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IZA DP No. 17854

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ABSTRACT

Building Without Income Mixing: Public Housing Quotas in France*

We study the effects of the SRU law introduced in France in December 2000 to support scattered development of public housing in cities and favor social mixity. This law imposes 20% of public dwellings to all medium and large municipalities of large-enough cities, with fees for those not abiding by the law. Using exhaustive fiscal data, we evaluate the effects of the law over the 1996-2008 period using a difference-in-differences approach at the municipality and neighborhood levels. We find that the law stimulated public housing construction in treated municipalities, but only slightly increased the presence of low-income households. Indeed, new public dwellings enter categories to which medium-income are eligible and most additional occupants are not poor. Within municipalities, the policy decreased public housing segregation but it barely decreased low-income segregation. This comes from local authorities increasing over time the presence of public dwellings in neighborhoods away from existing public housing but in places concentrating low-income households.

JEL Classification: R31, R38
Keywords: public housing, policy evaluation, construction, segregation

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1 Introduction

In many developed countries, low-income rental housing assistance programs have been implemented to help households with modest income access dwellings below market rent. Still, affordable housing is considered to lack in many places, especially attractive ones. Some governments and local authorities have thus decided to impose affordable housing quotas on housing stock or new developments in some cities and municipalities of several European countries, including the UK, Denmark, Germany, Spain, Switzerland and France. Despite the popularity of local quotas, their impact on public housing and income segregation remains poorly documented. In this paper, we take advantage of an early French experience to investigate their effects.

In France, significant low-income rental housing assistance programs are implemented. They cost as much as 27 billion euros in 2019, that is 1.3% of the gross domestic product, and public housing represents as much as 56% of these costs (SDES, 2020). This is not surprising since public support represents as much as 35% of the average total cost for the construction of a public dwelling which amounts to 140 thousand euros in 2016 (DGALN, 2017). Some municipalities of significant size did not construct much public housing in the past, whereas they are quite attractive and rich. This led the government to implement the SRU law imposing 20% of public dwellings to all medium and large municipalities of large-enough cities in December 2000.[1] An advertised goal of the SRU law is to support scattered development of public housing to favor social mixity. Indeed, the government aims at de-segregating low-income households who live in poor municipalities or neighborhoods by giving them access to public housing in better locations. Still, the success of the policy depends on whether municipalities abide by the law and where municipal authorities decide to construct public dwellings.

This paper evaluates the effects of the SRU law over the 2000-2008 period during which the features of the law remained unchanged. We investigate its impacts on the number and intra-municipal segregation of public dwellings and low-income households in treated municipalities. We make three contributions to the literature. First, we provide an extensive policy evaluation of the SRU law that involves pre-trend assessment, past policies, spillover effects and placebo experiment. Second, we investigate the mechanisms explaining the contrasted policy effects for public housing and the poor at the municipality level. Third, we conduct a policy evaluation at the neighborhood level to better understand strategic choices made by municipal authorities for the location of public dwellings within treated muncipalities and the income level of their occupants.

Government intervention in France contrasts with de-segregation policies in the US that rely to a larger extent on the distribution of means-tested housing vouchers. These are usually preferred over public dwellings which construction and maintenance are considered too costly. There is important evidence on the Moving-to-Opportunity program that proposed vouchers conditionally on moving to low-poverty neighborhoods (Chyn and Katz, 2021). Voucher recipients indeed relocated to richer places, but effects on individuals depended on the outcome and varied

[1] SRU stands for *Solidarité et Renouvellement Urbain*, i.e. Solidarity and Urban Renewal.

across demographic groups. For adults, the program had no effect on employment and income, but was beneficial for health and safety (Katz *et al.*, 2001; Kling *et al.*, 2007). For the young, the program decreased criminal behaviours for females whereas evidence is mixed for males (Kling *et al.*, 2005). It is actually children below thirteen who benefited from the program in the long run, but not older ones (Chetty *et al.*, 2016).[2] They had higher education and earnings, lived in better neighborhoods and were less likely to be single parents when adults.

Due to the high maintenance costs and low-income segregation, several US cities demolished public dwellings and distributed housing vouchers to favor the relocation of displaced families in better places. Following the demolition of public dwellings in Chicago, displaced children did no better or worse than those in neighboring non-demolished public dwellings in the short run (Jacob, 2004). However, they were more likely to be employed and earn more when they became young adults, and experienced fewer violent crime arrests (Chyn, 2018), in line with results obtained for the Moving-to-Opportunity program.[3]

The SRU law is based on municipalities rather than individuals. It created incentives to construct new public dwellings where they were considered to lack, since municipalities not abiding to the law had to pay fees. In fact, fees were inflated if these municipalities did not construct enough public dwellings during triennial periods. Despite these fees, public housing construction is not granted because penalties are not prohibitive and public housing may be considered as a negative amenity by rich inhabitants because they may want to live together rather than with the poor (Bayer *et al.*, 2007; Guerrieri *et al.*, 2013) and their home values may be negatively affected. It could happen that local authorities in rich municipalities prefer to pay the fees rather than construct public dwellings to satisfy potential voters at the next elections. Alternatively, local authorities in rather rich municipalities with a few poor neighborhoods may decide to build public housing in those neighborhoods to avoid bothering the rich. These considerations relate to the literature on the political economy of land use policies that considers the specific role of homeowners as voters against new constructions (Fischel, 2005; Hilber and Robert-Nicoud, 2013; Sollé-Ollé and Viladecans-Marsal, 2013; Ortalo-Magné and Prat, 2014; Mast, 2024).

Past investigations of the SRU law have shown its positive effects on the construction and dispersion of public dwellings (Bono *et al.*, 2013; Gobillon and Vignolles, 2016; Jaupart, 2020), as well as its negligible impact on a global income segregation index within municipalities (Beaubrun-Diant and Maury, 2022). We add to this literature by quantifying the effects of the SRU law on low-income households who are the main target of the policy, and by highlighting a channel through which authorities of treated municipalities can avoid poor households in additional public dwellings. We then investigate the choices made at the neighborhood level by these authorities with respect to the location of public dwellings and the income level of their occupants. In particular, these choices are not concerned by the SRU law, can be made freely, and municipal authorities may avoid de-segregating low-income

[2]See also Davis *et al.* (2021) and Chyn and Daruich (2025) for equilibrium models rationalizing estimated effects on children.

[3]Almagro *et al.* (2023) show that demolitions had heterogeneous effects on households: They decreased welfare for low-income minority households and increased it for White households.

households within treated municipalities even if they build more public dwellings.

We study policy effects at the municipality and neighborhood levels using exhaustive fiscal data over the 1996-2008 period. We first consider the sample of municipalities around the municipal threshold of the law and show with a difference-in-differences approach that the SRU law led to a yearly growth in the number of public dwellings (1.8 percentage points) that is much larger then that of low-income households (0.7 percentage points). Interestingly, the treatment effect on the proportion of public dwellings (0.93 percentage points) is much larger than that for public dwellings occupied by low-income households (0.28 percentage points). This suggests that occupants of additional public dwellings are selected among non-poor households. Actually, it is possible to check that additional public dwellings enter categories to which medium-income households are also eligible.

We then investigate strategic choices of local authorities within treated municipalities by studying the determinants of neighborhood proportions of public dwellings. We first construct a panel dataset of neighborhoods with time-invariant delineation over our study period. This allows us to quantify the time-varying effects of neighborhood variables and the influence of the SRU law on these effects with a difference-in-differences approach at the neighborhood level. Importantly, we consider a rich specification that includes both neighborhood and municipality-year fixed effects. Identification thus comes from variations in growth across neighborhoods within municipalities. We show that, over time, municipalities tend to increase the proportion of public dwellings in neighborhoods concentrating the poor, but away from places concentrating public dwellings and homeowners. Treated municipalities have a behaviour similar to control ones, suggesting that de-segregation of the poor is not really a municipal goal. Overall, local authorities thus do not follow much the spirit of the SRU law within treated municipalities where no constraint is imposed to their choices.

