Slum Redevelopments and Evictions in a Developing Megacity

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Abstract

Slum redevelopment policies are widely used to curb slum growth and regenerate urban neighbourhoods. I study the short and medium term effects of slum clearance and redevelopment on incumbent slum residents by assembling a novel residential mobility panel to track all 12 million residents of the city over 15 years by digitising and matching electoral roll records. Exploiting variation in the year of redevelopment approvals across slums, I use a staggered difference-in-differences design to estimate the effects of redevelopment driven evictions on slum residents. Slum residents who are entitled to own an apartment in the redeveloped slum neighbourhood are permanently displaced from the neighbourhood with limited transitions out of slum living. The vast majority of displaced slum residents entitled to own an apartment in the redeveloped slum move to slum neighbourhoods elsewhere, contributing to their expansion or densification. Using digitised project records and high resolution daytime satellite data, I document substantial non-completion after slum clearance and large lags between slum clearance and completion of units for slum residents that drive down transitions out of slum living for incumbent residents. Residents who had no right to compensation move to other slums and take longer to transition out of slum living. My results suggest that that while slum redevelopments may have positive effects on the neighbourhood, these benefits may be undone by displacement of slum residents to slums elsewhere.

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1 Introduction

More than one billion people live in slums (UN-Habitat, 2024).[1] On the one hand, slums could potentially be a cheap stepping stone to opportunities in the city and eventually, better living conditions (the 'modernization view')(Frankenhoff (1967); Glaeser (2012); Turner (1969); Bank (2009)). On the other hand, slums feature extremely poor living conditions for inhabitants and potentially negative externalities to nearby neighbourhoods.[2] It has been argued that slums could very well be 'spatial poverty traps', mired in policy and coordination failures that hinder investment and unsanitary living conditions that erode human capital (Marx, Stoker, and Suri, 2013).

The arguments against the proliferation of slums provide an equity and efficiency rationale for slum redevelopment, a widely used policy tool to curb slum growth and regenerate urban neighbourhoods.[3] While there is some empirical evidence on the positive effects on the neighbourhood and positive local spillovers from redevelopment to nearby neighbourhoods (Collins and Shester (2013); Gertler, Gonzalez-Navarro, Undurraga, and Urrego (2024); LaVoice (2024)), we have very little empirical evidence on the impact of slum clearance and redevelopment on incumbent slum residents whose neighbourhoods were redeveloped and policy alternatives that can mitigate the potential negative effects from costly evictions. Incumbent slum residents bear the potential costs of redevelopment and their displacement to other slums could be an important channel that undermines the goal of the policy to curb the growth of slums by expanding or densifying those slums. Moreover, the informal nature of these settlements makes it challenging to track slum residents across long periods of time in data-poor settings.

This paper addresses this gap by studying the short and medium term effects of slum redevelopments on the living conditions of residents whose neighbourhoods were redeveloped. I combine administrative data sources that I digitise with daytime satellite data to evaluate the short and medium term effects of the policy on the living conditions of slum residents. The timing of redevelopment varied from slum

[1] UN-Habitat (2003) defines a 'slum household' as any household lacking access to improved water, improved sanitation, sufficient living area, durable housing, and secure tenure.

[2] Schall (1976) show that negative externalities in 'blighted' neighbourhoods and the resulting coordination problems require a coordinated 'big-push' policy to overcome these challenges.

[3] Slum clearance and redevelopment were a widely used policy tool to regenerate 'blighted' urban neighbourhoods in the late 19th and early 20th centuries in cities in developed countries (e.g. Title I of the Housing Act, 1949 was used to demolish slums across cities in the United States of America, the early slum clearances in London and Manchester date back to the Victorian Era, Haussmann's renovation of Paris in the 1850s launched by Emperor Napoleon III cleared slums in the city) and are now increasingly common in cities in developing countries from the late 20th century.

to slum and the eligibility to obtain an apartment in the redeveloped slum (in-situ compensation) of a slum household was based on their location of residence before policy announcement. My identification strategy leverages spatial variation in the timing of redevelopment approvals of slums to compare individuals in slums that were approved for redevelopment to individuals in eventually approved slums in a *staggered difference-in-differences* (Callaway and Sant'Anna, 2021) design.

Compensation with an apartment in the redeveloped slum generates a tradeoff between the potential costs of eviction and the expected gains from receiving ownership of an asset in the redeveloped slum for slum residents. Risk of non-completion of redevelopment and delays in compensation reduce the expected benefits of an asset shock in place for slum residents and may be particularly costly for poor and credit constrained slum residents who may not be able to transfer resources from good states in the future to bad states today. I combine daytime satellite data and data from digitised redevelopment project paper trails to document evidence of eviction, non-completion and lags in receipt of an asset shock in place.

To address challenges in tracking slum residents, I build a 15 year residential mobility panel for the city of Mumbai by digitising and matching more than eight hundred thousand pages of electoral rolls over time and mapping slum redevelopment application documents that I collect and digitise onto the panel. The residential mobility panel tracks individual-level residential movements across neighbourhoods for the city's 12 million residents over a 15-year period. Slum redevelopment applications are matched to electoral rolls of the neighbourhood using redevelopment project documentation and individuals are then tracked across neighbourhoods in the city over time using electoral rolls. I assemble a panel data set from 2007 to 2022 of all the individuals in slums that were redeveloped between 2007 and 2022 in Mumbai. I take advantage of the fact that redeveloped neighbourhoods were censused before redevelopment and that electoral rolls were used as proof of residence in the slum to identify the redeveloped slum and its inhabitants in the electoral roll. I track these individuals across years by matching electoral rolls over time using the rich identifying information in the electoral roll.[4] Overall, I track 250,000 slum residents in 272 slums that were pre-screened for redevelopment over 15 years to study the effects of redevelopments on incumbent slum residents.

The *Slum Rehabilitation Act* was passed in 1995 with the aim to make cities slum free. The program was large in scope, 1 million residents of the city of Mumbai (half of the overall population of the city at the time) lived in slums in 1995.

[4]The electoral roll contains each individuals full name, father's/husband's full name, age and gender by household, building/neighbourhood and election ward.

All individuals who were resident in the slum before the policy was announced were legally guaranteed ownership of an apartment in the redeveloped slum neighbourhood. The policy featured immediate eviction, i.e. a negative mobility shock, and a positive formal housing asset shock once constructions were completed for those resident in the slum before policy announcement. Slums were redeveloped by consent of slum residents who were in the slum before 1995. Slums were approved for redevelopment only with the consent of more than 70% of eligible slum residents resulting in variation in the timing of redevelopment approvals from 1995 to 2025. The slum residents who moved in after the cutoff year were evicted without legal guarantees of compensation. Redevelopments were conducted and financed by private developers who were incentivised by regulatory accommodations that allowed them to (i) build higher than the statutory floor to built area ratios in their construction projects based on the built area of housing for slum residents; and, (ii) increased the area of land available to build.[5] Importantly, all slum residents could freely choose their residence and were guaranteed ownership of the apartment in the redeveloped slum regardless of their choice of residence.

I divide slum residents into two groups, those who would have been eligible for an apartment in the redeveloped slum neighbourhood if redevelopment was approved based on their electoral roll residence in 1995 and those who had no legal guarantees of compensation upon eviction. For each of these groups, I compare living conditions of the group in neighbourhoods that were approved for redevelopment to living conditions of the same group in a slum that was approved later or never approved for redevelopment in a staggered difference-in-differences design i.e. we are concerned with counterfactual outcomes for slum residents in each group if their slum was not redeveloped. Although slums that were approved for redevelopment or redeveloped may be different from those that were not, my identification strategy relies on the assumption that outcomes evolve in parallel for residents in slums that were approved for redevelopment and those that were never approved or approved later.

The focus of this paper is on the living conditions of slum residents whose neighbourhoods were redeveloped, especially on whether they live in a slum neighbourhood, for the following reasons. First, slum redevelopment policies aim to curb slum growth in the city. However, displaced slum residents moving away to create a new slum or adding to the density of an existing slum elsewhere may simply shift slum population from one place to another, capturing an important channel for non-local (negative) spillovers from slum redevelopments. Second, slum status of the neigh-

[5]Such policies are also common in megacities in developed countries e.g. London requires a third of all apartments built in subsidized land to be affordable housing units, New York requires one third of all new builds to be affordable housing units.

bourhood is of particular interest as slums, in addition to being poor quality neighbourhoods indicative of income status, may be 'spatial poverty traps' (Marx et al., 2013) that entrench its residents in poverty but can potentially be overcome with large enough transfers. Using granular data from the Socio Economic and Caste Census, I document that slum neighbourhoods have worse housing quality, worse public and private service provision in the city and are poorer than formal neighbourhoods, suggesting that residents are significantly more likely to enjoy better housing quality, better service provision and live in richer neighbourhoods in formal neighbourhoods. Third, sorting to higher income neighbourhoods serve as a proxy for upward mobility. Fourth, a large literature shows that neighbourhood quality matters for children's human capital and earnings of adults, outcomes more closely related to long-term welfare of slum residents (Chetty, Hendren, and Katz (2016); Chetty, Friedman, Hendren, Jones, and Porter (forthcoming); Belchior, Gonzaga, and Ulyssea (2023)).

I document severe lags and non-completion in redevelopment. An estimated 66% projects are never finished after the slum is approved for redevelopment. 37% of slums that are cleared and never redeveloped. Conditional on completion, the average time taken for redevelopment is 6 years. Redevelopment approvals significantly increase the likelihood of slum clearance completion by 60% and redevelopment by and 29% on average.

Redevelopment approvals significantly increase the probability that slum residents with the right to an apartment in the redeveloped slum are permanently displaced. They move to neighbourhoods within 2.4 kilometers from their original neighbourhood on average. For slum residents eligible for ownership of an apartment in the redeveloped slum, redevelopment approval significantly increases their probability of living in a formal neighbourhood after approval by only 6.4 percentage points. This small increase in the probability of living in a formal neighbourhood is not driven by residents with the right to an apartment in the redeveloped slum occupying the units they own in the redeveloped slum but by moving to formal neighbourhoods elsewhere. However, I show that residents are four times as likely to move to slum neighbourhoods near the original slum than they are to live in formal neighbourhoods anywhere in the city, undermining the goal of the policy to curb the growth of slums by expanding or densifying slums nearby.

There are no economically relevant effects on the distance to urban amenities and public and private infrastructure like hospitals, schools, parks and public transit stops for residents who receive the right to an apartment in the redeveloped slum. I document very low distance segregation between slum and formal neighbourhoods

and low average distance to urban amenities in the city, consistent with the idea that formal neighbourhoods crowd in amenities to slum neighbourhoods when there is low distance segregation between slum and formal neighbourhoods (Harari, 2024). There are precise null effects on the share of disadvantaged groups or the share of their own religious group within the neighbourhood for both eligible and ineligible slum residents. Within the city, I document a strong degree of segregation based on religion across neighbourhoods that might prevent households from moving to neighbourhoods where a majority of residents are from other religions. My results show that households remain on segregated neighborhood trajectories despite the mobility shock, suggesting that housing markets are fragmented due to residential segregation based on religion.

I combine very high resolution daytime satellite data and digitised project documents to understand why these effects arise. I show that immediate eviction and lag in the asset compensation due to the time taken for construction of units for slum redevelopments as well as project non-completion drives down the transitions out of slum living. Around 29% of slums are never cleared or redeveloped following approval. In 40% of the cases, the slum is cleared and the residents are evicted but the redevelopment is never completed, i.e. the negative mobility shock is realised but the positive asset shock is never realised. All transitions out of slum living are driven by residents in slums that were both cleared and redeveloped. The lag between eviction and asset compensation also matters for transitions out of slum living. Long time-to-build is a feature of large real estate projects everywhere[6]; the average time-to-build is 8.5 years in the Mumbai (Gandhi, Tandel, Tabarrok, and Ravi (2021)). Even though the average construction time for redevelopments in our sample is 6 years, all transitions out of slum living are driven by residents in projects that take less than 4 years to be completed.

Ineligible residents in approved slums are more likely to have arrived later than ineligible residents in never approved slums. Due to differential tenure in the slum neighbourhood for this group, I control for tenure in slum and under additional assumptions, I show that redevelopment approvals had noisily estimated negative effects on the probability of moving out of slum living for ineligible residents i.e. ineligible residents move from one slum to another and are likely to continue in slum living longer relative to residents who are not evicted. These results suggest that evictions are costly since residents who do not have right to compensation move to slum neighbourhoods elsewhere and stay entrenched in slum living longer than

[6]The average construction duration for a multi-family apartment in the US is 37 months (https://www.census.gov/construction/c30/pdf/t324.pdf).

their non-evicted counterparts.

Taken together, my results show that while a small share of residents who receive the right to an apartment in the redeveloped slum enjoy better living conditions on average as they sort into formal neighbourhoods, they are permanently displaced. The vast majority of displaced residents with the right to own an apartment in the redeveloped slum move to slum neighbourhoods elsewhere. Even when residents receive the right to own an apartment in the redeveloped slum, slum redevelopments result in slum creation, densification or expansion elsewhere through the displacement of incumbent slum residents. The combination of immediate eviction and delayed and uncertain asset compensation inherent to redevelopments with on-site rehousing drives down transitions out of slum living.

Contribution to Literature. This paper mainly contributes to the literature that studies the impacts of slum clearance and redevelopment policies. Research on slum redevelopment policies have primarily focused on the impacts on the neighbourhood that is redeveloped and spatial spillovers to nearby neighbourhoods (Schall (1976); LaVoice (2024); Collins and Shester (2013); Gertler et al. (2024)). While these studies estimate the benefits of redevelopment to the neighbourhood, this paper complements these studies by focusing on the costs of slum redevelopments that are borne by slum residents and in particular, the differential costs borne by slum residents who were eligible and not eligible to receive an apartment in the redeveloped slum. Secondly, I identify a potential channel for negative non-local spillovers: while redevelopments may be beneficial to the neighbourhood that is redeveloped, negative spillovers may arise if redevelopments displace slum dwellers to other slums in the city by increasing the population density in these slums or expanding them or creating new slums. A few recent papers have also looked at the effect of slum clearances on slum dwellers. Rojas-Ampuero and Carrera (2025) studies the impact of forced displacement on slum dwellers by comparing slum dwellers who were affected by two slum policy alternatives with each other. To identify the long run displacement effect, they compare slum residents living in an apartment building in the original neighbourhood vs. slum residents who were forcibly relocated elsewhere after matching on observable slum level characteristics. A contemporaneous research paper, Bryan, Franklin, Getahun, and Winton (2025), also examines the short-term effects of forced relocations on slum residents using a border regression discontinuity design combined with a survey of 5000 residents in 15 slums before and 5 years after eviction. This paper complements these studies by identifying both short and long term effects of slum redevelopments on slum dwellers who received housing on-site and those who were evicted without compen-

sation by comparing them to the counterfactual of continuing to live in the original slum. Bryan et al. (2025) shows that eviction with relocation to the suburbs has no short term adverse effects on economic outcomes while Rojas-Ampuero and Carrera (2025) shows that forced relocation to suburbs in the previous century negatively affect education and earnings of the children of the displaced compared to those that received apartments on site. While these papers focus on the effects of moving to potentially worse local labour markets, my paper shows that on-site rehousing that has the potential to prevent costly relocations to other local labour markets feature immediate eviction and a lag in compensation that can adversely affect credit constrained households who may find themselves unable to transfer resources from good states in the future to bad states today.

This paper also contributes more broadly to the active literature on slum policies (a dated overview in Marx et al. (2013)). Marx et al. (2013) hypothesize that slums are spatial poverty traps that, unlike rural areas, respond little to marginal interventions and may need 'large push' interventions to generate aggregate demand spillovers. Slum policies range from marginal upgrades to slum neighbourhoods by providing small upgrades to slum tenements and public infrastructure and providing property rights to crowd in private investment to relocation of slum dwellers to public housing elsewhere in the city. Existing evidence on marginal upgrading and provision of property rights show that while effects on housing quality and slum dwellers are positive in the short run (Field, 2005), neighbourhood quality worsens in the long run compared to non-upgraded slums (Harari and Wong, 2025), supporting the idea that marginal improvements and property rights are not enough to sustain quality improvements and instead make low quality infrastructure more durable and exacerbate hold-up costs. It is not clear how much of their results are driven by sorting through forced evictions, i.e. the non-upgraded and squatter slums being redeveloped as a result of displacement of slum dwellers. However, Michaels, Nigmatulina, Rauch, Regan, Baruah, and Dahlstrand (2021) show that in Tanzania, providing marginal upgrades and property rights while planning neighbourhoods for motivated individuals in the 20th – 60th income percentiles have positive long run effects on housing quality and that sorting by education only explains part of this effect.

At the other extreme of slum policies are 'big push' interventions that relocate (forcibly or otherwise) slum dwellers to apartment buildings in the suburbs. Here, the evidence shows that relocation to locations farther away is costly. Barnhardt, Field, and Pande (2017) show that even motivated slum dwellers move out from formal apartments in the outskirts of the city procured using heavily subsidised loans,

foregoing huge financial gains. Using survey evidence, they show that an absence of informal social networks is the most significant reason they move back to their previous slum neighbourhood, suggesting that intra-city migration costs are large for slum residents. Franklin (2020) show that take up probability of relocation to apartments depends very strongly on distance to their previous neighbourhood and that relocation to nearby apartments increase family incomes by boosting employment rates. Rojas-Ampuero and Carrera (2025) shows that children of forcefully displaced slum dwellers faced large long run negative effects on the education and earnings of the children of the displaced compared to those that received apartments in-situ.

