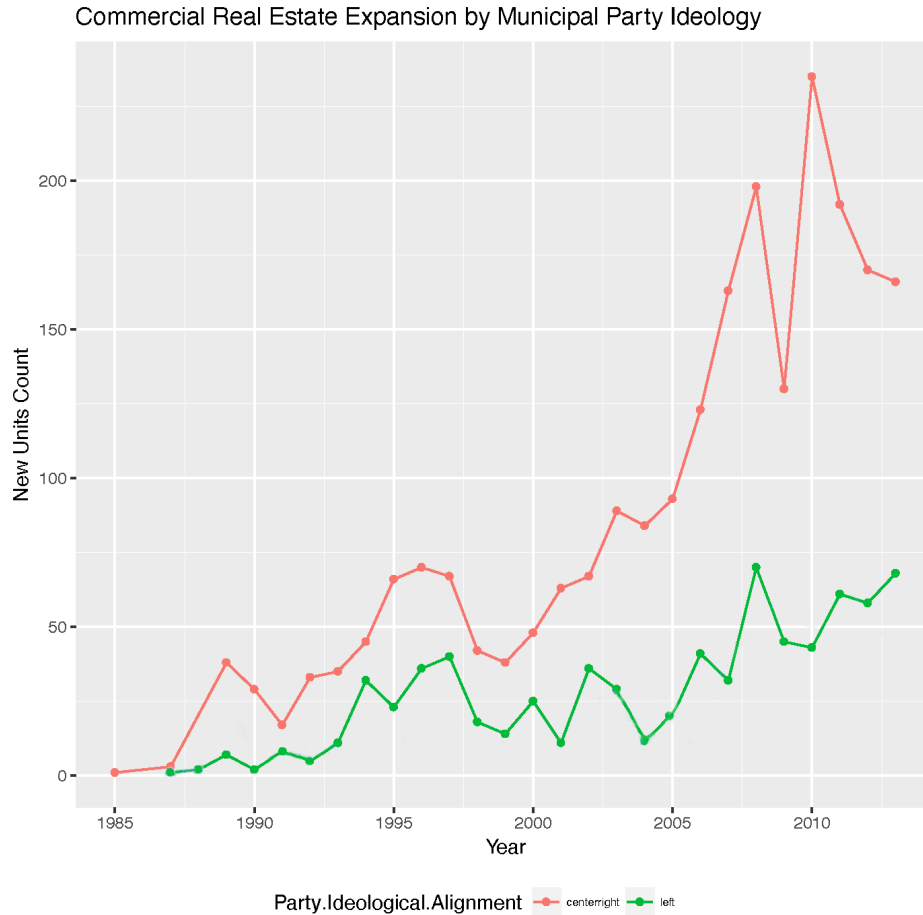


Figure 8: Commercial real estate expansion across 39 cities by mayoral partisan coalitions.

Second, using the MUNIC panel survey of municipal governments, I examine the effects of mayoral partisan coalitions during the 1996-2000 mandate on the adoption of different local land-use regulations by 1999. Existing work by Trounstein (2020) on the political causes of segregation in American Politics argues that restrictive land-use regulations, promulgated by local governments, generate urban segregation. Her work demonstrates the local conditions, such the share of white Americans, that induce such policies from municipal governments. The argument advanced here, instead, highlights that mayors also use local land-use regulation to stifle the effects of federal policy that have segregative effects. Although the Left was constrained locally during the deregulation of housing markets at the federal level, they had certain local policy tools at their disposal to mitigate the Cardoso era policies. Mayors elected on partisan coalitions affiliated with Cardoso's centrist presidential coalition also use these same policy tools to exacerbate the segregative effects of federal policy.

First, minimum lot size regulations set minimum standards (e.g., square footage of lot) required for a parcel of land to be considered legal, a part of the “formal city.” In 1979, the military regime set a minimum lot size standard of 125 square meters (Macedo 2008). However, since 1979, municipal governments varied in whether they adopted the policy locally. Minimum lot size standards are difficult to meet for some low-income households. It designates housing that occupies land below this lot size threshold to be illegal. Therefore, this type of local zoning policy precludes the state’s paving of roads and the extension of basic public services to these areas of the city, creating informal “slum” communities. As detailed earlier, I use a close-elections regression discontinuity design to estimate the effect of having a mayoral coalition inclusive of Cardoso’s PSDB party. Presented in Figure 10 below, the results show that while PSDB coalitions had no effect on the adoption of this policy, PT coalitions had a negative effect on the implementation of minimum lot sizing by 1999. The outcome variable here is an indicator variable for whether each municipal government has adopted a minimum lot size standard of at least 125 square meters by the end of the 1996-2000 mayoral administration (measured in 1999).