The paper is organized as follows. Section 2 gives information on the public housing sector and related policies in France. Section 3 then describes our data sources and Section 4 details our empirical strategy. Section 5 discusses stylized facts on characteristics and evolution of public housing in treated and control municipalities. Section 6 presents the main results of our policy evaluation at the municipality and neighborhood levels, and Section 7 provides additional analyses showing the internal validity of our approach. Finally, Section 8 concludes.

2 The French context

2.1 Public housing in France

In France, public housing is built and managed by public and private not-for-profit landlords (there are respectively 268 and 244 of them in 2013). They benefit from attractive funding arrangements in exchange for supplying dwellings at rents below the market level, and access is means-tested. Overall, public housing in France is similar to that in the US, although it represents a much larger proportion of the housing stock (around 15% vs. less than

1% in 2021).[4]

There are four types of public dwellings that are characterized by different income and rent ceilings for occupants. Those called PLAI have the lowest ceilings and are intended for poor households. Those called PLUS occupy an intermediate position and are meant for poor/medium-income households. Finally, those called PLI and PLS are intended for medium-income households for whom renting in the private sector would remain a significant burden.[5] Households need to be eligible only at entry into a public dwelling and can then keep it as long as they wish. Overall, rent ceilings yield a significant subsidy to public housing tenants since they pay rents around 40% below those in the private sector market (Laferrère and Blanc, 2001; Trévien, 2014; Chapelle and Eymeoud, 2022). In particular, this implicit subsidy facilitates wealth accumulation and access to homeownership (Goffette-Nagot and Sidibé, 2016).

Households who want to access public housing make a wish list and rank municipalities where they would like to be located. The allocation of vacant public dwellings involves two steps. First, a shortlist of candidates (typically three) is decided by landlords under the control of municipalities where vacant dwellings are located. This step is often carried out without transparent criteria or external oversight. Second, the shortlist is proposed to a committee at the *département* level (*Commission d'attribution de logements*) which task is to select the final tenant.[6] Municipal representatives participate to this committee and can influence the decision. Overall, the selection process is potentially biased (Bourgeois, 2013) since municipalities can significantly influence the allocation of public dwellings towards some households with specific income.

In 2011, the public sector consisted of 4.4 million dwellings, and represented 13% of the residential housing stock and one-third of the rental sector.[7] Public dwellings are located mostly in large cities, especially in disadvantaged suburban neighborhoods. Single-headed families, aged individuals and immigrants are over-represented. In 1999, public housing concentrates around 50% of Algerians and Moroccans, which are two large groups of immigrants (Verdugo, 2016). Immigrants have a higher propensity to be in a public dwelling even all else equal for socio-economic characteristics (Fougère *et al.*, 2013).[8] In fact, segregation of immigrants within cities has increased over the 1968-1999 period, and the increased presence of immigrants in public housing of some neighborhoods is a major cause of this evolution (Verdugo, 2011). In particular, the concentration of non-European immigrants in

[4]In France, incentives were also created to promote constructions in the private rental sector for low-income households through income tax rebate in some specific locations under the condition that access is means-tested (Chapelle *et al.*, 2018). The corresponding program was the Scellier Tax Credit introduced in 2009 that evolved later into the Duflot and Pinel tax credit. It is similar to the Low-Income Tax Credit Development (LITHC) which effects on construction crowding, segregation and housing prices have been widely studied (Baum-Snow and Marion, 2009; Eriksen and Rosenthal, 2010; Diamond and McQuade, 2021).

[5]In 2003, the proportions of households eligible for PLAI, PLUS, PLS and PLI are respectively: 28%, 64%, 80% and 86% (Dallier, 2016). Hence, access to public housing for medium-income households is not much restricted except for PLAI.

[6]A *département* is an administrative unit larger than the municipality, but smaller than the region. There are 94 *départements* covering the whole territory of mainland France.

[7]These statistics were computed from FILOCOM data that are presented later in the text.

[8]This result is obtained from French censuses which do not include income.

large public housing projects and their surroundings has led to an increase of ethnic enclaves (Verdugo and Toma, 2018). Mayors can influence the municipal concentration of immigrants through public housing policies. Schmutz and Verdugo (2023) show that, in municipalities where a left-wing mayor was elected (rather than a right-wing one), the proportion of non-European immigrants grew faster, largely because of public housing construction and a change in the composition of public housing occupants.

There is both under-population and over-population of public dwellings (Jacquot, 2007). Under-population is due to small-size aged households and occurs in both small and large cities. It arises because ageing parents can remain in their public dwelling as long as they want, even when kids are gone, and they do so to benefit from low rents even if their income has increased (Laferrère, 2013). Over-population arises because of families with children and occurs mostly in large cities. Over-population usually goes along with low income and poor housing conditions. Even if most individuals living in public dwellings earn modest revenues, households in the last income quintile of the overall population still represent around 5% of occupants (Trévien, 2014). Over the 1999-2015 period, public housing segregation has decreased but income segregation has increased. This can be explained by public housing remaining segregated with public tenants who have become poorer, and richer municipalities receiving wealthier public tenants (Beaubrun-Diant and Maury, 2022).

A concern of the government is that public housing would be under-represented in rich municipalities. Figure 1 represents a scatter plot of the proportion of public dwellings as a function of average household gross income at the municipality level in 2000 for municipalities with 1999 population above 1,500. A non-parametric trend shows that the proportion of public dwellings is decreasing with income. This trend goes along with a decrease in the spread of the proportion of public dwellings.

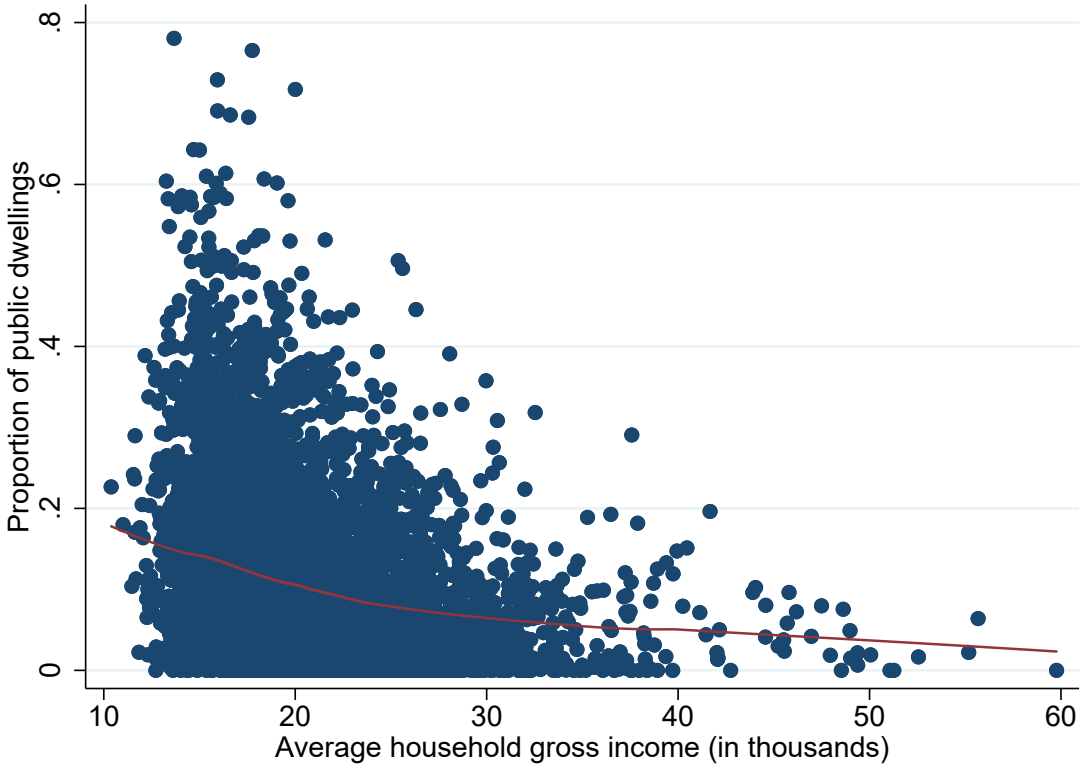
2.2 The SRU law

An increased awareness of poverty in the suburbs and large disparities within cities led to the creation of the Ministry of Urban Affairs in 1990. This creation occurred while the government was decreasing its involvement in the construction of public dwellings, which was increasingly funded by local authorities. The next year, the first step towards a global monitoring of public housing occurred with the *Loi d'Orientation de la Ville* (LOV) voted in July 1991 which goals were the access of modest-income households to good-quality neighborhoods and social mixity.