Conceptually, in-situ slum redevelopment combines attractive features of marginal upgrading and relocation policies but feature temporary displacement of slum dwellers. Similar to marginal upgrading policies, the policy provides housing on-site to eligible slum-dwellers but similar to relocation policies, it provides fully formal housing. Differently from both, slum dwellers are temporarily displaced during the construction phase. In comparison to Harari and Wong (2025) and other papers that study marginal upgrades to existing slums, this project analyses the short and medium term effects of a high cost high benefit upgrading on-site as on the one hand, slum residents face eviction and uncertainty in the probability of redevelopment completion and timing of redevelopment completion but on the other hand, they potentially receive a large housing asset shock. In addition, because of the difficulties in accessing data on slum dwellers, most papers in the slum upgrading literature do not look at long term effects on slum residents and focus only on the location which means that in principle, all effects could arise from sorting which may result in different welfare implications. I demonstrate a novel use of the electoral roll data to track slum dwellers across houses and neighbourhoods within the city over time to understand these mechanisms and to directly look at the effect on slum dwellers. In comparison to papers that study relocation to public housing, I am able to disentangle the effects of displacement and the effect of fully formal housing that the design of those policies do not allow them to do. Importantly, different from the existing literature on slum upgrades, I study a policy that aims to redistribute the post liberalisation growth in real estate prices to the lower part of the income distribution through incentivised private provision.[7]

A related literature studies the distributional effects of urban transformations (Balboni, Bryan, Morten, and Siddiqi (2020); Gechter and Tsivanidis (2023); Brummet and Reed (2021)). Gechter and Tsivanidis (2023) shows how redeveloping pre-

[7]A famous policy slogan was: "If inequity has to be removed, there have to be unequal laws."

viously undeveloped land gentrifies nearby neighbourhoods by clearing slums but increases aggregate welfare in downtown Mumbai by increasing the supply of residential and commercial floorspace. I trace out how redeveloping existing slums affect mobility responses and living conditions of slum residents who were compensated and how these responses in turn undermine the goal of slum redevelopment policy to curb the growth of slums.

Finally, I contribute to the growing literature on slums in cities in the developing world (Bryan, Glaeser, and Tsivanidis (2020)), which studies the forces shaping the emergence and persistence of slums (Ferreira, Monge-Naranjo, and Torres de Mello Pereira (2025); Cavalcanti, Da Mata, and Santos (2019); Henderson, Regan, and Venables (2021); Gonzalez-Navarro and Undurraga (2025)). I contribute to this literature by studying the consequence of a common policy response to the proliferation of slums, slum redevelopment, on slum residents and how these effects undermine the goals of the policy.

2 Background: Slum Redevelopments in Mumbai

The slum redevelopment policy was enacted in 1995 following the recommendations of Afzalpulkar Committee constituted by the Government of Maharashtra. The aim of the policy was to make Mumbai 'slum-free' off of the post liberalisation growth in the real estate market in Mumbai. Under the redevelopment policy, all slums that were recognised by the government until 1995 were eligible to be redeveloped. Occupants of the slum at the time of redevelopment who have been living in the slum since 1995 as indicated in the 1995 electoral roll were eligible to receive a new apartment in the redeveloped slum neighbourhood. This requirement was later weakened to mandate either (i) their name in the 1995 electoral roll or (ii) possession of a paid electricity bill for that house in 1995, or (iii) a *gumasta* licence for an establishment operating from the slum. The apartments provided were one bedroom apartments of at least 25 sq.m. with sanitation facilities, equivalent to a $60000 asset shock based on current prices of these apartments in Mumbai. The households also received *property rights* which included rights to mortgage and right to sell after a lock-in period of 10 years.

The policy incentivised private developers to build 'formal' apartments for eligible slum-dwellers in the location of their slum by providing transferable development rights in the form of higher floor space index over regulatory limits for every sq.m. of redevelopment housing built i.e. redevelopments were fully cross-subsidised by apartments built for sale elsewhere using this incentive.

Slums were redeveloped by consent, the Slum Rehabilitation Authority has to

be approached after the collective agreement of 70% of the eligible slum-dwellers in a locality to be redeveloped. After a survey of households in the slum by the Slum Rehabilitation Authority and submission of proof of eligibility, the slum is conditionally approved to be redeveloped. However, not all conditionally approved slums are eventually approved for construction due to regulatory reasons. Regulation does not allow tall buildings within a certain radius of the coastline, waterbodies and the airport. The developer is required to provide transit accommodation in formal housing during redevelopment to eligible inhabitants as close as possible to the original site. Once slum is redeveloped, developer can use/sell the offered transferable development rights. The redevelopment timeline is depicted in Figure A.3.

The Slum Rehabilitation Authority received 5,114 redevelopment applications between 1995 and 2022 in Mumbai. Figure 2 shows the share of applications that passed each stage of the redevelopment process. Out of all the applications received, only 52% are conditionally approved. Out of applications that are conditionally approved, only 80% receive approvals for construction from the urban planning authority (this constitutes 41% of all redevelopment applications). The mean duration of redevelopment is 6 years conditional on completion, but the variance is large. Out of projects that are approved for construction, only 43% complete redevelopment by 2025. Completion rates depend on the incentives of the developer and their profitability based on the actual and expected real estate prices and construction costs.

Figure 3 shows the variation in the timing of approval over time. Figure 4 shows the geographical extent and expansion of the policy over time by median approval date. In section 4, I discuss the characteristics of slums that reach each stage of redevelopment.

3 Data and Measurement

3.1 Data Sources

In this section, I summarize the data collection process. I first construct a dataset of slum redevelopment applications, including land survey numbers, execution timelines and a census of inhabitants of the slum. I then construct an urban mobility panel at the individual-level that tracks adult members of each household in the city across neighbourhoods in the city over time by digitising and matching electoral rolls over time. The cadastral number information in the slum redevelopment applications is used to georeference slums and link redevelopments to daytime satellite data and other georeferenced administrative data sources. The slum census and the

proof of eligibility submitted along with the redevelopment application is used to identify slum inhabitants in the electoral roll data and track them over time.

Slum Redevelopment Data. My dataset comprises of the universe of Slum Redevelopment applications ever submitted. The Slum Rehabilitation Authority, Mumbai hosts the paper trail of all redevelopment applications from application to construction completion in their website.[8] From the paper trail of each slum redevelopment application, enumerators manually digitise the date of approval of redevelopment, commencement of construction as well as detailed information on the redevelopment programs: the name of the developer, date of approval, land parcel numbers to identify the location of the slum and redevelopment plans, and occupancy certificate to identify when the flats are ready to be occupied and a list of eligible households from a slum census conducted before approval. The paper trail of slum rehabilitation projects are publically available for buyers to independently verify details about the building, for example, whether the building has the minimum age required for legally permissible sales of apartments in the building. Land parcel numbers are used to georeference slum polygons.

Electoral Rolls. I use the electoral rolls to identify eligible households and in a novel application, track individuals across time using name data. The electoral roll contains the list of eligible voters for each election revised by extensive house-to-house listing of voting age individuals before every election.[9] The electoral rolls contains rich information using which individuals can be tracked over time: name, parents' names, age, gender, house number, neighbourhood/building name. The smallest geographical unit in an electoral roll is the building/neighbourhood, followed by electoral ward part and the electoral ward. Names are arranged by house number within each building/neighbourhood in the electoral roll (see Figure A.1 for an image of a typical electoral roll). I use computer vision and optical character recognition tools to digitize electoral rolls between 2007 and 2022 and create individual-level electoral data containing each individual's full name, their father's

[8]Website of the Slum Rehabilitation Authority: https://dms.sra.gov.in/SRAPUBLIC/

[9]Eligible voters are all citizens of India who are over 18 year of age on 1 January of the year of the election, ordinarily resident in the concerned constituency and not disqualified from voting according to the provisions of the Representation of Peoples Act, 1951 . Determination of citizenship requires documentary evidence. Ordinary residence is defined by the Election Commission as the place an individual regularly sleeps at night: there is no minimum qualifying period for the determination of ordinary residence and mere ownership of a dwelling does not translate to ordinary residence. Students residing in a different constituency are allowed to opt to retain their residence with their parents. Acceptable proof of ordinary residence includes address stated in utility bills, passport, driving license, income tax assessment, rent agreement, delivered postal mail (Election Commission, 2016). The election commission targets the census population numbers and each political party representative is given a copy of the draft electoral roll to cross-verify and facilitate enrollment.

or spouse's name, age and gender, along with their neighbourhood name, election ward part number and election ward number. The 1995 electoral rolls are available as scanned pdfs. To extract data from scanned pdfs, I train an object detection model to detect the layout of each electoral roll and extract data from scanned electoral rolls. Neighbourhoods in the the electoral roll are geocoded using GoogleMaps Geocoding API. To validate the coverage of my data, I compare the coverage of the electoral roll with the Censuses in years in which Censuses are conducted. Relative to the approximate population more than 15 years of age in Census 2011, the coverage of electoral roll 2012 is 103%.[10] In comparison, the coverage of the Socio Economic and Caste Census is 67%.

Socio Economic and Caste Census. The Socio Economic and Caste Census (SECC) 2012 describes the name, age, gender, education, occupation,and caste status for every household member, as well as a shortlist of assets used to rapidly assess socio economic status. I digitise individual level data from SECC pdfs collected by Asher and Novosad (2020).

Spatial datasets on urban public infrastructure. The Unified District Information System for Education (DISE) dataset from the Ministry of Education is a dataset on schools in the city with their opening year, measures of school quality and addresses that are geocoded using GoogleMaps API. Geolocated data on other urban public infrastructure such as hospitals, public transit stops, parks etc are obtained from the Brihanmumbai Munipal Corporation.

Cadastral maps. From the Land and Property Register of the Municipal Corporation, we obtain cadastral maps with land parcel numbers to create policy maps.

Daytime satellite data. I augument slum redevelopment timelines inferred from paper trails from the slum rehabilitation authority by independently collecting data on the timing of slum clearance and construction completion from georeferenced slum polygons using very high resolution daytime satellite data from 2012-2022 hosted by Google Earth.

3.2 Matching process

Constructing the residential mobility panel. The digitised electoral roll contains the full name, father's/husband's name, age and gender, along with the name of their neighbourhood, election ward part number and election ward number. I

[10] I compute the total number of individuals in Mumbai more than 15 years of age by multiplying the share of individuals more than 15 years of age in urban Maharashtra (the state in which Mumbai is in) with the total population of Mumbai.

use the full name, father's name, age and gender across electoral rolls from different years to identify each individual across different electoral roll years.[11] Individuals who leave the city leave this panel as the electoral rolls I use is that of the city of Mumbai. Out of the 9 million individuals in the 2007 electoral roll, 65% appear in the balanced panel i.e. in all the years following redevelopment. The match rates are affected by optical character recognition errors in age. Note that measurement error from optical character recognition errors should be uncorrelated with treatment status and should not bias my estimates. To limit attrition from the panel due to optical character recognition errors in age, I also use a panel that involves fuzzy matching by name and father's/spouse's name only and create weights based on the uniqueness of names to reweigh observations.

Identifying slums in redevelopment applications in the electoral roll data. Using the electoral roll data from 1995 from the policy documents, I identify the treated and control neighbourhoods and individuals in the electoral roll. The electoral rolls are linked to slum redevelopment data using voter rolls/ voter roll data submitted to the slum redevelopment authority at the time of application. Slum redevelopment applications contain a copy of the 1995 electoral roll. Before applications are conditionally approved by the Slum Rehabilitation Authority, a slum census also is conducted by the Authority to identify the eligible households in the slum. I use the name of the neighbourhood from the 1995 electoral roll and list of eligible households to identify slums in the electoral roll in the earliest election year before conditional approval. I then track them across time using the residential mobility panel.

Identifying slum residents with right to compensation and without right to compensation. The electoral rolls, combined with the slum census and copies of 1995 electoral roll submitted along with the redevelopment application allows me to identify eligible slum dwellers. I define eligible residents (residents with right to compensation) in my dataset as those households that are in the slum in the electoral roll year before approval and in the 1995 electoral roll. The other households in the slum in the year before approval are defined as ineligible households (residents with no right to compensation). Note that the group that I define as ineligible may contain slum residents who were in the slum in 1995 but do not appear in the electoral roll (for example, those who arrived after redevelopment) and may be able to prove their eligibility using the other proof of address they may submit as well as others who were not eligible for in-situ compensation who may or

[11] Matches are not conditioned on location to allow for mobility across neighbourhoods. I use a fuzzy string matching algorithm for names to allow for optical character recognition errors.

may not attempt to fabricate eligibility. Hence, this group is less likely to receive in-situ compensation.

Creating policy maps. To link spatial datasets to slum redevelopment applications, I use the cadastral maps to manually georeference the slums that applied for redevelopment using the cadastral map numbers provided in the application for redevelopment in the slum rehabilitation authority data.

3.3 Measuring outcomes

Measuring slum status of the neighbourhood. The Government of India defines a slum as a 'compact area of poorly built congested tenements, unhygienic environment with inadequate infrastructure and lack of proper drinking water and sanitation facilities'. Official classifications have not caught up with the rate of slum creation, i.e. not all neighbourhoods that satisfy these criteria have been recognised as a slum by the government. To identify the slum status of the neighbourhood, I combine data on slum status from several data sources and check the robustness of my results to alternative sources and definitions of slum status.

The first data source I use comes from the Slum Rehabilitation Authority. When a neighbourhood applies for redevelopment, the Slum Rehabilition Authority classifies the neighbourhood as a slum if it satisfies the definition and is not a declared slum based on the government definition before redevelopment is approved. In 2015, the Authority conducted a drone survey to identify the location and names of all slum neighbourhoods in the city. I use neighbourhood names from this dataset to identify slum neighbourhoods in the electoral roll.

The second data source is the Census. In the census, all neighbourhoods that satisy the Government of India definition and have more than 60 households are categorised as slums. I use neighbourhood names from this dataset to identify slum neighbourhoods in the electoral roll.

Lastly, I use the name of the neighbourhood in the electoral roll to infer slum status. I define a slum neighbourhood as a neighbourhood that has the name for slum neighbourhoods in Marathi, *chawl* or *jhopadpatti*, in the name of the neighbourhood. The neighbourhood names from the electoral roll is also used by the Government of Maharashtra to rapidly measure growth in slum structures (Ashar, 2012). Although naming of neighbourhoods need not correspond to official definitions, the slum population share computed using this definition closely matches the slum population share in the Slum Census[12] (see Figure A.2 in Appendix).

[12]Micro data for the slum census is not available.

Measuring religious composition within the neighbourhood. To identify the religion of each individual, I leverage the unique naming patterns in muslim names to predict religion from the name using a neural network for text classification trained on 4 million names to create measures of the share of disadvantaged groups in the neighbourhood and the share of own group.[13]

Measuring slum clearance and new construction timelines. I use very high resolution daytime satellite satellite data to record the slum clearance start dates and end dates and construction start dates and end dates for each redevelopment project.

3.4 Estimation Sample and Summary Statistics

The estimation sample is limited to voting age residents of slums that were conditionally approved for redevelopment between 2007 and 2024. Out of a total of 592 slum redevelopment projects between 2007 and 2024, the final matched sample consists of eligible and ineligible slum residents from 272 slums where slum redevelopment projects could be mapped to electoral roll data. Slum projects could not be mapped to electoral rolls in cases where: (i) redevelopment project documents in the slum rehabilitation authority website did not include electoral roll information on the slum redevelopment application; (ii) scanned pages from the 1995 electoral roll obtained from the Election Department did not include the pages relevant for the slum redevelopment project; and, (iii) there is language mismatches between the 1995 electoral roll and the residential mobility panel. In Table 5, I compare matched redevelopment projects to all redevelopment projects between 2007 and 2024 using data from slum redevelopment project paper trails. In comparison to all redevelopment projects, matched redevelopment projects are not significantly different from each other in terms of area of the slum, number of eligible households, floor area ratio sanctioned, construction duration and in terms of built area constructed for rehabilitating eligible slum residents and for sale. However, matched projects are more likely to have been conditionally approved a year earlier, have a higher likelihood of approval, and are approved on average, 8 months earlier post conditional approval when compared to all redevelopment projects. In Table 6, I present summary statistics of the slums in the estimation sample.

[13] I use the python package *pranaam* developed by Rajashekar Chintalapati, Aaditya Dar, and Gaurav Sood.

4 Identification Strategy

I use a staggered difference-in-design to identify the intent-to-treat effects of slum clearance and redevelopment on the neighbourhood and incumbent slum residents.

My identification strategy for the neighbourhood level outcomes involves comparing approved slums to slums that will be approved in the future and conditionally approved slums that are never approved in a staggered difference-in-differences design. The treatment group in year t^* are slums that are approved to be redeveloped in year $t \leq t^*$. The control group in a particular year are slums that were approved to be redeveloped after that year or conditionally approved slums that were never approved. The identification assumptions are the following: (i) the timing of approval of slum redevelopment is not driven by the differential trends in that slum relative to trends in other slums, and (ii) treated slums would have had similar trends as control slums, absent the policy.

For the individual level outcomes, I compare eligible (ineligible) residents in approved slums to *would be* eligible (ineligible) residents in slums that will be approved in the future and conditionally approved slums that are never approved in a staggered difference-in-differences design (see Table 1 for a pictorial representation of my identification strategy). The treatment group in year t^* are slum residents in a slum that is approved to be redeveloped in year $t \leq t^*$. The control group in a particular year are slum residents in slums that were approved to be redeveloped after that year or conditionally approved slums that were never approved. The identification assumptions are the following: (i) the timing of approval of slum redevelopment is not driven by the differential trends in eligible (ineligible) slum residents, and (ii) eligible (ineligible) slum residents in treated slums would have had similar trends as control slums, absent the policy.