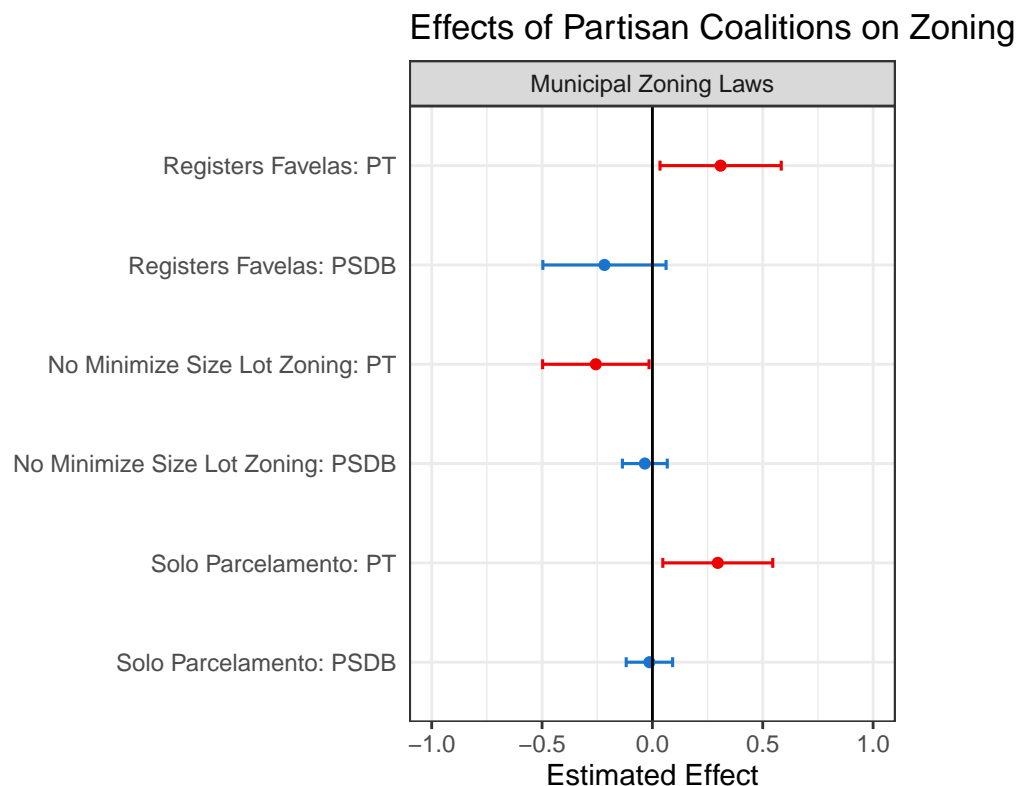


Figure 9: Close-Elections RDD: Mayoral Partisan Coalitions on Zoning Laws (1996-2000)

Next, *Solo Parcelamento*, also known as *Solo Criado*, and *Zona Especial de Interesse Social* (ZEIS) (Zones of Social Interest) are two types of policy tools that increase the amount of land available for the social function of property (Macedo 2008) usually in the central areas of the city. In other words, these policies expand the selection of land that city governments can designate for the development of new low-income housing units or for the regularization (*regularização*) (i.e., extension of rights) of pre-existing centrally-located informal settlements. Using once again the close-elections regression discontinuity design, the results show that during neoliberal market liberalization (1996-2000), PSDB coalitions have no effect on the implementation of *Solo Parcelamento* as a policy, while PT coalitions have a positive effect on its adoption.

In addition, as the results in Figure 11 below show, PSDB coalitions causally reduce the designation of urban land of social interest (ZEIS) and the land regularization (i.e., extension of property titles and formal upgrading with basic services) of *favelas* where they are. This set of results demonstrate that centrist mayoral coalitions have a negative effect on the centrality in the location of slum settlements. They reduce both the designation of centrally located land for social housing and the prevention of the razing of pre-existing centrally-located slums by extending property titles. In contrast, PT coalitions have no effect on the designation of ZEIS and on land tenure regularization. Finally, I also examine the municipal governments' efforts to survey low-income households living in informal settlements, improving the state's legibility of these communities living in illegality. The results show that PT-affiliated mayoral administrations also have a positive effect on the documentation of *favelas*.