This law stated that municipalities should have a proportion of public dwellings in the housing stock of residential dwellings above 20% when they were located in a city with 1990 population above 200,000 and had a proportion of social benefits recipients below 18%.[9] Municipalities not reaching the target would be fined. The law was

[9]Here, a city refers to an urban unit which is defined in France as a municipality or a group of municipalities that includes a built area populated with at least 2,000 inhabitants where no dwelling is separated from its neighbor by more than 200 meters. Moreover, each municipality in the urban unit must have more than half of its population in the built area.

Figure 1: Scatter plot of the proportion of public dwellings as a function of average household gross income at the municipality level



Note: Figures are computed from FILOCOM data for municipalities with 1999 population above 1,500. Non-parametric trend obtained with local linear regressions is represented with a solid line.

not implemented for a while because of political alternation, heated debates on its procedural complexity and on the population threshold above which municipalities should be concerned.[10] Implementation finally occurred in January 1995 for the 209 municipalities with a population above 3,500. In January 1999, this threshold was lowered to 1,500 for municipalities in the Paris region.

At the end of the nineties, the LOV law was considered an inappropriate tool because it was too complex and its coverage was too small.[11] It is in this context that a major change in the legal framework was implemented with the *Solidarité et Renouvellement Urbain* (SRU) law. First discussions of the law project began in February 2000 and article 55 of the SRU law was voted in December 2000 with the purpose of inducing more medium and

[10]For instance, it is mentioned in *Le Moniteur* newspaper on October 21, 1994 that deputy Gilles Carrez proposed to fix the municipality population threshold to 2,000 because excluding smaller municipalities should not decrease much the number of public dwellings that should be built (whereas the final chosen threshold ends up being different at 3,500).

[11]Note though that a bit more than two-third of concerned municipalities complied with the law in the sense that they met their triennial commitment about public housing construction (*JO*, July 20, 1998, p. 4025).

large municipalities to construct public housing with a transparent fine system in case they did not comply.[12] This law was supposed to help solve coordination failures between the State and local authorities.

Article 55 of the SRU law makes it compulsory for municipalities to have a proportion of public dwellings above 20% when their 1999 population is above 3,500 outside the Paris region and 1,500 inside the Paris region, and they belong to a city with population above 50,000 that involves at least one municipality with population above 15,000. Municipalities are exempted if they belong to cities that experienced a decrease in their population between the 1990 and 1999 censuses and they are part of an urban plan that favors urban renewal and social mixity. In practice, only a few municipalities are exempted. Compared to the LOV law, the SRU law has overall a much wider perimeter since it also concerns smaller cities (i.e. those with population between 50,000 and 200,000) and does not involve any criterium on social benefits recipients. Municipalities violating the SRU law have to pay a fine, which is increased if efforts to build social housing over three-year periods are not important enough (see Appendix A.1 for more details).

In our analysis, we need to take into account the LOV law since its specifics are related to those of the SRU law. We could identify municipalities concerned by the LOV law from digitalized archives (see Appendix A.2). We experimented with a LOV global list that includes all municipalities concerned by the law when ignoring the municipal population thresholds, and a time-varying LOV restricted list that restricts this sample to municipalities with population above the threshold specified by the law in a given year. Indeed, it is not clear whether the behavior of municipalities targeted by the LOV law really depended on their population during the 1996-2000 period, since population thresholds were not announced beforehand and their specifics were subject to recurrent debates. At the end, we use the LOV global list below since it is the only one that makes pre-trend isssues disappear when taking into account the LOV law.

The national office for urban planning and housing provided us with figures on the municipalities concerned by the SRU law over the 2002-2004 triennial period. These data allowed us to identify 728 such municipalities (there are 36,000 municipalities in France) and they will constitute our treated group in our empirical analysis. Among them, 50.8% did not fulfill their triennial objective of public housing construction. We could also access yearly figures on the proportion of public dwellings, fine and global budget for those municipalities. In 2002, their median proportion of public dwellings was 8.9% and their first quartile was 5.0%. The median fine was 35.0 thousand euros and the first quartile reached 11.7 thousand euros. The magnitude of the fine (including its raise when the triennial objective is not fulfilled) can be compared with the municipality budget. The resulting ratio is rather modest with a median of 1.6%, a first quartile as small as 0.5%, and a 99^{th} percentile at only 5.5%. The rules used to fix the fine suggest that the relationship between the fine (when non-zero) and the number of additional public dwellings required by the law should be rather close to log-linear with unit elasticity. This is in line with Figure B.1 that plots, for treated municipalities, the log fine as function of log number of additional public dwellings required in

[12] http://www.senat.fr/dossier-legislatif/sru.html.

2002: The elasticity is 0.93 and the R^2 of the corresponding linear regression is large at 0.73.

3 Data

3.1 FILOCOM data

For our main analyses at the municipality and neighborhood levels, we rely on FILOCOM (*Fichier Logement Communaux*) data for uneven years over the 1997-2009 period. The FILOCOM dataset is an exhaustive panel of individual ordinary dwellings located in mainland France. It is constructed by merging the French Cadastre, which is used for housing and property taxes, with the Income Tax database. For a given year, information on dwellings is reported on January, 1. In this study, we refer to year t when data were collected at the beginning of year $t+1$. In particular, the dataset contains the municipality and cadastral section identifiers, dwelling characteristics (floor area, construction period), the housing tenure and the annual gross income of households occupying dwellings. Cadastral sections correspond to blocks and will often be referred to as neighborhoods below.[13]

From these data, we compute the municipal stock of public dwellings and their municipal proportion in the stock of main residences from 1996 onwards.[14] Indeed, these two variables are available from the national office for urban planning and housing only for municipalities violating the law, whereas they will be needed for both the treated and control municipalities. We also compute the number of low-income households defined as households in the first income quintile of the city to which a municipality belongs. We use a relative notion as we are interested in evolutions within cities. We will also resort to the proportion of public dwellings occupied by low-income households in the stock of main residences. Finally, we compute dissimilarity indices measuring the within-municipality segregation of public dwellings and low-income households (labelled respectively "housing dissimilarity index" and "income dissimilarity index"). These dissimilarity indices are computed from blocks within each municipality using the formula proposed by Duncan and Duncan (1955). They take values between 0 and 1, and correspond to the proportion of public dwellings (or households in the first income quintile) which should be reallocated to different blocks within the municipality to obtain a uniform distribution of public dwellings (or households in the first income quintile) within the municipality. A larger index value indicates a higher level of within-municipality segregation. More details on data and dissimilarity indices are given respectively in Appendices A.3.1 and A.3.2.

We also construct a panel dataset at the neighborhood level over the 1998-2008 period such that the delineation of neighborhoods is constant over time. We are able to do so because, from 1998 onwards, each dwelling is assigned a unique identifier that remains the same over time and can used to recover the parcel where they are located from

[13] Municipalities and cadastral sections are small geographic units. The French territory is divided into 36,000 municipalities. Each municipality is divided into cadastral sections. There are around 450,000 cadastral sections in mainland France, with around 340,000 of them including at least one ordinary dwelling.