I validate these assumptions in two ways. First, I test for pre-trends in mobility patterns and transitions out of slum living upto 15 years before redevelopment approval between approved slums and later and never approved slums. These results are plotted along with the post-approval effects in the difference-in-difference graphs. Second, a concern could be that a hyper-local productivity shock that drives a construction boom in the neighbourhood and could also drive mobility patterns and transitions out of slum living. This would imply that even if trends were similar in the lead-up to approval, they would have been different absent approval. I use high frequency high resolution daytime satellite data to identify area under construction in a 100 meter radius of the slum to show that there is no differential trends in area under construction around the slum between approved slums and later and never approved slums around the year of redevelopment approval,

inconsistent with this alternative explanation.

As a first stage, I measure the effect that approvals had on slum clearance and redevelopment completion by running the Callaway and Sant'Anna (2021) equivalent of the following slum-level specifications:

$$SlumCleared_{st} = \sum_{k=-K}^{K} \beta_k D_{sk} + \gamma_s + \delta_t + \epsilon_{st} \tag{1}$$

$$Redeveloped_{st} = \sum_{k=-K}^{K} \beta_k D_{sk} + \gamma_s + \delta_t + \epsilon_{st} \tag{2}$$

where $t = t^*$ is the time at which slum s is approved to be redeveloped, $SlumCleared_{st}$ takes the value 1 in all periods t after slum s in cleared and $Redeveloped_{st}$ takes the value 1 in all periods after the slum is redeveloped into an apartment building. I cluster standard errors at the slum level (Rambachan and Roth, 2025).

I use the Callaway and Sant'Anna (2021) equivalent of the following empirical specification to identify the effect of the policy on slum dwellers eligible to receive an apartment in the redeveloped slum and non eligible slum dwellers:

$$Y_{n(i)st} = \sum_{k=-K}^{K} \beta_k D_{sk} + \gamma_s + \delta_t + \epsilon_{n(i)st} \tag{3}$$

where $t = t^*$ is the time at which slum s is approved to be redeveloped, Y_{ist} is the outcome for eligible slum individual i living in slum s at time t. I run these regressions separately for eligible and non-eligible slum dwellers. Similar to the slum-level specifications, I cluster standard errors at the slum level (Rambachan and Roth, 2025).

The simple dynamic difference-in-difference specification with staggered adoption may use already approved slums as controls and result in biased estimates (Goodman-Bacon (2021), Callaway and Sant'Anna (2021)). Hence, I use the Callaway and Sant'Anna (2021) estimator that does not perform such forbidden comparisons and estimate group-time average treatment effects on approval that can be aggregated up to estimate effects by relative time to approval as in the dynamic difference-in-differences specification.

Selection into approval and redevelopment completion. I investigate whether neighbourhoods that were approved and those that were eventually redeveloped are different in levels from those that were conditionally approved. Table 7 shows differences in characteristics of approved and redeveloped slums from all

conditionally approved slums. In comparison to all conditionally approved slums, those approved are more likely to have a higher share of eligible residents, marginally lower share of muslim (minority group) residents and more likely to be in a ward with marginally higher slum shares but mixed proximity to urban amenities and infrastructure. Those redeveloped are even more likely to be selected along these dimensions.

5 Slum Clearance and Construction Completion

In this section, I show descriptive facts on slum clearance and construction completion and as a first step, examine the changes in the neighbourhood that followed after redevelopment approval. The main first stage outcomes of interest are the probability and timing of slum clearance, end of construction and handover of occupancy certificates to slum residents.

5.1 Descriptive Facts on the Slum Redevelopment Process

High rates of non-completion in slum redevelopment projects. Redevelopments are undertaken by private developers whose decision to continue the redevelopment depends on expected economic returns. Figure 5 plots the share of projects that pass each stage of redevelopment conditional on approval. In my analysis sample, 37% of slums that are cleared are never redeveloped resulting in slum residents being evicted without any compensation. Only 33% of slums are cleared and redeveloped. 29% of slums approved for redevelopment are never cleared.

Long time-to-build durations for units for slum residents. Figure 6 plots the distribution of slum redevelopment projects by the time taken for construction of units for slum residents conditional on redevelopment completion using the universe of completed slum redevelopment projects. The average redevelopment project, conditional on completion, takes 6 years. This implies an average eviction duration of at most 6 years conditional on completion for slum residents eligible to own an apartment in the redeveloped slum. Importantly, 50% projects take more the 5 years to be completed. Large construction durations are a feature of development projects everywhere and this is particularly a concern in Mumbai where the average construction duration is 8.5 years (Gandhi et al. (2021)).

5.2 Effects on Slum Clearance and Construction Completion

As a first step, we need to see whether redevelopment approvals significantly increased the probability of slum clearance and redevelopment. This is important for

two reasons: (i) it is not clear that all approvals lead to slum clearance or redevelopment completion as this depends on the expectation of economic returns by the developer;(ii) understanding the impact on slum clearance and redevelopment are important to interpret the individual-level impacts.

In this section, using slum-level data, I analyse the effect of redevelopment approvals on slum clearance and redevelopment. Redevelopments are financed by private developers and probability of completion depends on economic returns from redevelopment.

Figure 7a reports the staggered difference-in-difference estimates of the impact of approvals on slum clearance. Standard errors are clustered at the slum level to allow for correlations within slums. The average treatment effect of approvals on slum clearance calculated using Callaway and Sant'Anna (2021) is 60%. Most slum clearances begin within 3 years of approval. The coefficient is less than 1, implying that not all approvals lead to slum clearance. In the appendix, I show estimates for the probability of slum clearance completion and construction start dates.

Figure 7b similarly reports the staggered difference-in-difference estimates of the impact of approvals on the probability of occupancy certificates being issued for slum residents. The average treatment effect of approvals on slum clearance calculated using Callaway and Sant'Anna (2021) is 27%. Most buildings within 5 years of approval. The coefficient is less than 1, implying that not all approvals lead to slum redevelopment. In appendix figures, I show estimates for the probability construction completion as measured by satellite data.

6 How do slum neighbourhoods compare to formal neighbourhoods?

My main outcome variable of interest is the slum status of the neighbourhood. What does slum status of the neighbourhood mean in terms of housing quality, service provision at the neighbourhood level and wealth levels? Using data from the Socio Economic and Caste Census 2012, I examine how slum neighbourhoods differ from formal neighbourhoods in housing quality and in terms of assets owned by the residents. [14] The results are in Figure 12. Overall, these results show that residents in formal neighbourhoods are richer, have higher quality of housing and enjoy better service provision compared to residents in slums.

Housing quality. Slum neighbourhoods in the city have significantly lower

[14]Note that the Census only classifies slums with more than 60 households as slums, i.e. smaller slums and unrecognised slums are misclassified as formal neighbourhoods. Hence, the differences here are likely to be smaller than true differences, the true differences are likely to be more stark.

housing quality in terms of roof and wall material and presence of a separate kitchen. Slums have similar access to electricity as formal neighbourhoods.

Service provision at the neighbourhood-level. Slum neighbourhoods also have worse service provision as measured by access to closed drainage and access to piped drinking water. Within a neighbourhood, either 0% or 100% households have access to these services since public infrastructure at the neighbourhood level is a pre-condition for households to access these services (Asher, Jha, Novosad, Adukia, and Tan (2024)).

Ownership of assets. Slum neighbourhoods are also poorer as measured by ownership of consumer durable assets: motor vehicle, refrigerator, car, computer, television etc. but have similar levels of access to phones and homeownership although houses in slums are poorer quality compared to houses in formal neighbourhoods.

7 Effects on residents who receive in-situ Compensation

The previous section shows that approvals significantly increase the probability of slum clearance and redevelopment. In this section, I provide evidence that approvals result in the displacement of slum households and increases the probability that they live in formal neighbourhoods.

7.1 Mobility responses of slum residents

I begin my analysis of individual-level impacts by looking at the mobility response of slum residents to approval for redevelopment. The main outcomes I look at are the probability of moving away from the original slum neighbourhood and the distance from their original neighbourhood.

Moving away from the original slum neighbourhood. I start by looking at the mobility responses of eligible slum residents to approval for redevelopment. First, I plot the raw probabilities of moving out of the slum after approval in Figure 8. In the figure, you can see that the share of slum residents who were eligible for in-situ compensation that move out the original slum jumps on approval to 60% (remember that the probability of slum clearance increases by 40% on average due to approval). Importantly, note than even several years after approval, there is very little share who return back to the original slum neighbourhood that is now redeveloped.

To isolate the causal effect of approval on the probability of moving out the original slum neighbourhood, I compare the slums that were approved to those that

are later approved and never approved using my identification strategy. Figure 9a shows the intent-to-treat effect of redevelopment approval on the probability of moving out the original slum neighbourhood.

Redevelopment approvals significantly increase the probability that residents to own an apartment in the redeveloped slum move out of their slum neighbourhoods. The average intent-to-treat effect on eligible households is 33% for households eligible to own an apartment in the redeveloped slum. The intent-to-treat effect corresponds to a 173% increase in the probability of moving out of the original slum neighbourhood relative to the control mean. If these effects only operate through slum clearance (and not for example, by an increase in expectation of eviction regardless of the outcome), the local average treatment effect of slum clearance on probability of moving out of the original slum neighbourhood is 82.5%. Effect size bounded between 73.5% and 150% of the control mean for eligible residents and between 50% and 145% of the control mean for eligible residents.

Distance from the original slum neighbourhood. I then look at the impact on the distance of their residence from the original slum neighbourhood. Figure 9a shows the intent-to-treat effect of redevelopment approval on the distance from the original slum neighbourhood. Ceterus paribus, moving costs are likely to be smaller if slum residents are able to find housing close to their previous house to minimise shocks to distance from other neighbourhoods.

Consistent with the previous result, Figure 9b shows that redevelopment approvals increases the distance of their current residence to the original slum neighbourhood for both eligible and ineligible residents. On average, residents move 2.5 kilometers farther than similar slum residents who were not evicted.

7.2 Neighbourhood quality effects

In the following analyses, I study the impact on the neighbourhood quality experienced by slum residents.

Slum status of the new neighbourhood. The main outcome of interest is the slum status of the neighbourhood that slum residents live in. Figure A.9 shows the impact that redevelopments had on the probability of living in a formal neighbourhood for both eligible and ineligible slum residents.

The results show that redevelopment approvals significantly increase the probability of living in a formal neighbourhood for eligible slum residents. This effect starts immediately during the period in which slum neighbourhoods is likely to be under construction when developers are supposed to provide payments equivalent

to rent amount for formal housing or temporary provisions for formal housing. The effect sees a persistent increase over the 15 years after approval. On average, redevelopment approval increases the probability of living in a formal neighbourhood by 6.4 p.p. for eligible slum residents. Redevelopment approvals result in a 100% increase in the probability of living in a formal neighbourhood over the control mean of 0.064 for eligible slum residents.

What does slum status of the neighbourhood mean in terms of housing quality and neighbourhood composition? In Figure 12, I document that slum neighbourhoods in the city have significantly lower housing quality in terms of access to closed drainage, access to piped drinking water, roof and wall material, presence of a separate kitchen. Slums have similar access to electricity as formal neighbourhoods. Slum neighbourhoods are also poorer as measured by ownership of consumer durable assets: motor vehicle, refrigerator, car, computer, television etc. but have similar levels of access to phones and homeownership although houses in slums are poorer quality compared to houses in formal neighbourhoods. These results show that residents in formal neighbourhoods are richer and have higher quality of housing compared to residents in slums.

Religious composition of the neighbourhood. I study changes in neighbourhood composition by measuring the impact of redevelopment approvals on the share of own religion in the neighbourhood slum residents live in. Asher et al. (2024) show that neighbourhoods in India are highly segregated on religious lines.

I study the impact that redevelopment approvals have on the share of disadvantaged groups in the neighbourhood that slum residents live in. The outcome is the share of muslims in the neighbourhood. Figure 13 show that redevelopments do not result in any economically or statistically significant changes in the composition of the neighbourhood with respect to share of own religion.

In line with Asher et al. (2024), Table 7 shows that slum residents in approved slums live in highly segregated neighbourhoods. Most slum residents live in neighbourhoods that have more than 90% individuals who are of the same religion. Taken together, these results suggest that residential segregation along religious lines across neighbourhoods coupled with the low distance segregation between slum and formal neighbourhoods with muslim and non-muslim majorities results in slum residents finding new neighbourhoods with similar shares of own religion.

Access to public and private infrastructure. The most important measure of neighbourhood quality in my data is the slum status of the neighbourhood. I augument this binary measure of neighbourhood quality with other measures of neighbourhood quality in the school data and satellite data: amenities in the

neighbourhood: proximity to hospitals, schools, parks and public transport.

The impact on distance to schools is plotted in Figure A.4a, the impact on distance to green spaces is plotted in Figure A.4c, the impact on access to public transport is plotted in Figure A.4b and the impact on distance to hospitals is plotted in Figure A.4d.

Taken together, these figures show that there is no statistically significant impact of redevelopment approvals on access to a variety of public and private infrastructure for both eligible and non-eligible households.

Why is it the case that despite the differential effects on the probability of living in a slum-neighbourhood, there are precise null effects on distance to urban amenities? In Table 6, I document that the distance of the each neighbourhood in the city to slum and formal neighbourhoods of varying levels of muslim-majority as well as distance to urban amenities is very low, i.e. there is very low distance segregation between slum and formal neighbourhoods and between muslim majority and non-muslim majority neighbourhoods. Cities with low distance segregation between slums and formals are more likely to have equal levels of urban amenities in both slum and formal neighbourhoods as formals crowd in amenities that nearby slum neighbourhoods can enjoy (Harari, 2024).

7.3 Decomposition of effects by location and neighbourhood type

I split the outcome space into four parts by the location of the resident relative to their original slum neighbourhood (displaced/displaced) and the type of neighbourhood (slum/nonslum): (i) in a formal neighbourhood out of the original location; (ii) in a formal neighbourhood in the original location; (iii) in a slum neighbourhood in the original location; and, (iv) in a slum neighbourhood out of the original location. Moving out of the neighbourhood may result in residents incurring moving costs which may be compensated by the increases in housing quality due to transitions out of slum living.

In Figure 14, I compare each of these outcomes for residents with the right to own an apartment in the redeveloped slum in approved slums to later approved and never approved slums in a staggered difference-in-difference design. Compared to similar residents in control slums which were not approved for redevelopment, residents with the right to own an apartment in the redeveloped slum are significantly more likely to not live the original neighbourhood. They are not significantly more likely to live in an apartment in the redeveloped slum. They are significantly more likely to move to formal neighbourhoods elsewhere but the magnitude of this effect is one-fifth of the effect on the probability of slum neighbourhoods elsewhere.

The overwhelming majority of displaced residents move to slum neighbourhoods elsewhere. Slum redevelopments, even when residents receive an apartment in the redeveloped slum, result in increases in slum population elsewhere driven by displacement of incumbent slum residents.

7.4 What drives transitions out of slum living?

In this section, I provide evidence that project non-completion as well as delays between eviction and construction of units for slum residents drive decrease the likelihood of transitions out of slum living.

Non-completion of redevelopment projects. I divide slums that are approved for redevelopment into three groups by redevelopment status: (i) those that are never cleared; (ii) those that are cleared but never redeveloped; and, (iii) those that are cleared and redeveloped. I compare outcomes of residents with the right to an apartment in the redeveloped slum in approved slums to later approved slums within each of these groups using Callaway and Sant'Anna (2021). Figure A.5 shows that pre-trends are parallel in each of these groups prior to approval. The results are plotted in Figure 15. Residents with the right to an apartment in the redeveloped slum in slums that are never cleared experience no increase in the probability of living in a formal neighbourhood. The magnitude of the estimate is slightly positive but very noisily estimated. The slight increase is consistent with consumption smoothing motives that can drive increases in consumption of housing quality in anticipation of a future asset shock. Residents with the right to an apartment in the redeveloped slum in slums that are cleared but never redeveloped experience small and insignificant decreases in the probability of transitioning out of slum living. The effect on this group is composite of forces that act in opposite directions. On the one hand, consumption smoothing in anticipation of a future asset shock as well potential temporary compensation by developers during redevelopment increase the likelihood of moving to a formal neighbourhood while on the other hand, the potential moving costs associated with evictions can decrease the probability of moving to a formal neighbourhood. Finally, residents with the right to an apartment in the redeveloped slum in slums that are redeveloped experience the largest increase in the probability of transitioning out of slum living.

Lags between eviction and redevelopment completion. I divide slums that are redeveloped into three groups by eviction duration and compare outcomes for residents with the right to an apartment in the redeveloped slum in the following groups: (i) redeveloped slums that have an eviction duration less than 5 years to later redeveloped slums that have an eviction duration less than 5 years; (ii)

redeveloped slums that have an eviction duration 6-10 years to later redeveloped slums that have an eviction duration 6-10 years; and, (iii) redeveloped slums that have an eviction duration more than 10 years to later redeveloped slums that have an eviction duration more than 10 years. The results are plotted in Figure 16. Residents with the right to an apartment in the redeveloped slum in slums that have the shortest delay, 0-4 years, between eviction and construction completion of units for slum residents experience the largest gains in probability of living in a formal neighbourhood. The probability of living in a formal neighbourhood steadily decreases with an increase in eviction duration. Larger eviction durations may be associated with larger moving costs as well as delays in the asset shock that could drive down consumption of better housing.

8 Effects on residents with no right to Compensation

In this section, I attempt to analyse the intent-to-treat effects of slum clearance and redevelopment on ineligible slum residents who were evicted without right to compensation and discuss additional assumptions to make casual claims.