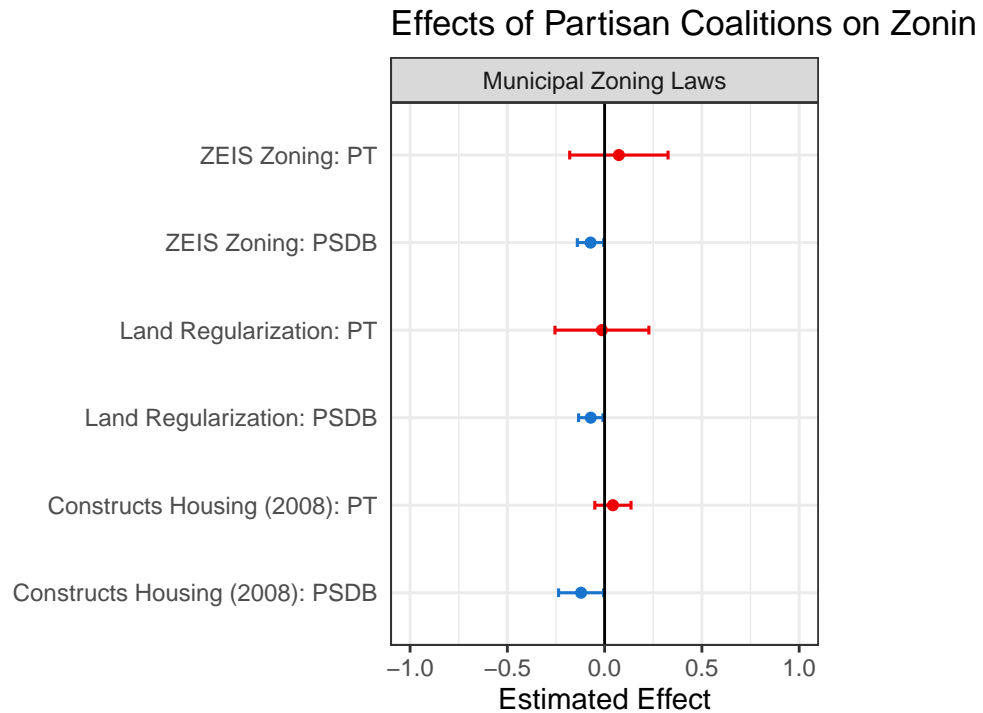


Figure 10: Close-Elections RDD: Mayoral Partisan Coalitions on Zoning Laws (1996-2000) and housing construction (2008-2012).

## 4.2 Urban Politics during the Era of Social Housing, 2008-2012

Fast forwarding a decade to the late 2000s, my theory expects the Worker Party's (PT) federal social housing program, *Minha Casa, Minha Vida* (MCMV), overall, increased the segregation of Brazilian cities. I test this claim, using the population threshold in the design of the *Minha Casa, Minha Vida* (MCMV) social housing program discussed in the previous section. Specifically, I estimate the effect of a lower average price for a MCMV housing unit –i.e., an expected surge in number of housing units constructed above the discontinuity threshold – on municipal class-based segregation coded using the 2010 census. The results, presented in Model (1) Table 2 below, provide evidence that the pricing differential, indeed, increased the number of MCMV housing units constructed. This difference in units constructed, in turn, translates to an increase in segregation for cities right above the threshold (Model 2). The effect is also plotted in Figure 12.

Table 1: RDD: Effect of the MCMV Social Housing Program on Segregation

	(1)	(2)
	Socioeconomic Segregation	Socioeconomic Segregation
MCMV Pricing	0.031*** (0.016)	0.035*** (0.019)
Municipality Controls	No	✓
Region Fixed-Effects	No	✓
Observations	388	342