[14] Note that a public dwelling or a main residence corresponds to a single household. Hence, the number of main residences is equal to the number of households.

2014 data that include the precise parcel code for dwellings. This additional information is used in a new algorithm detailed in A.3.3 that we propose to assign dwellings every year to blocks according to their 2013 definition. It is then possible to compute variables at the block level from the information on dwellings. In particular, we compute the proportions of public dwellings and low-income households, the proportion of public dwellings occupied by low-income households, the homeownership rate and the dwelling density per km^2 at the neighborhood level.

3.2 RPLS data

To recover information on the types of public dwellings that are constructed, we rely on the 2011 RPLS (*Répertoire des logements locatifs des bailleurs sociaux*) data. The RPLS is an exhaustive cross-section dataset of all public dwellings that includes the municipality code, construction year and type of public dwelling. The type depends on the targeted households and includes: PLAI (low income), PLUS (low/medium income), PLS (medium income) and PLI (upper medium income). It determines the income ceiling to be eligible for the corresponding public dwellings.

We approximate the number of new public dwellings constructed in a given municipality and a given year with the number of public dwellings located in that municipality with a reported construction date in that year. This approximation holds as long as the number of new public dwellings disappearing between that year and 2011 (due to demolition or sale) is negligible. This condition is met in practice since only very few public dwellings built after January 1, 1996 (the beginning of our observation period for new construction) were sold to their occupant or demolished before 2011. Indeed, public dwellings are the collaterals for the long-term loans used for their construction and are thus very unlikely to be removed from the public housing stock before the end of the repayment period which is around 40 years (Hoorens, 2013). From these data, we then compute the number of public dwellings per type in a given year by summing the new constructions per type until that year. Finally, we define the proportion of public dwellings per type as the ratio between their number and the total number of residences recovered from FILOCOM data.

4 Empirical approach

4.1 Identification strategy

The SRU law is not a random treatment since it depends in a deterministic way on municipality and city sizes. In absence of treatment, the behavior of treated and non-treated municipalities with respect to the construction of public dwellings may differ since the municipal housing stock, socio-economic composition and elected officials are likely to vary with municipality and city sizes.

To identify the causal effect of the law, we exploit the discontinuity of the treatment rule with respect to

municipality size. Our approach consists in comparing the evolutions of different outcomes between treated and non-treated municipalities using a restricted sample that includes only urban municipalities (i.e. municipalities located within urban units) just above and below the municipality size threshold (1,500 inhabitants in the Paris region and 3,500 inhabitants in other regions). The sample restriction makes treated and non-treated municipalities more comparable since it is unlikely that municipalities close to the population threshold were able to manipulate their population before the implementation of the policy since population is measured in 1999, i.e. two years before the SRU law was implemented.

The treatment group contains all the urban municipalities whose population is above the municipality threshold and whose city has a population above the city threshold (50,000 inhabitants), and such that the proportion of public dwellings is below 20% according to official data from the national office for urban planning and housing. The non-treated group contains all the other urban municipalities. Considering this, the treatment effect is obtained by comparing treated and non-treated municipalities of slightly different sizes (above and below the municipality threshold), as well as of similar sizes (but located in cities above and below the city threshold, or with a proportion of public dwellings below and above the 20% threshold).[15]

In practice, the choice of a population interval around the threshold to construct our sample is the result of a trade-off. This interval should be small enough to include only municipalities of rather similar population, but large enough to contain enough municipalities to get statistical meaningful results. In our application, we consider urban municipalities in the Paris region (resp. other regions) with population in the interval [800 ; 6,000] (resp. [2,800 ; 6,000]). Non-treated municipalities verifying these restrictions constitute our control group. In fact, treated and control groups differ to some extent in municipal and city characterics that may affect the growth of our municipal outcomes, and we will thus include control variables in our regressions to deal with these differences (see more below).

4.2 Econometric specifications

We estimate the yearly treatment effects at the municipality and neighborhood levels over the 1996-2008 period, the data being available only every two years. Our specifications take into account the previous housing policy *Loi d'Orientation de la Ville* (LOV) that may affect pre-trends and still have residual effects after it is replaced by the SRU law.

[15] One may consider restricting the non-treated group to municipalities with a proportion of public dwellings below 20% so that the support of the proportion of public dwellings is similar for treated and non-treated municipalities. To make that restriction, consistency with the definition of treated municipalities suggests to rely on the official measure of the proportion of public dwellings used to determine whether or not municipalities comply with the law. This is not possible since this measure is available only for treated municipalities.

4.2.1 Specification at the municipality level

At the municipality level, our main outcomes of interest are the log-number of public dwellings, the log-number of low-income households, and the housing and income dissimilarity indices.[16] Our specification for a municipality i in year t is given by:

$$Y_{i,t} = \alpha_t 1_{\{S_i=1\}} + \theta_t 1_{\{L_i=1\}} + X_i \delta_0 . t + u_i + \mu_t + \epsilon_{i,t} \tag{1}$$

where $Y_{i,t}$ is the outcome and $1_{\{S_i=1\}}$ is a dummy for the municipality being treated with the SRU law. Our parameter of interest α_t is the yearly treatment effect of the SRU law at time t. Note that the SRU law is allowed to have a treatment effect before treatment, i.e. before year 2002, in order to investigate pre-trends. The specification also includes the dummy $1_{\{L_i=1\}}$ to take into account the effects of the LOV law, and θ_t are yearly LOV treatment effects. Finally, we control for heterogeneous municipality trends that might affect the outcome and be correlated with quantities determining treatment through the interactions between t, a linear time trend, and X_i which is a set of explanatory variables that includes region dummies and eight additional explanatory variables measured in 2000 (the logarithm of municipal average income and its square, the logarithm of municipal number of dwellings and its square, as well as the same variables at the city level). The introduction of municipality fixed effects u_i and regional time trends (through the interactions between region fixed effects and time) implies that SRU treatment effects are identified by comparing time variations of outcomes between the treated and control groups within regions. Parameters δ_0 are the coefficients of interactions, μ_t are year fixed effects and $\epsilon_{i,t}$ is the residual.

As only first differences of the SRU and LOV treatment parameters are identified due to the presence of municipality fixed effects, we need identification restrictions and we fix $\alpha_{2000} = 0$ and $\theta_{2000} = 0$. This implicitly means that any yearly treatment effect is measured in difference with its value in 2000. In fact, equation (1) can be rewritten in difference between year 2000 and year t as:

$$Y_{i,t} - Y_{i,2000} = \alpha_t 1_{\{S_i=1\}} + \theta_t 1_{\{L_i=1\}} + X_i \delta_t + \mu_t - \mu_{2000} + \varepsilon_{i,t} \tag{2}$$

where $\delta_t = \delta_0 (t - 2000)$ and $\varepsilon_{i,t} = \epsilon_{i,t} - \epsilon_{i,2000}$. Hence, parameter α_t can also be interpreted as the SRU treatment effect on the outcome growth while controlling for the explanatory variables and a possible remaining effect of the LOV law.[17] Here, SRU and LOV treatment effects are identified separately because some treated municipalities

[16] Note that the log-number of public dwellings and housing dissimilarity index are not well defined when the number of public dwellings is zero. We discard the municipalities where it happens. In 2000, the proportion of municipalities with no public dwelling is 5.4% for our selected sample. Still, this problem with zeros does not occur when studying the effects of the SRU law on the proportion of public dwellings. Corresponding results presented below are consistent with our main results. A similar issue may occur for the income dissimilarity index, but in practice the municipal number of households in the first income quintile is always strictly positive and there is thus no issue in that case.