8.1 Mobility responses of slum residents

I start by looking at the mobility responses of eligible slum residents to approval for redevelopment. First, I plot the raw probabilities of moving out of the slum after approval in Figure 8. In the figure, you can see that the share of slum residents who were eligible for in-situ compensation that move out the original slum jumps on approval to 60% (remember that the probability of slum clearance increases by 40% on average due to approval).

While we see that ineligible slum residents move out of the neighbourhood in a pattern similar to eligible residents post approval, looking at the pre-approval trends, ineligible slum residents in approved neighbourhoods are more likely to have been recent inmigrants into the neighbourhood and hence different in trends from ineligible residents in the control group and hence, have different pre-trends inmigration into the slum neighbourhood. These trends may be suggestive of attempts to fabricate eligibility. Hence, we must be careful to not interpret these results as causal.

Following recent recommendations in the econometrics literature (Roth and Rambachan, 2022), I refrain from selecting on pre-tests and present results on the effects on ineligible slum residents for completeness and discuss additional assumptions required to make causal claims. The results on ineligible residents are available

in Appendix subsection A.3.

The results on neighbourhood quality outcomes may only be interpreted as causal under the assumption that differential inmigration rates do not imply differential trends in neighbourhood quality outcomes absent approval and similarly for all other outcome. Despite differential trends in inmigration rates into the neighbourhood, the pretrends in probability of living in a formal neighbourhood as well as proximity to urban amenities are flat, suggesting that this assumption may hold. However, they may estimate a lower bound on the negative impacts of eviction if it is the case that shorter tenure in the slum results in lower costs of eviction.

8.2 Neighbourhood quality effects

In the following analyses, I describe the impacts on the neighbourhood quality experienced by slum residents. Since slum residents in approved slums have differential tenure in the slum in comparison to slum residents in later approved and never approved slums, I control for tenure in slum in all the following specifications. Even with these controls, residents with the same tenure may not be comparable in approved and later approved and never approved slums for example, if those that differentially arrive in approved slums before approval have different motivations for example, fabricating eligibility. The following results may be interpreted as causal only under the assumption that differential inmigration rates do not imply differential trends in neighbourhood quality outcomes absent approval and similarly for all other outcomes.

Slum status of the new neighbourhood. Now we turn to estimating the effects on the probability of living in a slum neighbourhood for residents with no right to compensation.

My results suggest that approvals had a noisily estimated negative effects on the probability of living in a formal neighbourhood for non-eligible residents i.e. redevelopment driven eviction moved them to different slum neighbourhoods and prolonged their length of slum living relative those those in not approved slums. These results represent an upper bound of the true effect since this group may contain individuals who were resident in the slum in 1995 but were not in the electoral roll (for example, those who arrived after the electoral roll listing in 1995) and hence legitimately received compensation.

In comparison with the results for the group with right to compensation that saw increases in the probability of living in a formal neighbourhood, the grouo with no right to compensation move to slums elsewhere and have longer tenures in the slum, suggesting that redevelopments without compensation not only move

residents to slums elsewhere but also prolongs their tenure in the slum while redevelopments with in-situ compensation persistently increases their probability of moving to formal housing.

Religious composition of the neighbourhood. I study changes in the composition of neighbourhoods incumbent residents live in by measuring the impact of redevelopment approvals on the share of own religion in the neighbourhood slum residents live in. I describe the effect that redevelopment approvals have on the share of disadvan- taged groups in the neighbourhood that slum residents live in. The outcome is the share of muslims in the neighbourhood. Appendix autorefsection:B shows that redevelopments do not result in any economically or statistically significant changes in the composition of the neighbourhood with respect to share of own religion. In line with Asher et al. (2024) and the results for the group with compensation, I show that residents with no right to compensation live in neighbourhoods that have very high shares of their own religious group.

Access to public and private infrastructure and amenities. I now turn to the impacts on distance to urban amenities. Appendix subsection A.3 shows that redevelopments do not result in any economically or statistically significant changes in the distance to urban amenities. These results are in line with the low distance segregation between slum and formal neighbourhoods that can facilitate the crowding in of urban amenities by formal neighbourhoods (Harari, 2024).

9 Discussion

My findings have implications for slum policy. The aim of slum redevelopment programs is to curb slum growth and regenerate neighbourhoods. Evictions without compensation shifts slum population from the redeveloped slum to other nearby slum neighbourhoods. Slum residents evicted without compensation have statistically insignificant differences in upward mobility out of slums compared to the counterfactual of not being evicted. On the other hand, eviction with in-situ compensation increases the probability of upward mobility into formal neighbourhoods and out of slums compared to the counterfactual of not being evicted.

The positive effect on the probability of upward residential mobility from slums also results in a reduction in slum growth overall by reducing the likelihood of living in a slum neighbourhood post redevelopment approval. If slum clearances have local benefits as documented in the literature (Collins and Shester (2013); Gertler et al. (2024); LaVoice (2024)), curbing slum growth through in-situ compensation may limit the negative effects of slum clearances by incumbent slum residents. I show that despite the overall increase in the probability of moving to a formal neighbour-

hood for incumbent slum residents, the vast majority of residents move to slum neighbourhoods elsewhere, resulting in an increase in slum population elsewhere due to incumbent slum residents. Table 2 and Table 3 plot the share of residents by location and neighbourhood type in the treatment and control group. The share that is displaced to slum neighbourhoods elsewhere is much larger than the share that move to formal neighbourhoods in the treatment group i.e. the vast majority of slum residents with the right to own an apartment in the redeveloped slum incur moving costs and are not able to transition out of slum living.

Eviction without legal guarantees of compensation do not result in lower levels of upward residential mobility from slums to non slum neighbourhoods compared to non evicted slum residents, suggesting that costs of eviction in terms of the quality of the neighbourhood are low in my setting. I document low levels of distance segregation between slum and formal neighbourhoods in my setting that can crowd in amenities to formal neighbourhoods as the potential reason for similar impacts of compensated and uncompensated eviction on neighbourhood quality outcomes.

External validity. The city my study is set in features low distance segregation between slum and formal neighbourhoods and close proximity to urban amenities regardless of slum status of the neighbourhood. In cities with larger distance segregation between slum and formal neighbourhoods, the probability of living in a formal neighbourhood may be lower if labour market frictions prevent compensated incumbent slum residents from moving to far away formal neighbourhoods. However, conditional on moving to a formal neighbourhood, residents may enjoy closer proximity to urban amenities as slum neighbourhoods may be under-serviced without formal neighbourhoods nearby that can crowd in urban amenities (Harari, 2024).

10 Conclusion

This paper provides new evidence of the short and long run impacts of slum clearance and redevelopments on slum residents by tracking them over 15 years with a residential mobility panel assembled using novel electoral roll data. While the local benefits of redevelopment are well documented in the literature, this paper focuses on the impacts of redevelopments on slum residents who bear the costs of redevelopment driven evictions.

I exploit within slum variation in eligibility to receive an apartment in the new slum based on a cutoff residence year and across slum variation in the timing of redevelopment over 15 years to study the impact of two common slum policies in a staggered difference-in-difference design: (i) eviction without compensation and

(ii) eviction with right to ownership of an apartment in the redeveloped slum.

My results show that slum residents that received in-situ compensation moved out of slum living at higher rates while those that were evicted without compensation move to other slum neighbourhoods. Despite the decrease in slum living overall, the vast majority of evicted residents with in-situ compensation move to slum neighbourhoods elsewhere, suggesting that even generous compensation policies are not able to move the majority of residents out of slum living. Slum residents are permanently displaced. I show that only a miniscule minority of residents are able to move back to the original neighbourhood, even with the right to own an apartment in the redeveloped slum.

I use daytime satellite data and digitised slum redevelopment project documents to uncover evidence of substantial non-completion and delays in construction completion that increase the lag between eviction and the housing asset shock. I show that project non-completion and lags between eviction and in-situ compensation decrease the slum residents' likelihood of moving to a formal neighbourhood.

Residents who do not receive right to compensation in slums approved for redevelopment move to slums elsewhere and continue in slum living for longer compared to similar residents in later approved and never approved slums.

More than 50% of the population in rapidly urbanising Sub Saharan African and South Asian cities live in slums (Bryan et al., 2020). This paper contributes to our understanding of policy responses that support and minimise the costs of this transition for slum residents as these cities develop. Although little is known about the effects of slum redevelopments on the incumbent slum residents and the neighbourhood, privately provided in situ slum redevelopments are increasingly recommended to cities in Sub Saharan Africa with soaring real estate markets (UN-Habitat, 2013). My setting and data allow me to measure causal estimates of the effects of such policies on slum residents and compare privately financed in situ slum redevelopment to evicting slum dwellers to make way for redevelopment in the same setting.

Figures and Tables



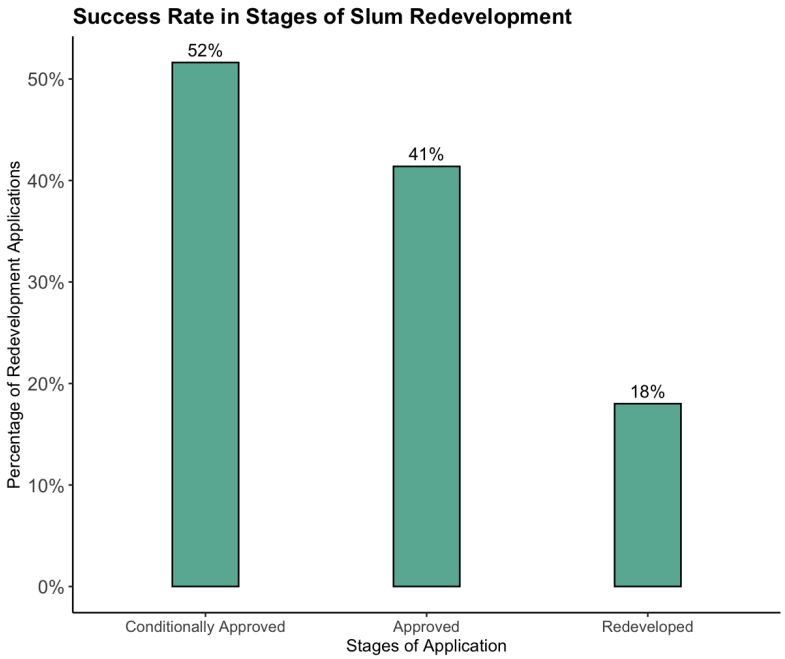
Figure 1: Before and after redevelopment

Notes. The figure depicts a typical slum redevelopment project in very high resolution daytime satellite data. The left panel shows the neighbourhood before redevelopment, the right panel shows the neighbourhood after redevelopment.

Slums / Residents of the slum	**In 1995 roll**	**Not in 1995 roll**
Approved slum	A	C
Later/never approved slum	B	D

Table 1: Pictorial representation of the identification strategy

Figure 2: Success rate across stages of redevelopment



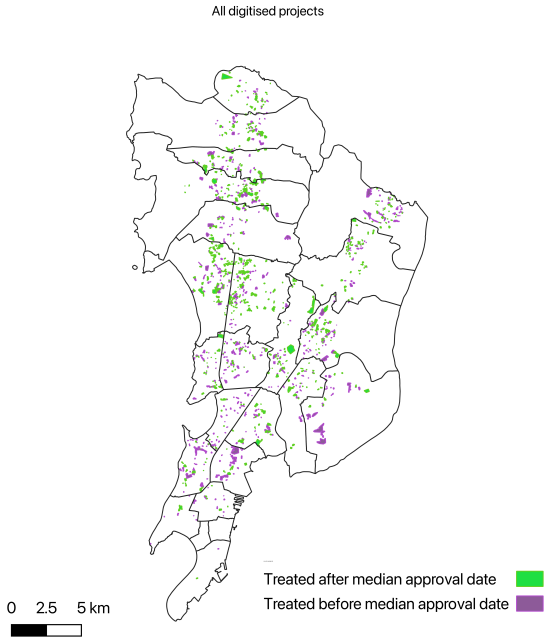
Notes. This figure plots the share of redevelopment applications that passed different stages of the slum redevelopment. The graph has been made with data on all slum redevelopment projects.

Figure 3: Temporal variation in redevelopment approvals



Notes. This figure plots the number of redevelopment approvals by year. The red dotted lines represents the start date and end date of our analysis sample.

Figure 4: Spatial variation in redevelopment approvals



Notes. This figure plots the spatial variation in the timing of redevelopment approvals by the median approval date.

	Displaced	**Not Displaced**
In slum	34.6	52.6
Not in slum	10.5	0.2

Table 2: Share of incumbent slum residents by location and slum status of the neighbourhood after redevelopment approval.

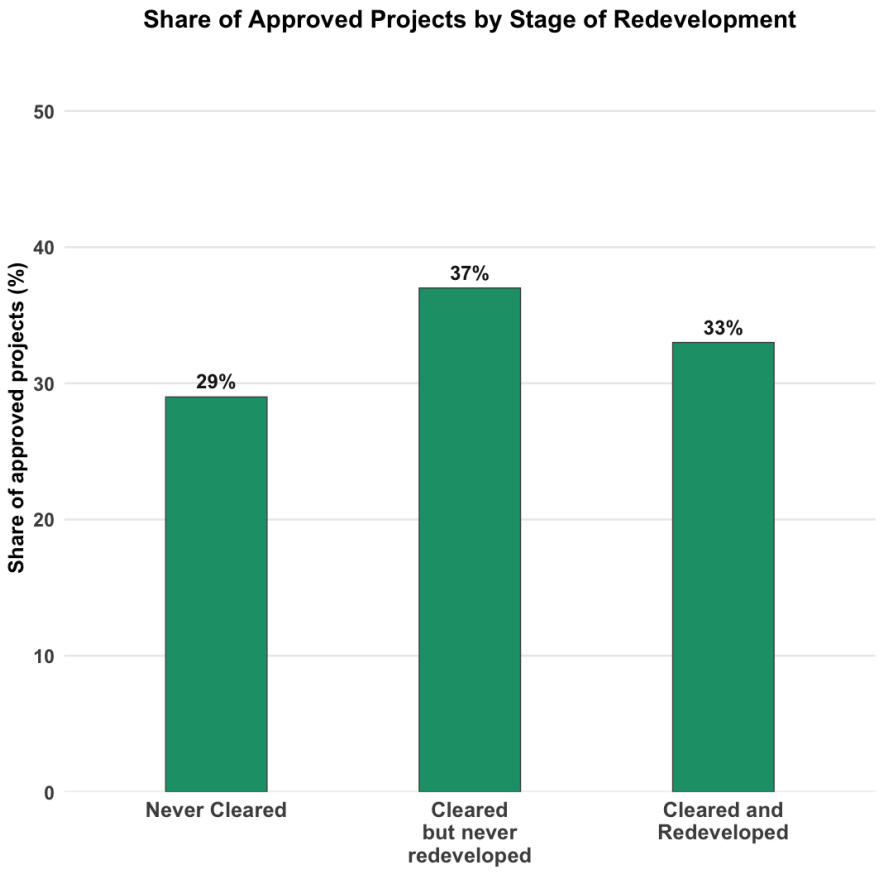
Notes. The shares after approval are calculated by adding the intent-to-treat estimate to the respective share before redevelopment approval.

	Displaced	**Not Displaced**
In slum	12.8	80.9
Not in slum	4.9	0

Table 3: Share of incumbent slum residents by location and slum status of the neighbourhood before redevelopment approval.

Table 4: Comparison of neighbourhood type and location of slum residents with right to compensation before and after redevelopment approval

Figure 5: Share of approved projects by stage of redevelopment



Notes. This figure plots the share of approved slums in the analysis sample that are never cleared, cleared and never redeveloped and complete construction.The shares plotted in this figure are calculated using daytime satellite data for slums in the analysis sample.

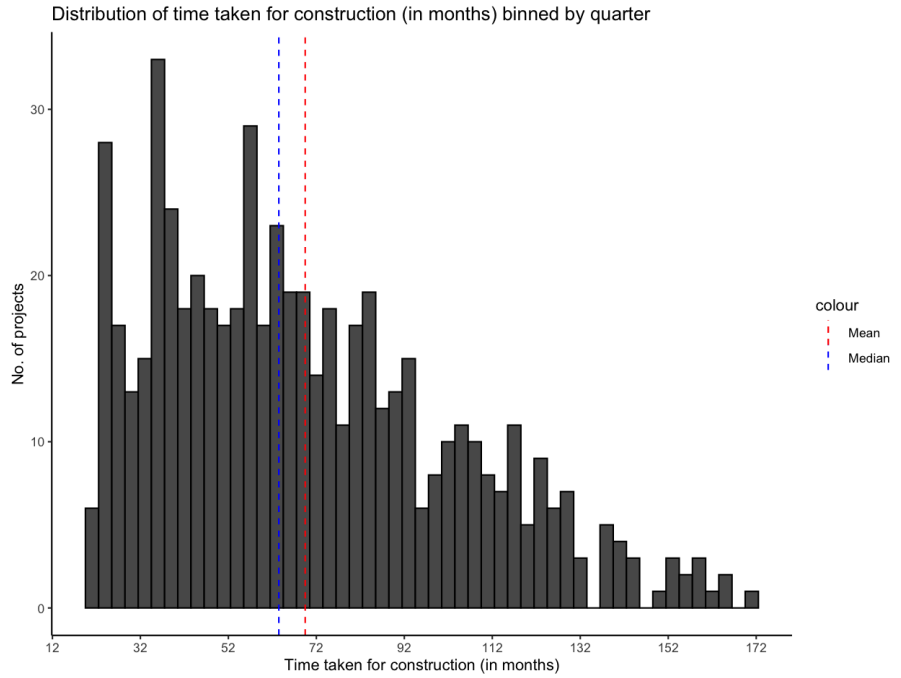


Figure 6: Distribution of construction duration conditional on completion

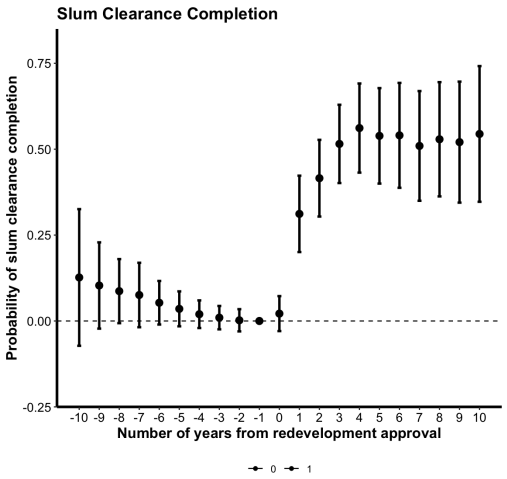
Notes. This figure plots the distribution to slum redevelopment projects by construction duration conditional on completion. The distribution is plotted using the universe of slum redevelopment projects that completed redevelopment.