Standard errors in parentheses

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

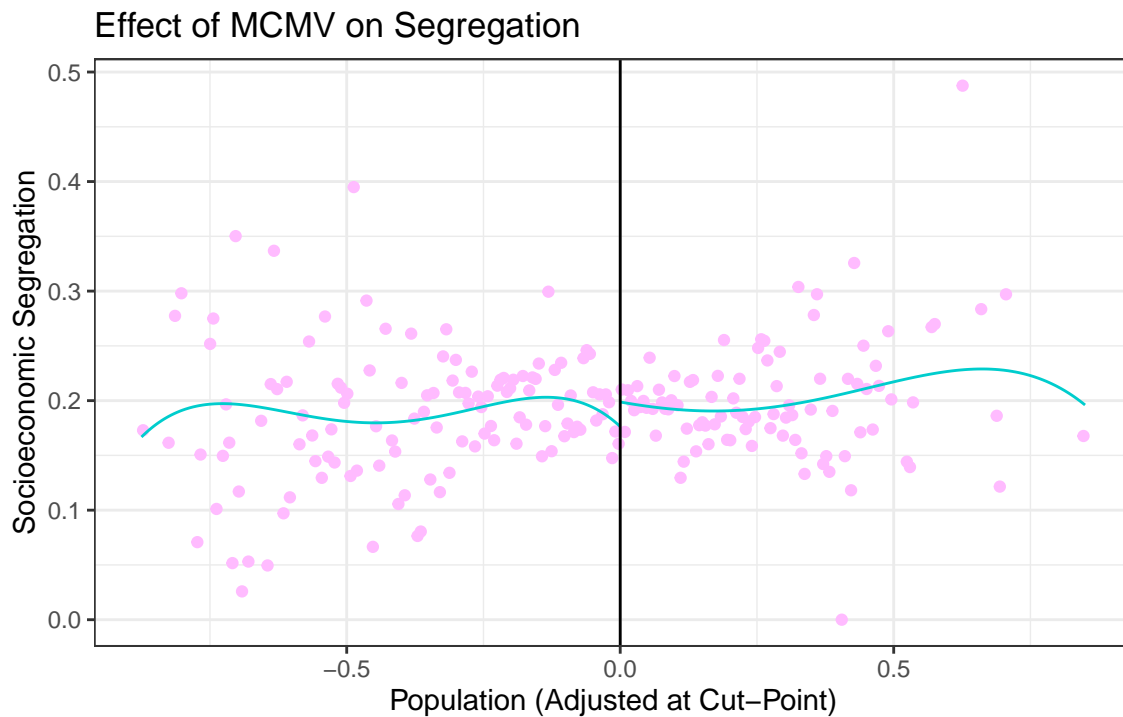


Figure 11: Effect of social housing on segregation. Effect size: 0.031  $p < 0.001$

Together, this set of results provide evidence for the claim that because MCMV housing units were built in bulk where land is cheapest on the peripheries of cities, the social housing program increased the segregation of Brazil's cities. The MCMV social housing program only just began in 2009, and segregation is measured in 2010. I, therefore, expect the estimated effect to be a much more modest estimate than the effect we would observe if segregation were measured at a later date, using the 2020 census once it is released.

Next, my theory also expects that the effect of mayoral partisanship on segregation during the late 2000s switches signs relative to its effect under neoliberalism in the late 1990s. Whereas left-wing mayoral coalitions decreased segregation under housing market liberalization, they increased segregation in the late 2000s because they built more social housing units under the MCMV program. To test this core argument of the chapter, I once again use the close-elections RDD again to estimate the effect of a PT-affiliated mayoral coalition on socioeconomic segregation directly. Specifically, I conduct the close-elections RDD for both the 1996-2000 and the 2008-2012 mayoral administrations. The results show that while PT mayoral coalitions reduced segregation under neoliberal market reforms during the 1996-2000 mayoral administration (Figure 11 below), cities governed by centrist PSDB coalitions experienced an increase in segregation (Figure 12). Table 2 also presents the results in table form. In contrast, while PT coalitions induced segregation under the *Minha Casa, Minha Vida* (MCMV) social housing program during the 2008-2012 mayoral administration (Figure 13 below), centrist PSDB coalitions decreased segregation (Figure 14). Table 3 presents the exact estimates. Again, I expect that the effect sizes are small for the second set of results (2008-2012), because the roll-out of the MCMV only began in 2009, and I am only able to measure segregation using the 2010 census. (Collection of the 2020 census delayed for 2022 because of COVID.) The small, yet statistically significant effects observed during the MCMV, despite how the social housing program had barely begun, is indicative of how much of an impact this juncture in the coincidence of federal policy with local partisanship actually would have with the passing of more time.