[17] Studying the municipal evolution of the log-number of public dwellings amounts to studying the municipal growth rate of public

are not in the LOV global list and, reciprocally, some municipalities in the LOV global list are not treated. We will focus on the effect of the SRU law on outcome growth over the 2000-2008 period.

4.2.2 Specification at the neighborhood level

At the neighborhood level, our main outcomes of interest are the proportions of public dwellings and public dwellings occupied by low-income households in the dwelling stock. These measures are in line with the housing dissimilarity index that uses neighborhood proportions of public dwellings as its components. Moreover, it avoids the issue of numerous zeros that occurs at the neighborhood level when considering the log number of public dwellings. The specification is given by:

$$Y_{j,t} = Z_{j,2000}\beta_t 1_{\{S_{i(j)}=1\}} + Z_{j,2000}\gamma_t 1_{\{L_{i(j)}=1\}} + Z_{j,2000}\eta_t + u_{i(j),t} + v_j + \mu_t + \epsilon_{j,t} \quad (3)$$

where j is the neighborhood, $i(j)$ is the municipality in which the neighborhood is located, $Z_{j,2000}$ are neighborhood variables measured in year 2000, $u_{i,t}$ is a municipality-year fixed effect and v_j is a neighborhood fixed effect. Thanks to this specification, we quantify the influence of neighborhood variables in 2000 and their interactions with dummies for the SRU and LOV laws on the growth in the proportions of public dwellings. Put differently, we are able to assess whether the neighborhood proportions of public dwellings in treated municipalities are affected in a specific way by the neighborhood context just before treatment.

Estimations are conducted over the 1998-2008 period because it is not possible to link neighborhoods in 1996 and in the following years. As the specification includes both neighborhood and municipality-time fixed effects, identification comes from time variations for neighborhoods within municipalities. Due to the presence of neighborhood fixed effects, only changes in the coefficients of neighborhood variables, and their interactions with dummies for the SRU and LOV laws, are identified. We fix $\beta_{2000} = \gamma_{2000} = \eta_{2000} = 0$, so that the effects of neighborhood variables and their interactions are measured relatively to year 2000.

5 Stylized facts

We now provide stylized facts on municipalities located in cities, i.e. urban municipalities, distinguishing them according to their treatment status. As shown in Table 1, the average proportion of public dwellings in urban municipalities in 2000 is below the objective and reaches 10.1%. There are 5,220 non-treated municipalities but only 725 treated ones, which makes the proportion of treated municipalities quite small at 9.1%.[18] Treated municipalities

housing. Indeed, denote by n_{it} the number of public dwellings in municipality i at date t such that $t = 0$ (resp. $t = 1$) is a date before (resp. after) the reform. We have: $\log n_{i1} - \log n_{i0} = \log\left(1 + \left(n_{i1} - n_{i0}\right)/n_{i0}\right)$ where $\left(n_{i1} - n_{i0}\right)/n_{i0}$ is the municipal growth rate of public housing in the municipality between dates 0 and 1.

[18]Note that the figure given for the number of treated municipalities in Table 1 is lower than 728, which was given before in the text. This is because the three largest municipalities, Paris, Lyon and Marseille, are excluded from these descriptive statistics. Indeed, these

have a proportion of public dwellings lower than the average at 8.5% and are also characterized by a larger number of dwellings and a larger 1999 population. For instance, their average population is 13.1 thousands compared to only 6.9 thousands for non-treated municipalities. They are located in much larger cities, and their average income is higher.

To make the subsamples of treated and non-treated municipalities more similar, we restrict our attention to urban municipalities whose population is just above or below the municipality threshold (i.e. whose population is in the 800-6,000 interval when located in the Paris region and in the 2,800-6,000 interval when located in another region). The number of non-treated municipalities shrinks to 1,472, and they represent only 28.2% of the original subsample. From now on, we will refer to non-treated municipalities verifying the population restriction as control municipalities. The number of treated municipalities decreases to a lesser extent to 321, which is still 44.3% of their original subsample. Consequently, the proportion of treated municipalities becomes much larger at 21.8%. There is a sizable gap in the proportion of public dwellings between control municipalities (10.6%) and treated ones (6.7%).

Actually, the numbers of both public dwellings and low-income households are larger for control municipalities than for treated ones (whereas population and number of dwellings are much closer). By contrast, the housing and income dissimilarity indices have similar values in the two subsamples. There are large differences in the number of dwellings and population of cities where treated and control municipalities are located. We will control for these differences in our empirical evaluation of the SRU law.

We now assess which municipalities contribute to the identification of the treatment effect. For that purpose, we examine to what extent the proportion of municipalities concerned by the law varies with municipality size in brackets above the municipality threshold (Figure 2). For the Paris region, this proportion is always strictly positive and oscillates around 35% across municipality size brackets (panel A). In other regions, the proportion of municipalities concerned by the law remains between 20 and 30% whatever the municipality size bracket (panel B). Overall, all the size brackets in the Paris region and in other regions contribute to the identification of the treatment effect.

It is important to note that municipalities whose population is below the municipality threshold also play an important role for identification since they represent respectively 23.3% and 40.9% of control municipalities in the Paris region and other regions. Differences in municipality sizes between control and treated municipalities are taken into account in our regressions by considering the municipal number of dwellings and its square as control variables.

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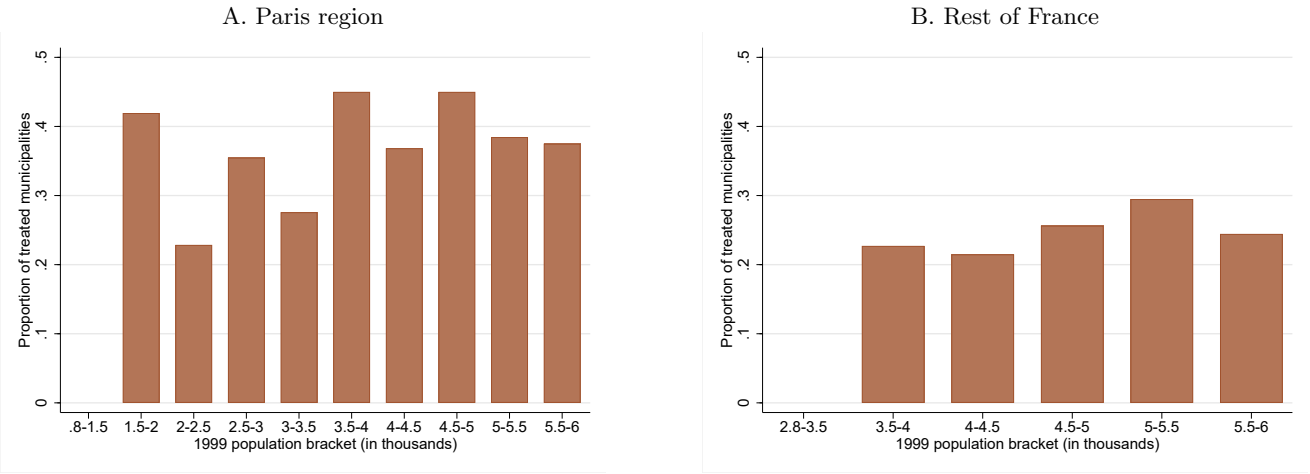
municipalities are hardly comparable with other ones due to their size and organisation in districts (*arrondissements*).