Table 5: Comparison of matched redevelopment projects to all redevelopment projects

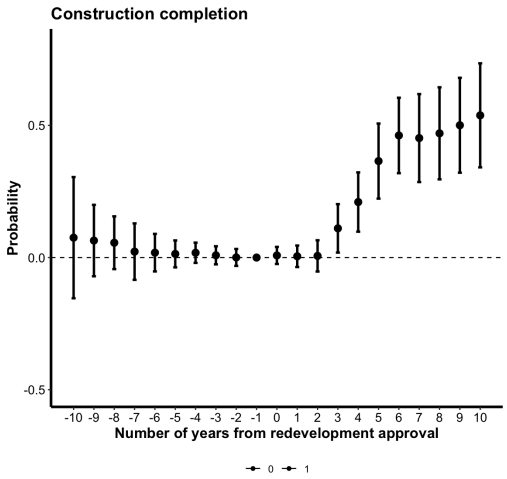
Project Characteristic	All projects	Matched projects	p-value
Area of the slum	9644.26	7111.77	0.46
No. of eligible hhs	343.21	298.08	0.71
Floor Area Ratio sanctioned	3.18	3.14	0.71
Built area for eligible hhs	18128.08	15257.69	0.75
Built area for sale	18614.50	13024.08	0.44
Built area for sale on site	14528.07	8207.42	0.12
Built area for sale on site	0.85	0.85	0.97
Year of conditional approval	2010.00	2011.71	0.00
Share approved	0.55	0.64	0.02
Share redeveloped	0.21	0.26	0.14
Time taken for approval in years	2.60	1.83	0.01
Construction duration	3.59	4.39	0.34

Notes. This table reports the mean project characteristic observed at the time of conditional approval separately for all slum redevelopment projects and for matched slum redevelopment projects as well as the p-value from a difference of means test with standard errors clustered at the slum level.

Figure 7: Effect on slum clearance and redevelopment

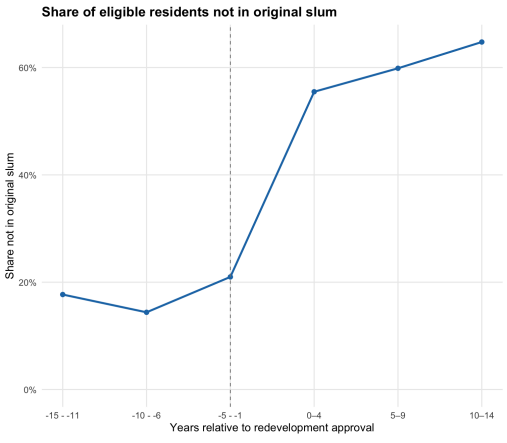


(a) Slum clearance

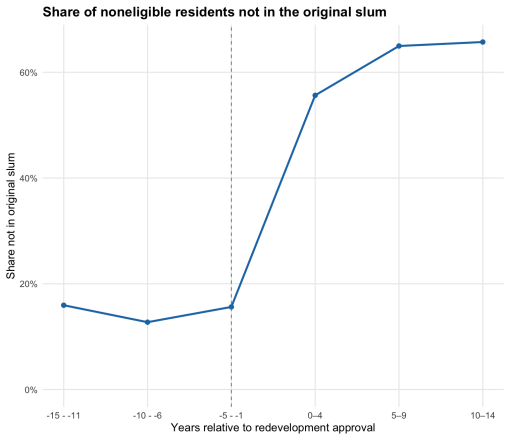


(b) Redevelopment Completion

Notes. These figures plot the the β_k from Equation 1 and Equation 2 and 95% confidence intervals. The outcome variable in Panel A is a dummy variable that takes the value 1 in all periods after slum clearance completion. The outcome variable in Panel B is a dummy variable that takes the value 1 in all periods after the redeveloped building is constructed. Panel A shows the impact of redevelopment approval on slum clearance and Panel B shows the impact of redevelopment approval on redevelopment completion. I use Callaway and Sant'Anna (2021) to compute the estimates and 95% confidence intervals. The estimation is carried out using the sample of slums that were conditionally approved for redevelopment between 1997 and 2022. The treatment group at year t consists of slums that were approved for redevelopment before year t. The control group in year t consists of conditionally approved slums that were approved for redevelopment after year t or never approved. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.



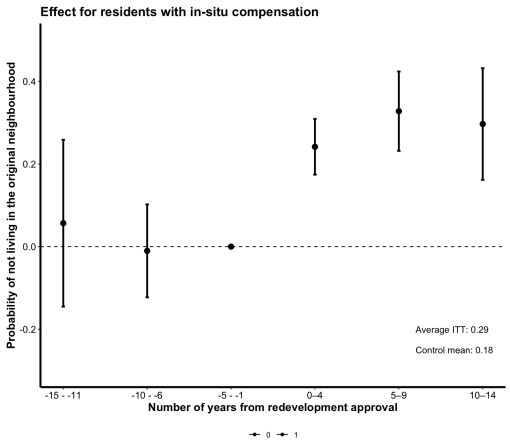
(a) Residents with right to in-situ compensation



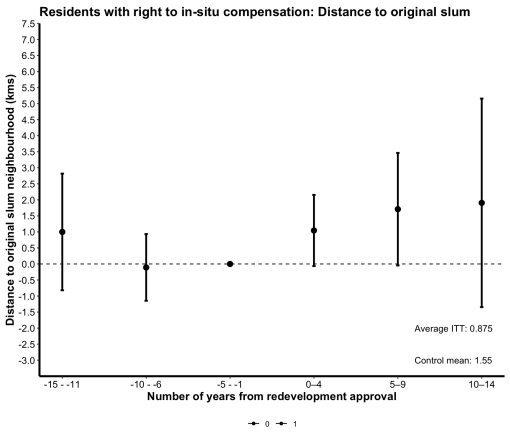
(b) Residents with no right to compensation

Figure 8: Share displaced in the raw data

Figure 9: Displacement effect of in-situ redevelopments on incumbent residents



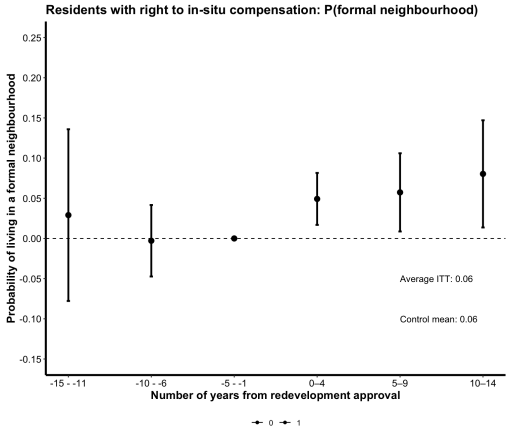
(a) Probability of not being in the slum neighbourhood



(b) Distance from the slum neighbourhood

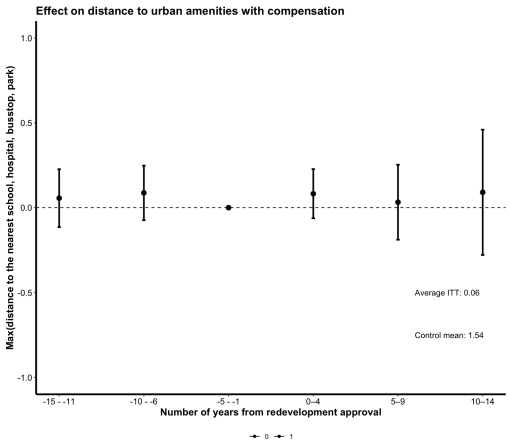
Notes. These figures plot the the β_k from Equation 3 and 95% confidence intervals. The outcome variable in panel (a) is a dummy variable that takes the value 1 when the individual lives outside their original slum and 0 otherwise. The outcome variable in panel (b) is the distance from the original slum neighbourhood. I use Callaway and Sant'Anna (2021) to compute the estimates and 95% confidence intervals. The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e., those who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of residents of slums that were approved for redevelopment before year t. The control group in year t consists of residents of conditionally approved slums that were approved for redevelopment after year t or never approved. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.

Figure 10: Effect of in-situ redevelopments on incumbent residents: Probability of living in a formal neighbourhood



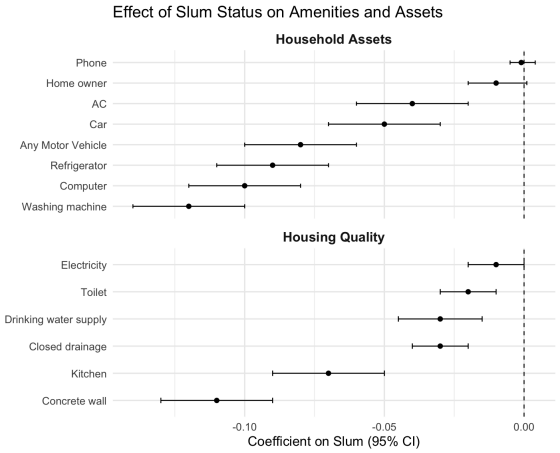
Notes. This figure the the β_k from Equation 3 and 95% confidence intervals. The outcome variable is a dummy variable that takes the value 1 when the individual lives in a formal neighbourhood and 0 otherwise. I use Callaway and Sant'Anna (2021) to compute the estimates and 95% confidence intervals. The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e., those who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of residents of slums that were approved for redevelopment before year t. The control group in year t consists of residents of conditionally approved slums that were approved for redevelopment after year t or never approved. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.

Figure 11: Effect of in-situ redevelopment on the incumbent residents: Effect on distance to urban amenities



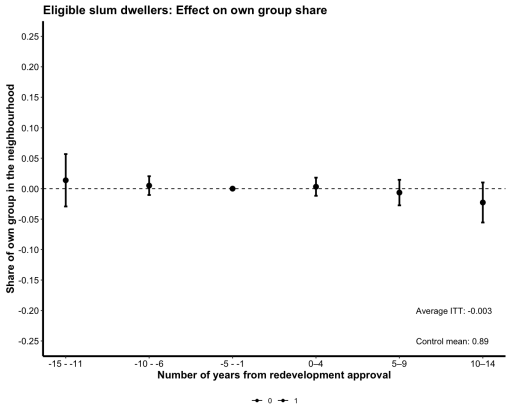
Notes. This figure the the β_k from Equation 3 and 95% confidence intervals. The outcome variable is the maximum distance to the nearest school, hospital, park and bus-stop. I use Callaway and Sant'Anna (2021) to compute the estimates and 95% confidence intervals. The results for each urban amenity separately is in the Appendix. The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e., those who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of residents of slums that were approved for redevelopment before year t. The control group in year t consists of residents of conditionally approved slums that were approved for redevelopment after year t or never approved. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.

Figure 12: Correlation between Slum Status and Housing Quality and Household Assets



Notes: This figure plots the coefficient of slum status on housing quality and asset ownership shares in the neighbourhood. Standrad errors are clustered at the neighbourhood level.

Figure 13: Effect of in-situ redevelopment on incumbent residents: Social ties with the neighbourhood

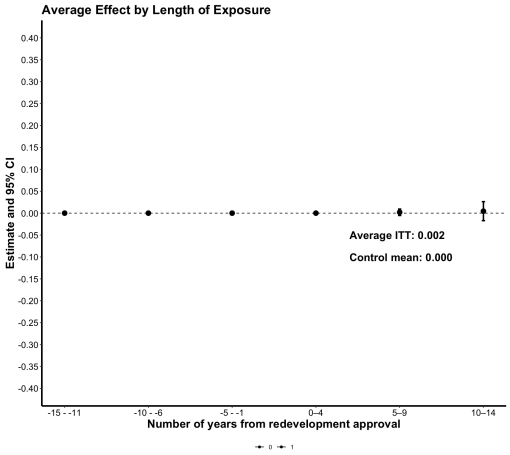


Notes. These figures plot the the β_k from Equation 3 and 95% confidence intervals. The outcome variable is the share of own religious group in the population of the neighbourhood. I use Callaway and Sant'Anna (2021) to compute the estimates and 95% confidence intervals. The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e. individuals who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of residents of slums that were approved for redevelopment before year t. The control group in year t consists of residents of conditionally approved slums that were approved for redevelopment after year t or never approved. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.

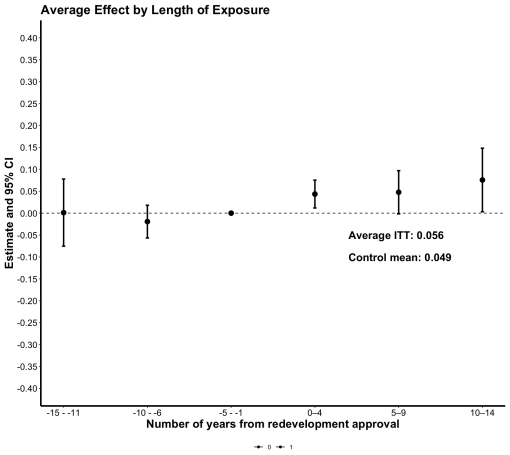
Table 6: Summary statistics measured in year 2007 (panel start year)

Distance of neighbourhood (in km)	Mean	SD
Distance to nearest hospital	1.50	0.76
Distance to nearest park	0.35	0.26
Distance to nearest school	0.30	0.21
Distance to nearest busstop	0.15	0.18
Distance to nearest slum	0.00	0.02
Distance to nearest nonslum	0.00	0.00
Distance to nearest muslim minority neighbourhood (less than 25%)	0.00	0.00
Distance to nearest muslim minority neighbourhood (more than 75%)	0.02	0.05

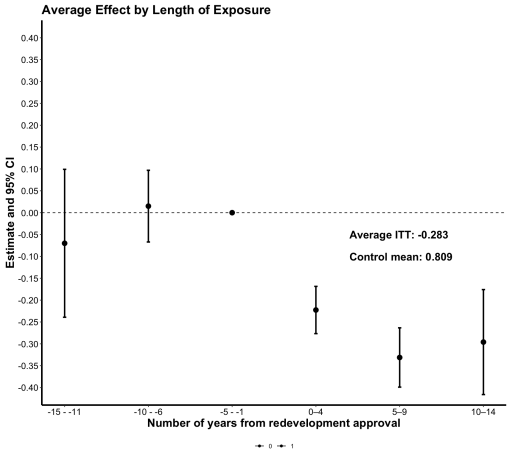
Notes. This table describes the mean and standard deviation of the distance of each neighbourhood to urban public and private infrastructure and other neighbourhoods with specific characteristics in kilometers.



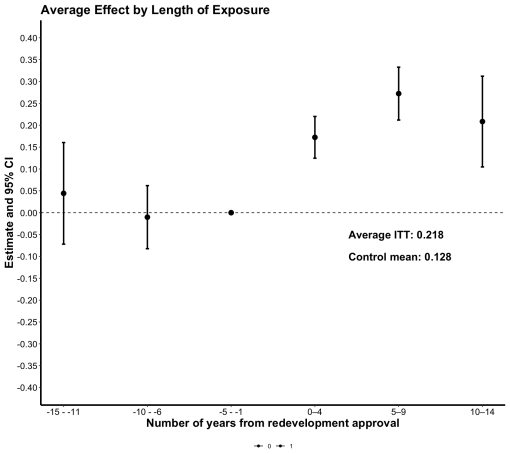
(a) Probability of living in a formal neighbourhood in place



(b) Probability of living in a formal neighbourhood elsewhere



(c) Probability of living in the slum neighbourhood in place

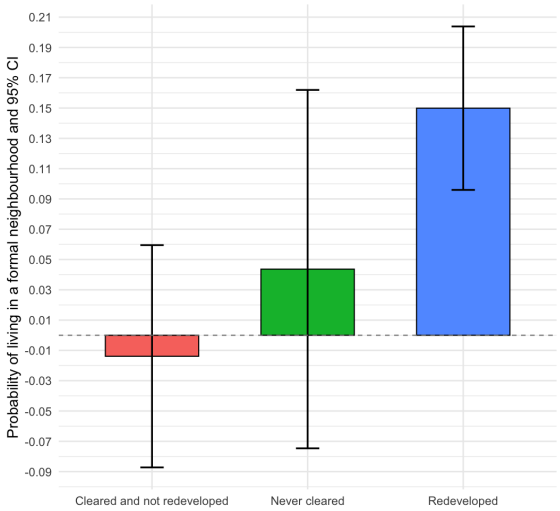


(d) Probability of living in a slum neighbourhood elsewhere

Figure 14: Effect of in-situ redevelopment on incumbent residents: Location and type of neighbourhood

Notes. These figures plot the the β_k from Equation 3 and 95% confidence intervals. The outcome variables are from top left clockwise: (i) probability of living in a formal neighbourhood in place; (ii) probability of living in a formal neighbourhood elsewhere; (iii) probability of living in a slum neighbourhood in place; and, (iv) probability of living in a slum neighbourhood elsewhere. I use Callaway and Sant'Anna (2021) to compute the estimates and 95% confidence intervals. The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e., those who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of residents of slums that were approved for redevelopment before year t. The control group in year t consists of residents of conditionally approved slums that were approved for redevelopment after year t or never approved. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.