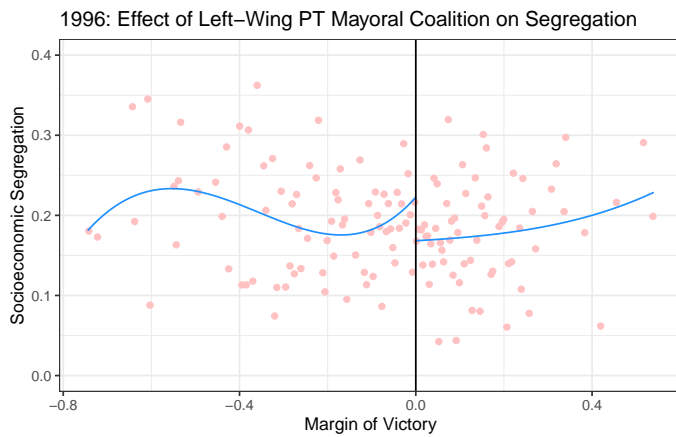


Figure 12: PT-Affiliated Coalition  
Effect size:  $-0.054$   $p < 0.05$

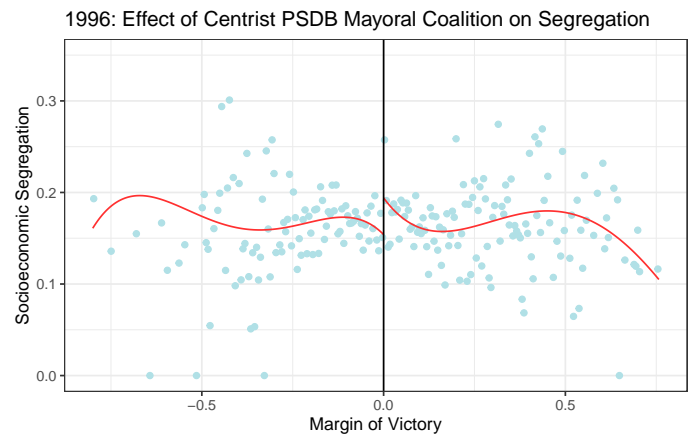


Figure 13: PSDB-Affiliated Coalition  
Effect size:  $0.041$   $p < 0.05$

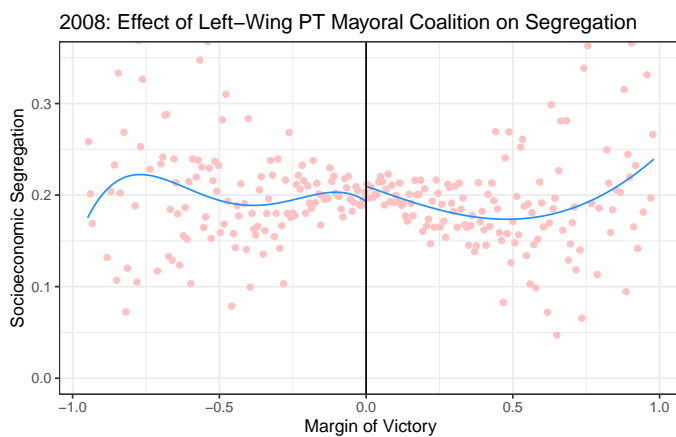


Figure 14: PT-Affiliated Coalition  
Effect size:  $0.020$   $p < 0.1$

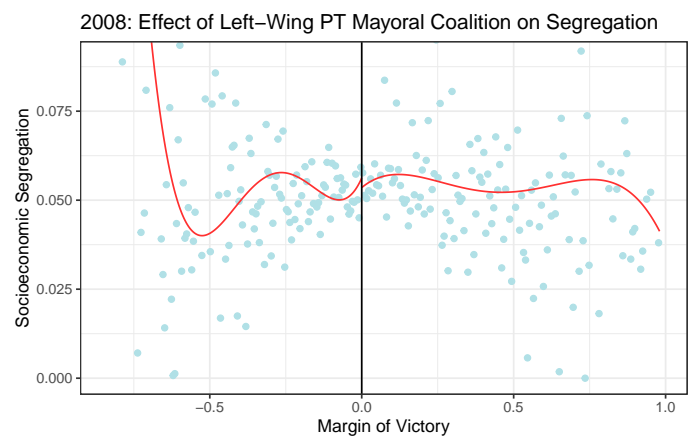


Figure 15: PSDB-Affiliated Coalition  
Effect size:  $-0.011$   $p < 0.1$

Table 2: RDD: Effect of Mayoral Partisan Coalitions on Segregation (1996-2000)

	(1) Segregation, 2000	(2) Segregation, 2000
PT Mayoral Coalition	-0.054** (0.027)	
PSDB Mayoral Coalition		0.041*** (0.016)
Municipality Controls	✓	✓
Region Fixed-Effects	✓	✓
Observations	272	1,512
Standard errors in parentheses		
* $p < 0.1$ , ** $p < 0.05$ , *** $p < 0.01$		

Table 3: RDD: Effect of Mayoral Partisan Coalitions on Segregation (2008-2012)

	(1) Segregation, 2000	(2) Segregation, 2000
PT Mayoral Coalition	0.020* (0.011)	
PSDB Mayoral Coalition		-0.011* (0.006)
Municipality Controls	✓	✓
Region Fixed-Effects	✓	✓
Observations	1,775	1,897
Standard errors in parentheses		
* $p < 0.1$ , ** $p < 0.05$ , *** $p < 0.01$		



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