Table 1: Descriptive statistics on municipalities in 2000

	Urban	Treated	Non-treated	Urban, restriction	Treated, restriction	Non-treated, restriction
Variables at the municipality level						
Treated	.122	1	0	.179	1	0
	(.327)	(0)	(0)	(.383)	(0)	(0)
Proportion of public dwellings	.101	.085	.103	.099	.067	.106
	(.111)	(.055)	(.116)	(.091)	(.049)	(.097)
Proportion of low-income households	.167	.124	.173	.172	.111	.185
	(.054)	(.043)	(.052)	(.05)	(.037)	(.042)
1999 Population	6,855	13,133	5,983	3,909	4,337	3,816
	(16,116)	(26,849)	(13,769)	(1,058)	(1,000)	(1,047)
Number of dwellings	3,433	6,745	2,974	1,915	1,870	1,925
	(9,014)	(16,629)	(7,241)	(1,112)	(678)	(1,186)
Average income	20,596	24,991	19,985	20,823	25,442	19,816
	(5,214)	(6,420)	(4,711)	(5,695)	(6,478)	(4,971)
Housing dissimilarity index	58.5	62.6	57.9	59.5	62.9	58.8
	(19.9)	(17.6)	(20.2)	(19.8)	(19.3)	(19.8)
Income dissimilarity index	19	21.1	18.7	19.5	20.6	19.3
	(8.3)	(8.2)	(8.2)	(7.8)	(9.2)	(7.4)
Number of public dwellings	617	694	606	187	127	200
	(2,025)	(2,123)	(2,011)	(186)	(101)	(197)
Number of low-income households	554	912	504	269	187	287
	(1,682)	(3,028)	(1,389)	(119)	(89)	(117)
Variables at the city level						
1999 Population	761,665	2,731,645	488,057	666,635	2,527,020	260,940
	(2,384,838)	(3,976,665)	(1,915,669)	(2,242,545)	(3,884,353)	(1,387,153)
Number of dwellings	369,944	1,332,148	236,305	324,014	1,228,867	126,692
	(1,179,360)	(1,975,746)	(946,631)	(1,108,816)	(1,930,136)	(685,355)
Average income	19,058	20,901	18,802	19,414	20,693	19,135
	(3,491)	(3,164)	(3,457)	(3,905)	(3,212)	(3,987)
Number of municipalities	5,945	725	5,220	1,793	321	1,472

Note: Results are obtained from 2000 FILOCOM data using the sample of urban municipalities in mainland France. Arrondissements in Lyon, Marseille and Paris are excluded. A municipality is considered as "Urban" if it is located in a city. Low-income households are those in the first income quintile, where the threshold defining the first income quintile is computed at the city level. Housing dissimilarity index is the Duncan-and-Duncan index computed for public housing; income dissimilarity index is the Duncan-and-Duncan index for low-income households. Municipalities with a single block are not taken into account for descriptive statistics on dissimilarity indices. Means are reported, as well as standard deviations in parentheses. "restriction": restriction of the sample to urban municipalities whose 1999 population is between 2,800 and 6,000 when located in the Paris region, and between 800 and 6,000 when located outside that region. The sample corresponding to "Non-treated, restriction" is our control group.

Figure 2: Proportion of treated municipalities by 1999 population bracket in the Paris region and the rest of France



Note: Figures are computed from FILOCOM data for urban municipalities whose 1999 population is between 2,800 and 6,000 when located in the Paris region, and between 800 and 6,000 when located in another region.

We then turn to the average outcomes for treated and control municipalities (Figure 3). The average log-number of public dwellings increases faster for treated municipalities than for control ones after the introduction of the SRU law (Panel A). However, there are some differences in pre-trends that turn out to be smaller when considering only treated municipalities that were not concerned by the LOV law. We will see that differences in pre-trend disappear when controlling for treatment with LOV, and for our income and size variables. The difference in the log-number of poor households between treated municipalities not concerned by the LOV law and control ones decreases slightly after treatment, whereas trends are parallel before treatment (Panel B). Interestingly, the housing dissimilarity index, which measures public housing segregation within municipality, decreases steadily for treated municipalities but not for control ones after treatment whereas evolutions are similar before treatment (Panel C). This is also the case for the income dissimarity index that measures low-income segregation within municipality, although at a smaller scale considering the range of values (Panel D).

6 The impacts of the SRU law

6.1 Treatment effects at the municipality level

We now evaluate the impact of the SRU law on public housing and low-income outcomes at the municipality level by estimating specification (1).

6.1.1 Main results

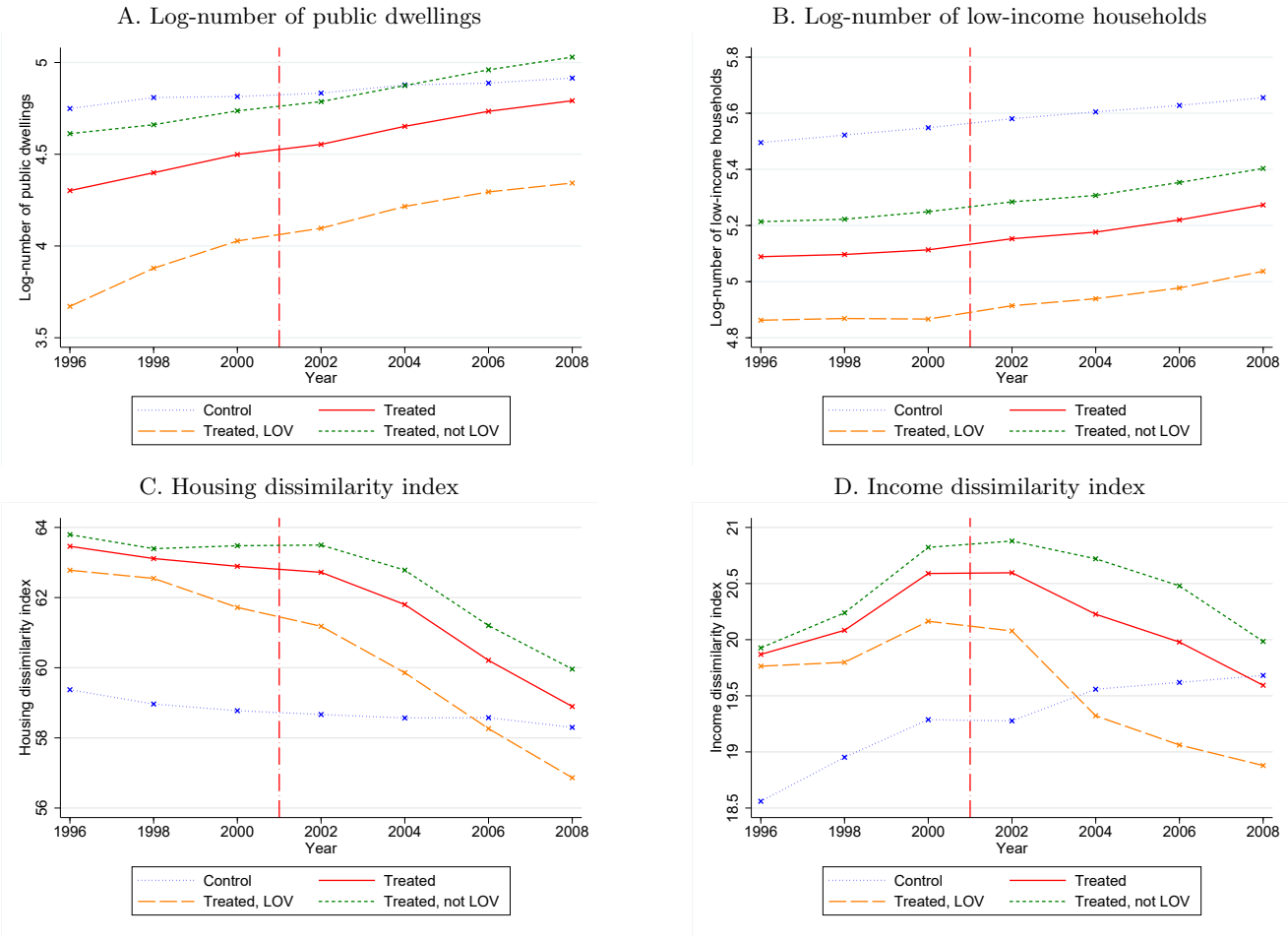
We first assess how the log-number of public dwellings evolves in treated municipalities compared to control ones when taking into account municipality characteristics. Figure 4.A represents yearly treatment effects and shows that there is no significant pre-trend (see also Table C.1).[19] Treatment effects are positive from 2002 onwards and increase over time to reach 0.140 in 2008 (see Table 2). On average, treated municipalities are characterized by a growth rate of their number of public dwellings which is 15.0 percentage points larger than that of control municipalities between 2000 and 2008. This corresponds to a difference in the yearly growth rate of 1.8 percentage points.[20] To get an idea of the magnitudes, the average number of public dwellings in treated municipalities increased by 31 between 2000 and 2008 (from 127 to 158). The 19 additional public dwellings due to the SRU law represent 61% of this increase.[21] Overall, our results show that the policy fulfilled one of its purposes which was to increase public housing.