Figure 15: Effect of redevelopment approvals on the probability of living in a formal neighbourhood by status of redevelopment



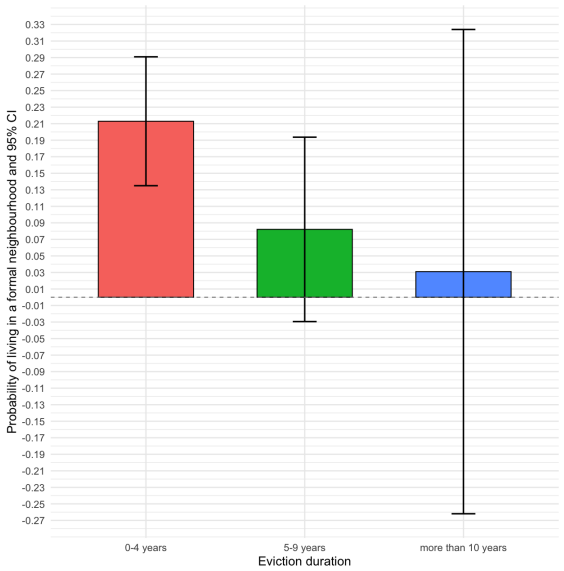
Notes. This figure plots the average effect of redevelopment approvals and 95% confidence intervals estimated using Callaway and Sant'Anna (2021) from three regressions comparing approved slums to later approved slums that are in the following categories, from left to right: (i) approved slums that were cleared but not redeveloped to later approved slums that were also cleared and not redeveloped; (ii) approved slums that were never cleared to later approved slums that were also never cleared; and, (iii) approved slums that were redeveloped to later approved slums that were also redeveloped. Standard errors are clustered at the slum level.

Table 7: Selection into approval and redevelopment

Variable	Cond. Approved	Approved	Redeveloped
% eligible	0.41	0.47*	0.51*
% muslim	0.12	0.09*	0.07*
Muslim share in ward	0.11	0.10	0.07*
Slum share in ward	0.50	0.48*	0.46*
Dist. to nearest slum	0.00	0.00	0.00
Dist. to nearest formal	0.00	0.00	0.00
Dist. to nearest hospital	1.37	1.57*	1.60*
Dist. to nearest busstop	0.16	0.13	0.15
Dist. to nearest park	0.40	0.34	0.34
Dist. to nearest school	0.35	0.30	0.32
Area of the slum (sq.m.)	7505.55	6889.87	7282.75
No. of eligible households	273.68	242.18	268.10
Tenement density per sq.m.	0.079	0.073	0.078
% in privately owned land	0.09	0.11	0.12

Notes. This table reports the average of slum characteristics observed at the time of conditional approval for slums that were conditionally approved, approved and redeveloped separately. * denotes that the difference between the characteristic of the slum in that group is different from that of the respective characteristic for all conditionally approved slums is statistically significant at the 95% level. Standard errors are clustered at the slum level.

Figure 16: Effect of redevelopment approvals on the probability of living in a formal neighbourhood by delay between eviction and compensation with an apartment in the redeveloped slum



Notes. This figure plots the average effect of redevelopment approvals and 95% confidence intervals estimated using Callaway and Sant'Anna (2021) from three regressions comparing redeveloped slums to later redeveloped slums that are in the following categories, from left to right: (i) redeveloped slums that have an eviction duration less than 5 years to later redeveloped slums that have an eviction duration less than 5 years; (ii) redeveloped slums that have an eviction duration 6-10 years to later redeveloped slums that have an eviction duration 6-10 years; and, (iii) redeveloped slums that have an eviction duration more than 10 years to later redeveloped slums that have an eviction duration more than 10 years. Standard errors are clustered at the slum level.

References

Sandeep Ashar. Mumbai slum structures have grown 40 percent since 1995: State, 2012. URL https://timesofindia.indiatimes.com/city/mumbai/mumbai-slum-structures-have-grown-40-since-1995-state/articleshow/15382102.cms. Times of India, Accessed August 7, 2025.

Sam Asher and Paul Novosad. Rural roads and local economic development. *American Economic Review*, 110(3):797–823, 2020.

Sam Asher, Kritarth Jha, Paul Novosad, Anjali Adukia, and Brandon Tan. Residential segregation and unequal access to local public services in India: Evidence from 1.5 m neighborhoods. Working paper, 2024.

Clare Balboni, Gharad Bryan, Melanie Morten, and Bilal Siddiqi. Transportation, gentrification, and urban mobility: The inequality effects of place-based policies. *Preliminary Draft*, 3, 2020.

World Bank. *The World Development Report 2009: Reshaping Economic Geography*. 2009.

Sharon Barnhardt, Erica Field, and Rohini Pande. Moving to opportunity or isolation? Network effects of a randomized housing lottery in urban India. *American Economic Journal: Applied Economics*, 9(1):1–32, 2017.

Carlos Alberto Belchior, Gustavo Gonzaga, and Gabriel Ulyssea. Unpacking neighborhood effects: Experimental evidence from a large-scale housing program in Brazil. IZA Discussion Paper, 2023.

Quentin Brummet and Davin Reed. The effects of gentrification on incumbent residents. *Working paper*, 2021.

Gharad Bryan, Edward Glaeser, and Nick Tsivanidis. Cities in the developing world. *Annual Review of Economics*, 12:273–297, 2020.

Gharad Bryan, Simon Franklin, Tigabu Getahun, and Sarah Winton. Urban density and labour markets: Evaluating slum redevelopment in Addis Ababa. CEPR Discussion Paper, 2025.

Brantly Callaway and Pedro HC Sant'Anna. Difference-in-differences with multiple time periods. *Journal of Econometrics*, 225(2):200–230, 2021.

Tiago Cavalcanti, Daniel Da Mata, and Marcelo Santos. On the determinants of slum formation. *The Economic Journal*, 129(621):1971–1991, 2019.

Census. Census of India 2011. 2011.

Raj Chetty, Nathaniel Hendren, and Lawrence F Katz. The effects of exposure to better neighborhoods on children: New evidence from the moving to opportunity experiment. *American Economic Review*, 106(4):855–902, 2016.

Raj Chetty, John N Friedman, Nathaniel Hendren, Maggie R Jones, and Sonya R Porter. The opportunity atlas: Mapping the childhood roots of social mobility. *American Economic Review*, forthcoming.

William J Collins and Katharine L Shester. Slum clearance and urban renewal in the United States. *American Economic Journal: Applied Economics*, 5(1): 239–273, 2013.

Election Commission. Manual on electoral rolls. Election Commission of India, 2016.

Pedro C Ferreira, Alexander Monge-Naranjo, and Luciene Torres de Mello Pereira. Of cities and slums. *Journal of Political Economy*, 2025.

Erica Field. Property rights and investment in urban slums. *Journal of the European Economic Association*, 3(2-3):279–290, 2005.

Charles A Frankenhoff. Elements of an economic model for slums in a developing economy. *Economic Development and Cultural Change*, 16(1):27–36, 1967.

Simon Franklin. Enabled to work: The impact of government housing on slum dwellers in South Africa. *Journal of Urban Economics*, 118:103265, 2020.

Sahil Gandhi, Vaidehi Tandel, Alexander Tabarrok, and Shamika Ravi. Too slow for the urban march: Litigations and the real estate market in Mumbai, India. *Journal of Urban Economics*, 123:103330, 2021.

Gechter and Tsivanidis. Spatial spillovers from urban renewal: Evidence from the mumbai mills redevelopment. 2023.

Paul Gertler, Marco Gonzalez-Navarro, Raimundo Undurraga, and Joaquin A Urrego. In-situ upgrading or population relocation? Direct impacts and spatial spillovers of slum renewal policies. *University of California Berkeley*, 2024.

Edward Glaeser. *Triumph of the city: How our greatest invention makes us richer, smarter, greener, healthier, and happier*. Penguin, 2012.

Marco Gonzalez-Navarro and Raimundo Undurraga. Immigration and slums. Working Paper, 2025.

Andrew Goodman-Bacon. Difference-in-differences with variation in treatment timing. *Journal of Econometrics*, 225(2):254–277, 2021.

Mariaflavia Harari. Residential patterns and local public goods in urban brazil. Working paper, 2024.

Mariaflavia Harari and Maisy Wong. Slum upgrading and long-run urban development: Evidence from Indonesia. *Review of Economic Studies*, 2025.

J Vernon Henderson, Tanner Regan, and Anthony J Venables. Building the city: from slums to a modern metropolis. *The Review of Economic Studies*, 88(3): 1157–1192, 2021.

Jessica LaVoice. The long-run implications of slum clearance: A neighborhood analysis. *Journal of Public Economics*, 236:105153, 2024.

Benjamin Marx, Thomas Stoker, and Tavneet Suri. The economics of slums in the developing world. *Journal of Economic Perspectives*, 27(4):187–210, 2013.

Guy Michaels, Dzhamilya Nigmatulina, Ferdinand Rauch, Tanner Regan, Neeraj Baruah, and Amanda Dahlstrand. Planning ahead for better neighborhoods: Long-run evidence from Tanzania. *Journal of Political Economy*, 129(7):2112–2156, 2021.

Ashesh Rambachan and Jonathan Roth. Design-based uncertainty for quasi-experiments. *Journal of the American Statistical Association*, pages 1–28, 2025.

Fernanda Rojas-Ampuero and Felipe Carrera. Sent away: The long-term effects of slum clearance on children. 2025.

Jonathan Roth and Ashesh Rambachan. A more credible approach to parallel trends. *Review of Economic Studies*, pages 1–37, 2022.

Lawrence D Schall. Urban renewal policy and economic efficiency. *American Economic Review*, 66(4):612–628, 1976.

John Turner. Uncontrolled urban settlement: Problems and policies. In *The City in Newly Developing Countries: Readings on Urbanism and Urbanization*. 1969.

UN-Habitat. The challenge of slums: Global report on human settlements 2003. *Management of Environmental Quality: An International Journal*, 15(3):337–338, 2003.

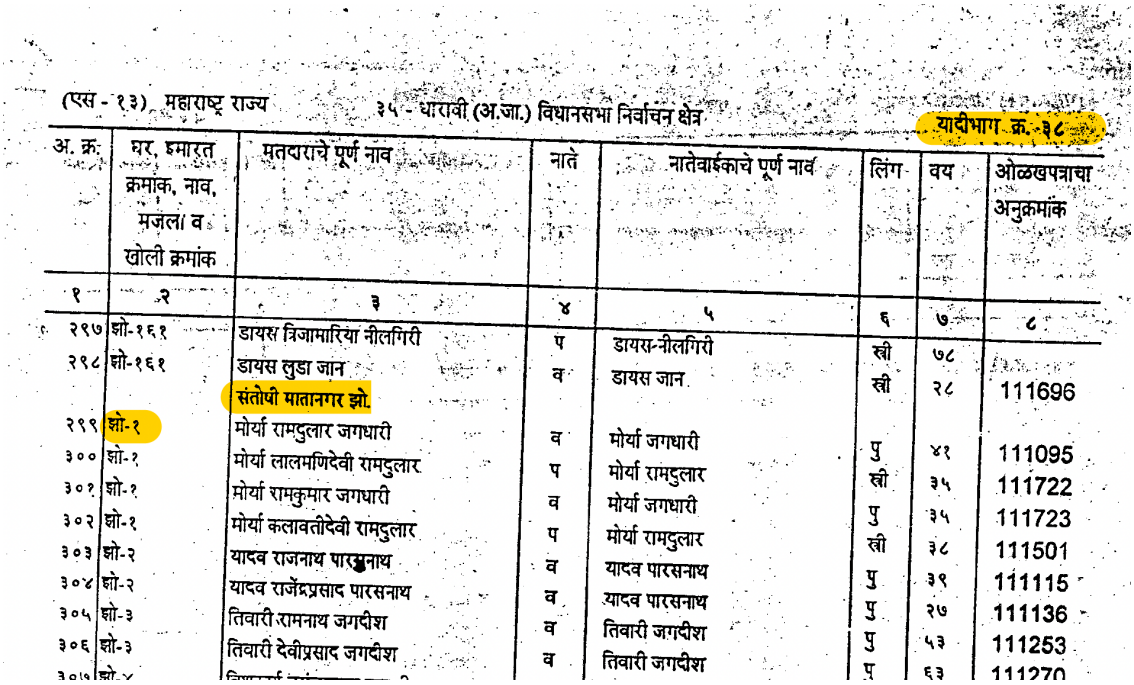
UN-Habitat. *Financing urban shelter: Global report on human settlements 2005*. Routledge, 2013.

UN-Habitat. World cities report 2024: Cities and climate action. 2024.

A Appendix

A.1 Supplementary tables and figures

Figure A.1: Sample electoral roll

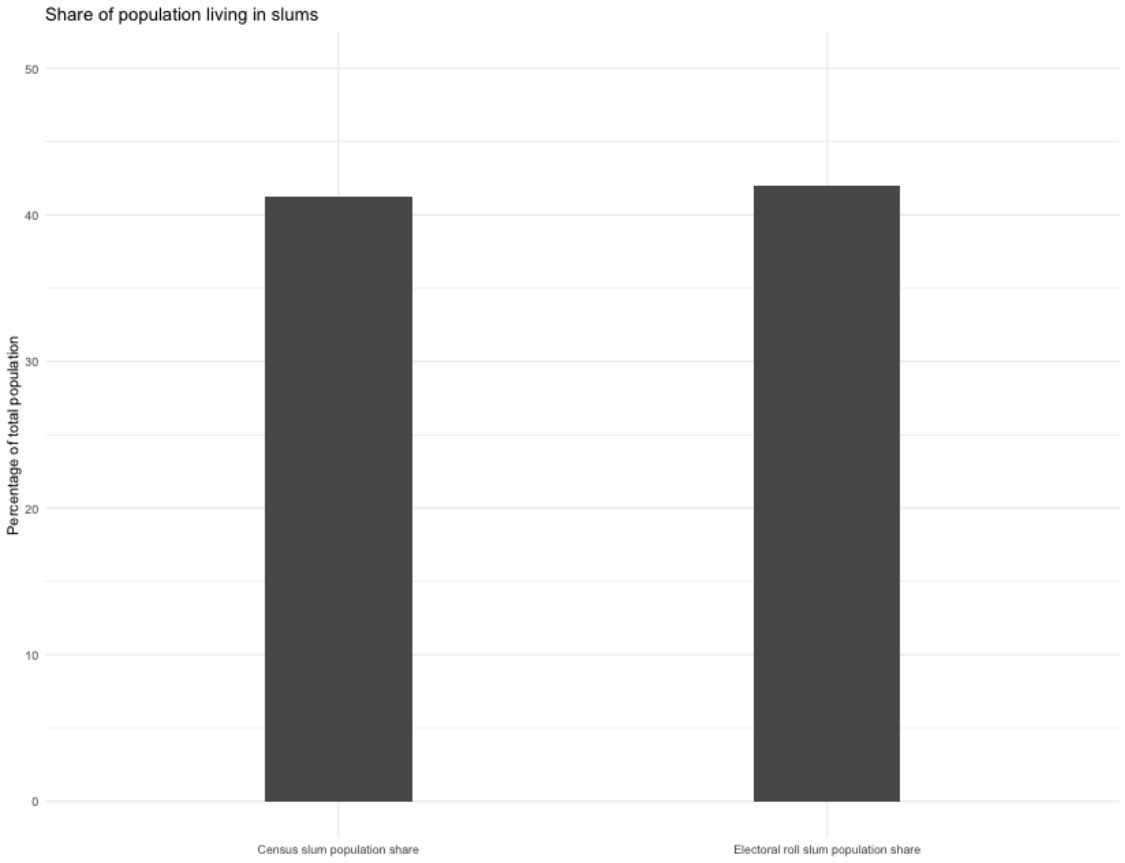


(एस - १३) महाराष्ट्र राज्य — ३५ - धारावी (अ.जा.) विधानसभा निर्वाचन क्षेत्र — यादीभाग क्र. ३८

अ. क्र.	घर, इमारत क्रमांक, नाव, मजला व खोली क्रमांक	मतदाराचे पूर्ण नाव	नाते	नातेवाईकाचे पूर्ण नाव	लिंग	वय	ओळखपत्राचा अनुक्रमांक
१	२	३	४	५	६	७	८
२९७	झो-१६१	डायस त्रिजामारिया नीलगिरी	प	डायस-नीलगिरी	स्त्री	७८	
२९८	झो-१६१	डायस लुडा जान	व	डायस जान	स्त्री	२८	111696
		संतोषी मातानगर झो.					
२९९	झो-१	मोर्या रामदुलार जगधारी	व	मोर्या जगधारी	पु	४१	111095
३००	झो-१	मोर्या लालमणिदेवी रामदुलार	प	मोर्या रामदुलार	स्त्री	३५	111722
३०१	झो-१	मोर्या रामकुमार जगधारी	व	मोर्या जगधारी	पु	३५	111723
३०२	झो-१	मोर्या कलावतीदेवी रामदुलार	प	मोर्या रामदुलार	स्त्री	३८	111501
३०३	झो-२	यादव राजनाथ पारसनाथ	व	यादव पारसनाथ	पु	३९	111115
३०४	झो-२	यादव राजेंद्रप्रसाद पारसनाथ	व	यादव पारसनाथ	पु	२७	111136
३०५	झो-३	तिवारी रामनाथ जगदीश	व	तिवारी जगदीश	पु	५३	111253
३०६	झो-३	तिवारी देवीप्रसाद जगदीश	व	तिवारी जगदीश	पु	६३	111270

Notes. This image shows a typical electoral roll. Columns from left to right: serial number, house number, full name of the individual, relationship of relative to individual, relative's full name, gender, age, voter ID number. The heading in bold inside the table (highlighted) represents the name of the building or neighbourhood and the contents of the table that follow details the individuals that live in the building. The page headers show the electoral ward number and the ward part number. Electoral rolls are made public by the election commission the year before each election.

Figure A.2: Comparison of slum population according to the Census and Electoral Roll



Notes. This figure shows the share of population living in slums in Mumbai, India according to the Slum Census 2011 (Census, 2011) and according to the electoral roll published on 1 January, 2012. The Slum Census defined a slum as a 'compact area of poorly built congested tenements, unhygienic environment with inadequate infrastructure and lack of proper drinking water and sanitation facilities'. I define a slum neighbourhood in the electoral roll as a neighbourhood that has the name for slum neighbourhoods in Marathi, chawl or jhopadpatti, in the name of the neighbourhood.

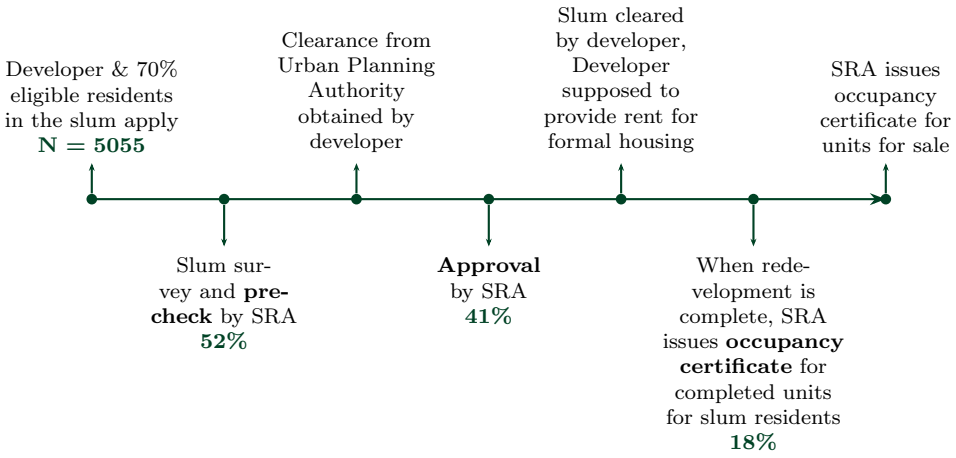


Figure A.3: Timeline of the Slum Redevelopment Process under the SRA

Table 8: Effect of in-situ redevelopment on incumbent residents choice of neighbourhood and mobility

Period relative to approval date	P(Formal neighbourhood)	P(Displaced)	Distance to original slum neighbourhood (km)
-15 to -11 years	0.026	0.045	0.999
	(0.048)	(0.082)	(0.677)
-10 to -6 years	-0.007	-0.028	-0.108
	(0.022)	(0.040)	(0.380)
-5 to -1 years	0.000	0.000	0.000
	(–)	(–)	(–)
0 to 4 years	0.049	0.217	1.044
	(0.017)	(0.026)	(0.295)
5 to 9 years	0.058	0.321	1.707
	(0.025)	(0.036)	(0.461)
10 to 14 years	0.088	0.284	1.899
	(0.039)	(0.060)	(0.687)
Average ITT	0.063	0.29	0.875
Control Mean	0.063	0.178	1.55
Observations	87,083	87,083	87,083
Individuals	22,440	22,440	22,440
Slums	254	254	254

Notes. This table shows the results from estimating Equation 3 using Callaway and Sant'Anna (2021). The outcome variables are, from left to right: (i) probability of living in a formal neighbourhood; (ii) probability of moving from the original slum neighbourhood; and, (iii)distance from the original slum neighbourhood (in km). The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e., those who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of residents of slums that were approved for redevelopment before year t. The control group in year t consists of residents of conditionally approved slums that were approved for redevelopment after year t or never approved. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.

Table 9: Decomposition of effects by location and neighbourhood type

Period relative to approval date	Formal x Displaced	Formal x Same place	Slum x Displaced	Slum x Same place
-15 to -11 years	0.001	0.000	0.044	-0.070
	(0.042)	(–)	(0.064)	(0.084)
-10 to -6 years	-0.019	0.000	-0.010	0.015
	(0.021)	(–)	(0.035)	(0.046)
-5 to -1 years	0.000	0.000	0.000	0.000
	(–)	(–)	(–)	(–)
0 to 4 years	0.044	0.000	0.172	-0.223
	(0.018)	(–)	(0.025)	(0.027)
5 to 9 years	0.048	0.002	0.272	-0.331
	(0.025)	(0.004)	(0.032)	(0.038)
10 to 14 years	0.076	0.005	0.208	-0.296
	(0.036)	(0.011)	(0.051)	(0.054)
Average ITT	0.056	0.002	0.218	-0.283
Control Mean	0.049	0.000	0.128	0.809
Observations	87,083	87,083	87,083	87,083
Individuals	22,440	22,440	22,440	22,440
Slums	254	254	254	254

Notes. This table shows the results from estimating Equation 3 using Callaway and Sant'Anna (2021). The outcome variables are from left to right: (i) probability of living in a formal neighbourhood elsewhere; (ii) probability of living in a formal neighbourhood in place; (iii) probability of living in a slum neighbourhood elsewhere; and, (iv) probability of living in a slum neighbourhood in place. The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e., those who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of residents of slums that were approved for redevelopment before year t. The control group in year t consists of residents of conditionally approved slums that were approved for redevelopment after year t or never approved. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.

Table 10: Effect of in-situ redevelopments on incumbent residents' neighbourhood characteristics

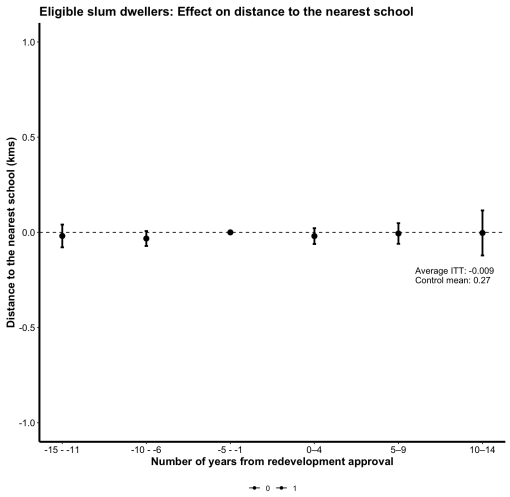
Period relative to approval date (in years)	Maximum distance to urban infrastructure and amenities (km)	Distance to nearest bus stop (km)	Distance to nearest hospital (km)	Distance to nearest park (km)	Distance to nearest school (km)	Share of own religious group in neighbourhood
-15 to -11	0.126	0.130	-0.019	0.063	0.002	0.006
	(0.078)	(0.078)	(0.026)	(0.025)	(0.013)	(0.018)
-10 to -6	0.104	0.105	-0.032	0.022	-0.004	0.005
	(0.047)	(0.048)	(0.013)	(0.016)	(0.008)	(0.009)
-5 to -1	0.000	0.000	0.000	0.000	0.000	0.000
	(–)	(–)	(–)	(–)	(–)	(–)
0 to 4	0.086	0.087	-0.020	0.031	-0.011	0.004
	(0.044)	(0.045)	(0.011)	(0.014)	(0.007)	(0.006)
5 to 9	-0.016	-0.016	-0.006	0.037	-0.015	-0.002
	(0.052)	(0.057)	(0.015)	(0.017)	(0.009)	(0.004)
10 to 14	0.023	0.024	-0.003	0.018	-0.029	-0.004
	(0.094)	(0.092)	(0.024)	(0.028)	(0.019)	(0.004)
Average ITT	0.054	0.055	-0.013	0.028	-0.010	-0.003
Control Mean	1.542	1.538	0.275	0.319	0.131	0.894
Observations	87,083	87,083	87,083	87,083	87,083	87,083
Individuals	22,440	22,440	22,440	22,440	22,440	22,440
Slums	254	254	254	254	254	254

Notes. This table shows the results from estimating Equation 3 using Callaway and Sant'Anna (2021). The outcome variables are from left to right: (i) maximum distance to urban infrastructure and amenities; (ii) distance to nearest bus stop; (iii) distance to nearest bus stop; (iv)distance to nearest bus stop; (v) distance to nearest bus stop; and, (vi) share of own religious group in the neighbourhood. The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e., those who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of residents of slums that were approved for redevelopment before year t. The control group in year t consists of residents of conditionally approved slums that were approved for redevelopment after year t or never approved. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.

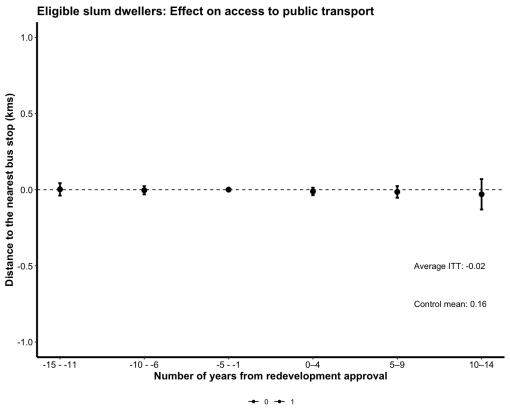
Table 11: Event-study estimates around year of approval by status of redevelopment

	Outcome: Probability of living in a formal neighbourhood		
Period relative to approval (in years)	Cleared and redeveloped slums	Cleared but never redeveloped slums	Never cleared or redeveloped slums
-10 to -6	-0.010 (0.030)	-0.045 (0.039)	-0.067 (0.070)
-5 to -1	0.000	0.000	0.000
0 to 4	0.114 (0.032)	-0.052 (0.042)	0.038 (0.058)
5 to 9	0.221 (0.044)	-0.031 (0.048)	0.030 (0.067)
Control mean	0.111	0.106	0.100
Individuals	3,765	4,493	6,436
Observations	14,483	17,689	24,959

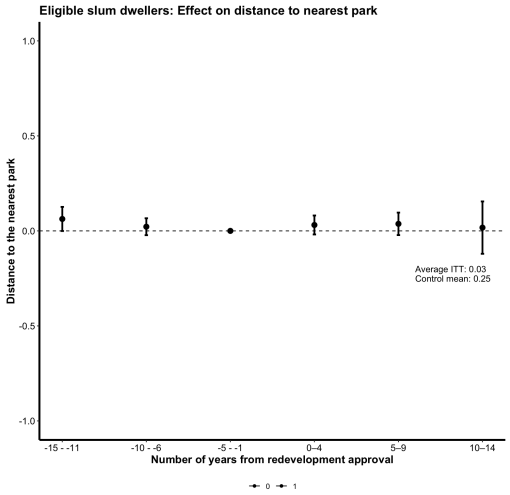
Notes. This table shows the the β_k and standard errors estimated from three regressions using Callaway and Sant'Anna (2021) comparing approved slums to later approved slums divided into three different samples: (i) approved slums that were cleared but not redeveloped to later approved slums that were also cleared and not redeveloped; (ii) approved slums that were never cleared to later approved slums that were also never cleared; and, (iii) approved slums that were redeveloped to later approved slums that were also redeveloped. These categories are created for the subset of slums that could be georeferenced using cadastral maps. The coefficient for the period before approval is normalised to 0. Standard errors are clustered at the slum level.



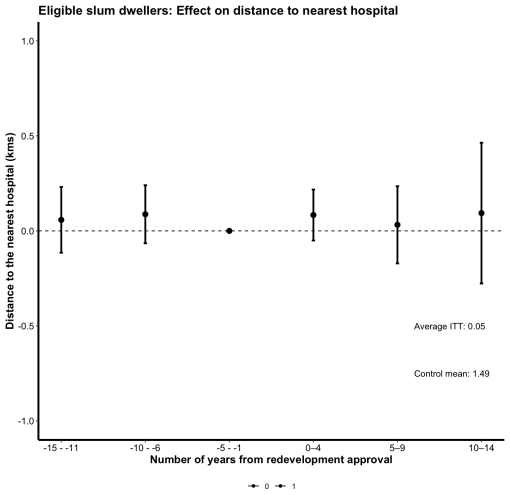
(a) Distance to nearest school



(b) Access to public transport



(c) Access to green spaces

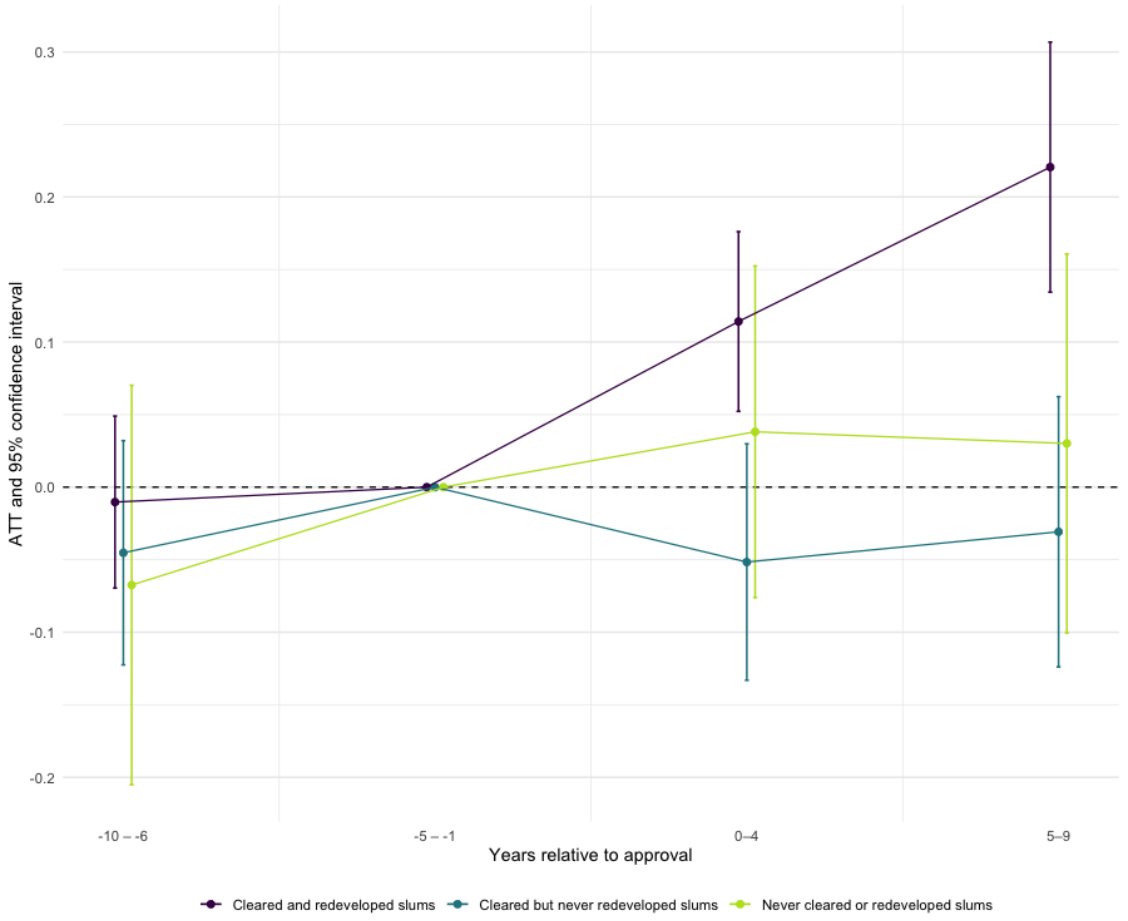


(d) Distance to nearest hospital

Figure A.4: Effect of in-situ redevelopment on incumbent residents: Distance to urban infrastructure and amenities

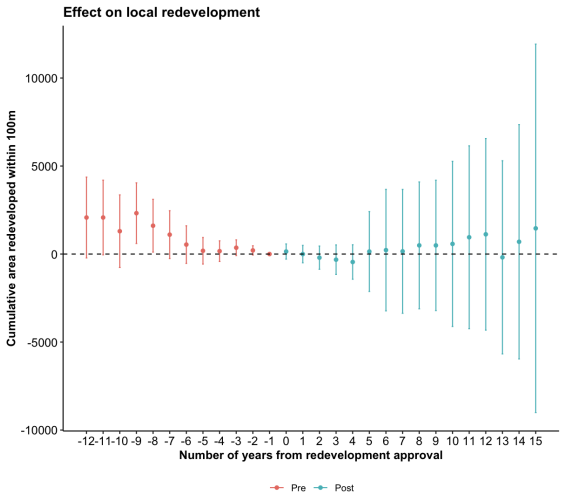
Notes. These figures plot the the β_k from Equation 3 and 95% confidence intervals. The outcome variables are distances to urban infrastructure and amenities. The outcome variable in panel (a) is distance to the nearest school. The outcome variable in panel (a) is distance to the nearest busstop. The outcome variable in panel (a) is distance to the nearest park. The outcome variable in panel (a) is distance to the nearest hospital. All distances are in kilometers. I use Callaway and Sant'Anna (2021) to compute the estimates and 95% confidence intervals. The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e. individuals who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of residents of slums that were approved for redevelopment before year t. The control group in year t consists of residents of conditionally approved slums that were approved for redevelopment after year t or never approved. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.