[19] Estimated coefficients for other explanatory variables are reported in Table C.2.

[20] The growth rate was computed as $[\exp(0.140) - 1] * 100 = 15.0$ and the yearly growth rate was computed as $\left[\exp(0.140)^{1/8} - 1\right] * 100 \approx 1.8$. The magnitude of other effects is computed in a similar way below, but details of the computation are not reported to save space.

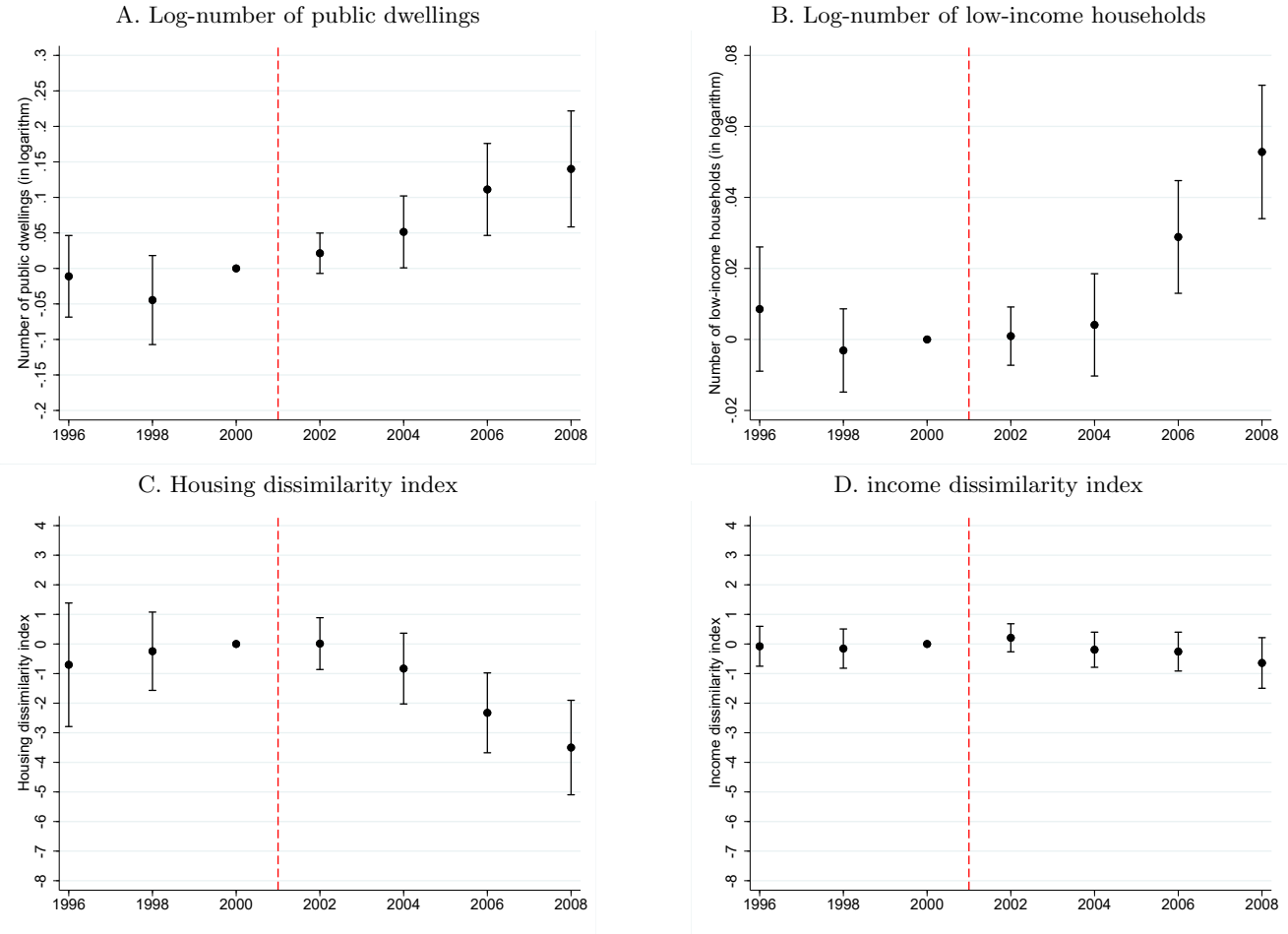
[21] Note however that this estimated number of additional public dwellings is rather imprecise since its confidence interval is [7; 32], this confidence interval being computed with the formula: $127 * [\exp(0.140) - 1 \pm 1.96 * 0.042 * \exp(0.140)]$.

Figure 3: Yearly averages of outcomes for treated and control municipalities over the 1996-2008 period



Note: Figures are computed from FILOCOM data for urban municipalities whose 1999 population is between 2,800 and 6,000 when located in the Paris region, and between 800 and 6,000 when located outside that region. Low-income households are those in the first income quintile, where the threshold defining the first income quintile is computed at the city level; the housing dissimilarity index is the Duncan-and-Duncan for public housing; the income dissimilarity index is the Duncan-and-Duncan index for households in the first income quintile. Municipalities with a single block (i.e. neighborhood) are not taken into account in Panels C and D.

Figure 4: Yearly treatment effects for public housing and low-income outcomes



Note: Results are obtained from FILOCOM data on the restricted sample of urban municipalities in mainland France whose 1999 population is between 2,800 and 6,000 for municipalities in the Paris region, and between 800 and 6,000 for those outside that region. Low-income households are those in the first income quintile, where the threshold defining the first income quintile is computed at the city level. We report estimated coefficients of year dummies interacted with SRU treatment. Estimated coefficients are represented with dots and their confidence intervals with vertical bars (coefficients being fixed to zero in year 2000 which serves as a reference). Specifications of all panels include municipality fixed effects, year dummies and their interactions with LOV global list treatment, and interactions between a time trend and region dummies, the logarithm of the total number of dwellings in the municipality in 2000 and its square, the logarithm of average household income in the municipality in 2000 and its square, as well as the four corresponding variables at the city level. Municipalities with a single block (i.e. neighborhood) are not taken into account in Panels C and D. Standard errors are clustered at the city level.

Table 2: Treatment effects in 2008 for public housing and low-income outcomes

	(1) Log-number of public dwellings	(2) Log-number of low-income h.	(3) Housing dissimilarity index	(4) Income dissimilarity index
Treated	0.140***	0.053***	-3.499***	-0.641
	(0.042)	(0.010)	(0.814)	(0.436)
Region fixed effects	X	X	X	X
Explanatory variables	X	X	X	X
Nb. observations	11,842	12,557	11,819	12,532
R-squared	0.155	0.495	0.039	0.035
Nb. municipalities	1,726	1,794	1,723	1,791

Note: Results are obtained from FILOCOM data on the restricted sample of urban municipalities in mainland France whose 1999 population is between 2,800 and 6,000 for municipalities in the Paris region, and between 800 and 6,000 for those outside that region. "Low-income h.": Low-income households who are those in the first income quintile, where the threshold defining the first income quintile is computed at the city level. All specifications involve coefficients of year dummies interacted with SRU treatment and we report the estimated one for year 2008. All specifications include municipality fixed effects, year dummies and their interactions with LOV global list treatment, and interactions between a time trend and region dummies, the logarithm of the total number of dwellings in the municipality in 2000 and its square, the logarithm of average household income in the municipality in 2000 and its square, as well as the four corresponding variables at the city level. Municipalities with a single block (i.e. neighborhood) are not taken into account in specifications (3) and (4). Standard errors are clustered at the city level.