Figure A.5: Effect on probability of living in a formal neighbourhood by redevelopment status



Notes. This figure plots the β_k and 95% confidence intervals estimated using Callaway and Sant'Anna (2021) from three regressions comparing approved slums to later approved slums that are in the following categories: (i) approved slums that were cleared but not redeveloped to later approved slums that were also cleared and not redeveloped; (ii) approved slums that were never cleared to later approved slums that were also never cleared; and, (iii) approved slums that were redeveloped to later approved slums that were also redeveloped. These categories are created for the subset of slums that could be georeferenced using cadastral maps. The coefficient for the period before approval is normalised to 0. Standard errors are clustered at the slum level. The coefficients and standard errors are in Table 11.

Figure A.6: Testing for an alternative explanation: Effect on local constructions



Notes. These figures plot the the β_k and 95% confidence interval of a slum level difference-in-difference regression similar to 2 where the outcome variable is the cumulative area under construction in meter square in a 100 meter radius of the slum (not including the slum itself). This serves as a placebo test to identify hyper-local productivity shocks that drive a local construction boom and potentially transitions out of slum living in the neighbourhood. I use Callaway and Sant'Anna (2021) to compute the estimates and 95% confidence intervals. The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e. individuals who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of slums that were approved for redevelopment before year t. The control group in year t consists of conditionally approved slums that were approved for redevelopment after year t or never approved. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.

A.2 Robustness checks

Table 12: Effect of in-situ redevelopment on incumbent residents choice of neighbourhood and mobility

	Control group: Approved but never treated slums		
Period relative to approval date (in years)	P(Formal neighbourhood)	P(Displaced)	Distance to original slum neighbourhood (km)
-15 to -11	0.026	0.045	0.999
	(0.050)	(0.077)	(0.703)
-10 to -6	-0.007	-0.028	-0.108
	(0.022)	(0.042)	(0.379)
-5 to -1	0.000	0.000	0.000
	(–)	(–)	(–)
0 to 4	0.049	0.217	1.044
	(0.017)	(0.028)	(0.291)
5 to 9	0.058	0.321	1.707
	(0.026)	(0.033)	(0.467)
10 to 14	0.088	0.284	1.899
	(0.037)	(0.055)	(0.731)
Average ITT	0.036	0.140	0.923
Control Mean	0.063	0.178	0.875
Observations	87083	87083	87083
Individuals	22440	22440	22440
Slums	254	254	254

Notes. This table shows the results from estimating Equation 3 using Callaway and Sant'Anna (2021). The outcome variables are, from left to right: (i) probability of living in a formal neighbourhood; (ii) probability of moving from the original slum neighbourhood; and, (iii)distance from the original slum neighbourhood (in km). The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e., those who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of residents of slums that were approved for redevelopment before year t. The control group in year t consists of residents of conditionally approved slums that were never approved for redevelopment. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.

Table 13: Effect of in-situ redevelopment on incumbent residents' incumbent residents' neighbourhood characteristics

	Control group: Approved but never treated slums					
Period relative to approval date (in years)	Maximum distance to urban infrastructure and amenities (km)	Distance to nearest bus stop (km)	Distance to nearest hospital (km)	Distance to nearest park (km)	Distance to nearest school (km)	Share of own religious group in neighbourhood
-15 to -11	0.002	0.130	0.063	-0.019	0.126	0.006
	(0.014)	(0.076)	(0.027)	(0.028)	(0.076)	(0.016)
-10 to -6	-0.005	0.109	0.031	-0.030	0.108	0.005
	(0.008)	(0.050)	(0.016)	(0.014)	(0.048)	(0.008)
-5 to -1	0.000	0.000	0.000	0.000	0.000	0.000
	(–)	(–)	(–)	(–)	(–)	(–)
0 to 4	-0.011	0.065	0.024	-0.014	0.064	0.003
	(0.006)	(0.040)	(0.012)	(0.011)	(0.040)	(0.005)
5 to 9	-0.015	-0.029	0.031	-0.004	-0.029	-0.003
	(0.010)	(0.053)	(0.017)	(0.016)	(0.058)	(0.004)
10 to 14	-0.029	0.024	0.018	-0.003	0.023	-0.004
	(0.018)	(0.086)	(0.025)	(0.025)	(0.090)	(0.004)
Average ITT	-0.010	0.050	0.028	-0.012	0.049	0.001
Control Mean	0.131	1.538	0.319	0.275	1.542	0.894
Observations	87083	87083	87083	87083	87083	87083
Individuals	22440	22440	22440	22440	22440	22440
Slums	254	254	254	254	254	254

Notes. This table shows the results from estimating Equation 3 using Callaway and Sant'Anna (2021). The outcome variables are from left to right: (i) maximum distance to urban infrastructure and amenities; (ii) distance to nearest bus stop; (iii) distance to nearest bus stop; (iv)distance to nearest bus stop; (v) distance to nearest bus stop; and, (vi) share of own religious group in the neighbourhood. The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e., those who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of residents of slums that were approved for redevelopment before year t. The control group in year t consists of residents of conditionally approved slums that were never approved. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.

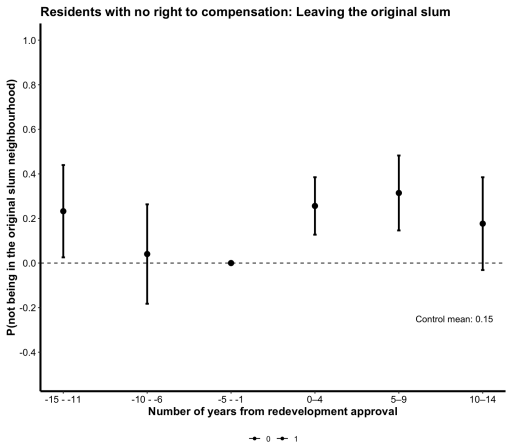
Table 14: Decomposition of effects by location and neighbourhood type

	Control group: Approved but never treated slums			
Period relative to approval date (in years)	Formal x Displaced	Formal x Same place	Slum x Displaced	Slum x Same place
-15 to -11	0.001	0.000	0.044	-0.070
	(0.040)	(–)	(0.063)	(0.081)
-10 to -6	-0.006	0.000	0.021	-0.028
	(0.020)	(–)	(0.036)	(0.045)
-5 to -1	0.000	0.000	0.000	0.000
	(–)	(–)	(–)	(–)
0 to 4	0.045	0.000	0.169	-0.218
	(0.016)	(–)	(0.022)	(0.026)
5 to 9	0.048	0.002	0.268	-0.325
	(0.025)	(0.003)	(0.033)	(0.039)
10 to 14	0.076	0.005	0.208	-0.296
	(0.038)	(0.011)	(0.048)	(0.055)
Average ITT	0.027	0.001	0.118	-0.156
Control Mean	0.049	0.000	0.128	0.809
Observations	87083	87083	87083	87083
Individuals	22440	22440	22440	22440
Slums	254	254	254	254

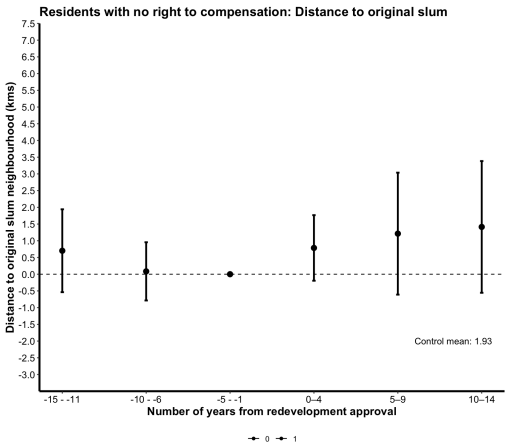
Notes. This table shows the results from estimating Equation 3 using Callaway and Sant'Anna (2021). The outcome variables are from left to right: (i) probability of living in a formal neighbourhood elsewhere; (ii) probability of living in a formal neighbourhood in place; (iii) probability of living in a slum neighbourhood elsewhere; and, (iv) probability of living in a slum neighbourhood in place. The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e., those who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of residents of slums that were approved for redevelopment before year t. The control group in year t consists of residents of conditionally approved slums that were never approved for redevelopment. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.

A.3 Effects on ineligible slum residents

Figure A.7: Displacement effect on ineligible residents



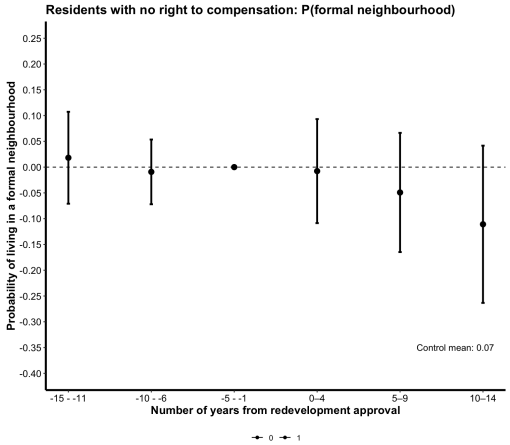
(a) Probability of not being in the slum neighbourhood



(b) Distance from the slum neighbourhood

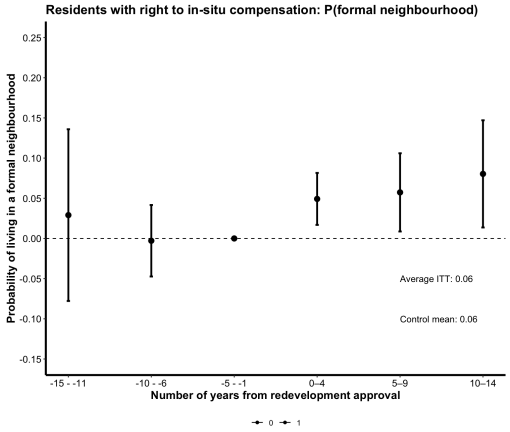
Notes. These figures plot the the β_k from Equation 3 and 95% confidence intervals. The outcome variable in panel (a) is a dummy variable that takes the value 1 when the individual lives outside their original slum and 0 otherwise.The outcome variable in panel (b) is the distance from the original slum neighbourhood. I use Callaway and Sant'Anna (2021) to compute the estimates and 95% confidence intervals. The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e., those who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of residents of slums that were approved for redevelopment before year t. The control group in year t consists of residents of conditionally approved slums that were approved for redevelopment after year t or never approved. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.

Figure A.8: Ineligible residents: Probability of living in a formal neighbourhood



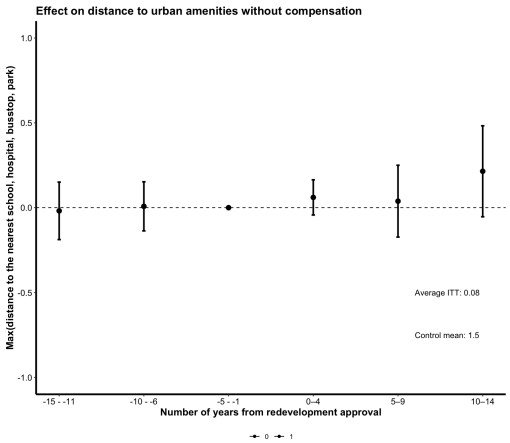
Notes. This figure the the β_k from Equation 3 and 95% confidence intervals. The outcome variable is a dummy variable that takes the value 1 when the individual lives in a formal neighbourhood and 0 otherwise. I use Callaway and Sant'Anna (2021) to compute the estimates and 95% confidence intervals. The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e., those who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of residents of slums that were approved for redevelopment before year t. The control group in year t consists of residents of conditionally approved slums that were approved for redevelopment after year t or never approved. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.

Figure A.9: Effect of in-situ redevelopments on incumbent residents: Probability of living in a formal neighbourhood



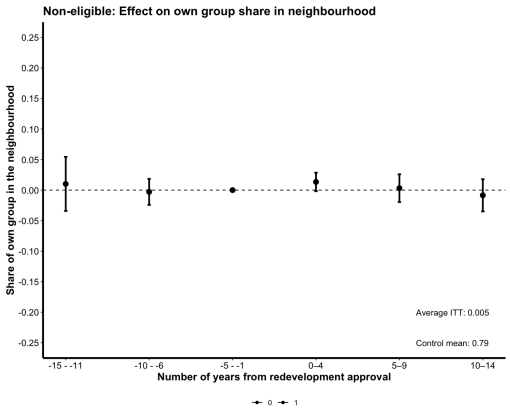
Notes. This figure the the β_k from Equation 3 and 95% confidence intervals. The outcome variable is a dummy variable that takes the value 1 when the individual lives in a formal neighbourhood and 0 otherwise. I use Callaway and Sant'Anna (2021) to compute the estimates and 95% confidence intervals. The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e., those who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of residents of slums that were approved for redevelopment before year t. The control group in year t consists of residents of conditionally approved slums that were approved for redevelopment after year t or never approved. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.

Figure A.10: Ineligible residents: Effects on distance to urban infrastructure and amenities

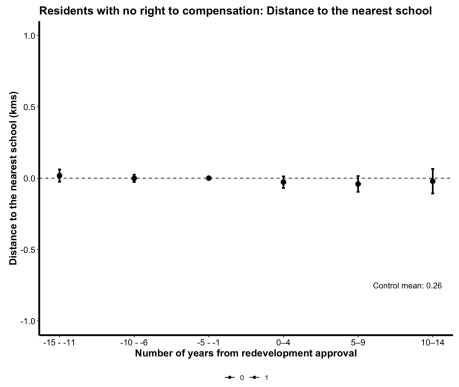


Notes. This figure the the β_k from Equation 3 and 95% confidence intervals. The outcome variable is the maximum distance to the nearest school, hospital, park and bus-stop. I use Callaway and Sant'Anna (2021) to compute the estimates and 95% confidence intervals. The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e., those who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of residents of slums that were approved for redevelopment before year t. The control group in year t consists of residents of conditionally approved slums that were approved for redevelopment after year t or never approved. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.

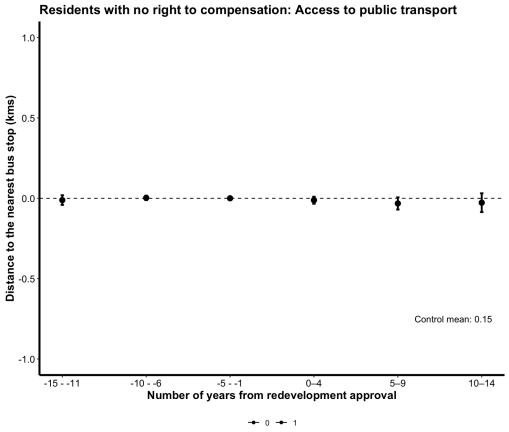
Figure A.11: Ineligible residents: Effect on share of own religious group



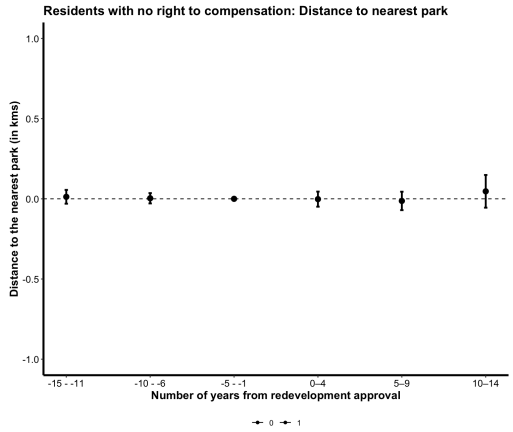
Notes. These figures plot the the β_k from Equation 3 and 95% confidence intervals. The outcome variable is the share of muslims in the neighbourhood. I use Callaway and Sant'Anna (2021) to compute the estimates and 95% confidence intervals. The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e. individuals who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of residents of slums that were approved for redevelopment before year t. The control group in year t consists of residents of conditionally approved slums that were approved for redevelopment after year t or never approved. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.



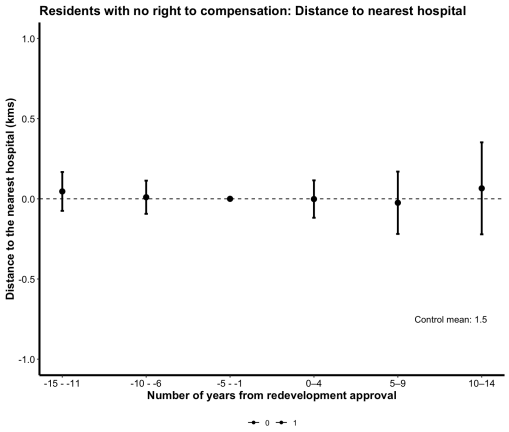
(a) Distance to nearest school



(b) Access to public transport



(c) Access to green spaces



(d) Distance to nearest hospital

Figure A.12: Ineligible residents: Effects on distance to urban infrastructure and amenities

Notes. These figures plot the the β_k from Equation 3 and 95% confidence intervals. The outcome variables are distances to urban infrastructure and amenities. The outcome variable in panel (a) is distance to the nearest school. The outcome variable in panel (a) is distance to the nearest busstop. The outcome variable in panel (a) is distance to the nearest park. The outcome variable in panel (a) is distance to the nearest hospital. All distances are in kilometers. I use Callaway and Sant'Anna (2021) to compute the estimates and 95% confidence intervals. The estimation is carried out using a balanced sample of individuals who lived in the slum at the time of conditional approval and in 1995 i.e. individuals who were eligible for compensation with an apartment in the redeveloped slum. The treatment group at year t consists of residents of slums that were approved for redevelopment before year t. The control group in year t consists of residents of conditionally approved slums that were approved for redevelopment after year t or never approved. Standard errors are clustered at the slum level. The coefficient is normalised to 0 in the period before redevelopment approval.