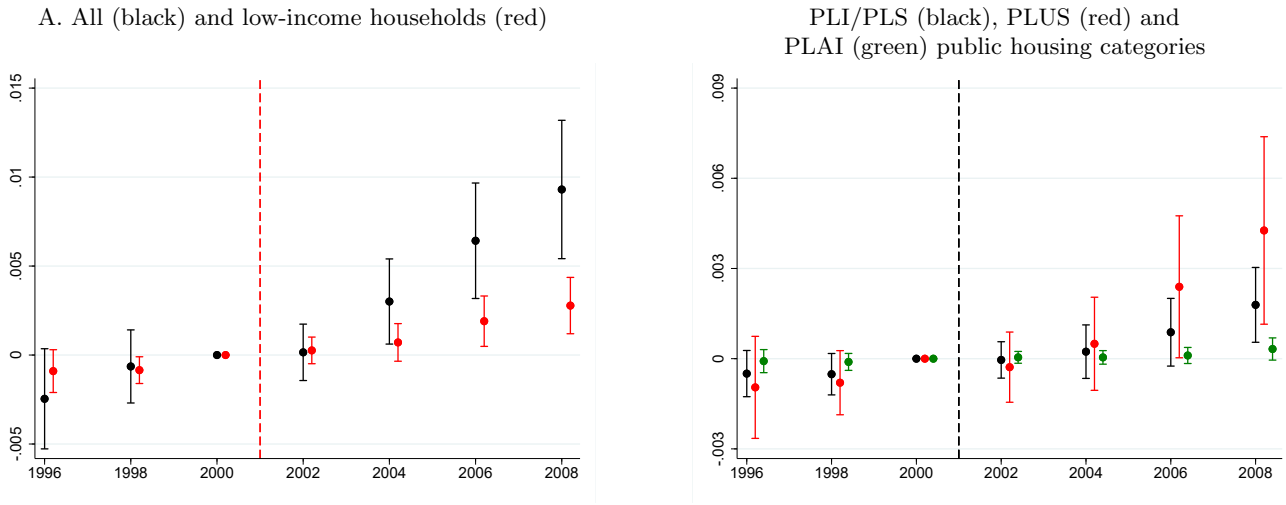
We then assess whether the SRU law also had an impact on low-income households by estimating treatment effects on their log-number. Figure 4.B shows that there is no pre-trend and treatment effects are positive after treatment and increase over time to reach 0.053 in 2008. Treated municipalities thus experienced an additional growth rate of 5.8 percentage points over the 2000-2008 period, which is equivalent to a yearly growth rate of 0.7 percentage points. To get an idea of the magnitudes, the average number of low-income households in treated municipalities increased by 31 between 2000 and 2008 (from 187 to 218). The 11 additional low-income households due to the SRU law represent 35% of this increase. The SRU would thus have pushed toward the increase in the presence of poor households, but to a lesser extent than for public housing.

We now show that this contrast arises from the selection of public housing occupants according to income. As a benchmark, we consider treatment effects on the proportion of public dwellings. In line with expectations, Figure 5.A shows that they are positive after 2002 and the treatment effect in 2008 is 0.0093 (see Table 3). The growth of the proportion of public dwellings over the 2000-2008 period is thus 0.93 percentage points larger for treated municipalities than for control ones. We can then assess the policy impact on the proportion of public dwellings occupied by low-income households. Interestingly, the treatment effect in 2008 is much smaller at only 0.28 percentage points. This means that additional public dwellings due to the SRU law are not much attributed to low-income households.

We investigate this mechanism further by estimating the treatments effects on the proportions of public dwellings meant for medium-income households (PLS/PLI), low/medium-income households (PLUS) and low-income households (PLAI). Interestingly, Figure 5.B shows that the treatment effect in 2008 is small and not significant for

low-income public housing. By contrast it is positive and significant for medium- and low/medium-income public housing. In particular, the treatment effect in 2008 for low/medium-income public housing is as high as .43 percentage points (Table 3). Hence, local authorities in treated municipalities willingly increase public housing meant for households who are not the poorest.

Figure 5: Yearly treatment effects for the proportion of public dwellings that are occupied by low-income households and by income category



Note: Panel A represents treatment effects for the proportions of public dwellings and of public dwellings occupied by low-income households. Low-income households are those in the first income quintile, where the threshold defining the first income quintile is computed at the city level. Panel B represents treatments effects for the proportions of public dwellings that are meant for medium-income households (PLI/PLS), low/medium-income ones (PLUS) and low-income ones (PLAI). Results are obtained from FILOCOM data on the restricted sample of urban municipalities in mainland France whose 1999 population is between 2,800 and 6,000 for municipalities in the Paris region, and between 800 and 6,000 for those outside that region. Low-income households are those in the first income quintile, where the threshold defining the first income quintile is computed at the city level. We report estimated coefficients of year dummies interacted with SRU treatment. Estimated coefficients are represented with dots and their confidence intervals with vertical bars (coefficients being fixed to zero in year 2000 which serves as a reference). Specifications of the two panels include municipality fixed effects, year dummies and their interactions with LOV global list treatment, and interactions between a time trend and region dummies, the logarithm of the total number of dwellings in the municipality in 2000 and its square, the logarithm of average household income in the municipality in 2000 and its square, as well as the four corresponding variables at the city level. Standard errors are clustered at the city level.

We then turn to the impact of the SRU law on the distribution of public dwellings and low-income households within municipalities. We first consider public housing segregation within municipality, which is measured with the housing dissimilarity index. Figure 4.C represents yearly treatment effects and shows that there is no significant pre-trend. From 2004 onwards, yearly treatment effects are negative and decreasing. The 2008 treatment effect is -3.499 percentage points (see Panel B of Table 2), which represents most of the 4 percentage point decrease in the average public housing dissimilarity index for treated municipalities over the 2000-2008 period (from 62.9 to 58.9). Put differently, due to the SRU law, one needs to reallocate 3.5 percentage points fewer public dwellings to different neighborhoods within treated municipalities than in control ones to reach a uniform distribution within

Table 3: Treatment effects in 2008 for the proportion of public dwellings that are occupied by all/low-income households and by income category

	(1) All	(2) Low-income	(3) PLI/PLS	(4) PLUS	(5) PLAI
Treated	0.0093***	0.0028***	0.0018***	0.0043***	0.0003*
	(0.0020)	(0.0008)	(0.0006)	(0.0016)	(0.0002)
Municipality fixed effects	X	X	X	X	X
Explanatory variables	X	X	X	X	X
Nb. observations	12,557	12,503	11,948	11,948	11,948
R-squared	0.066	0.062	0.106	0.108	0.151
Nb. municipalities	1,794	1,794	1,707	1,707	1,707

Note: Columns (1) and (2) give the treatment effect in 2008 respectively for the proportions of public dwellings and of public dwellings occupied by low-income households. Low-income households are those in the first income quintile, where the threshold defining the first income quintile is computed at the city level. Columns (3), (4) and (5) give the treatments effect in 2008 for the proportions of public dwellings that are meant respectively for medium-income households (PLI/PLS), low/medium-income ones (PLUS) and low-income ones (PLAI). Results are obtained from FILOCOM data on the restricted sample of urban municipalities in mainland France whose 1999 population is between 2,800 and 6,000 for municipalities in the Paris region, and between 800 and 6,000 for those outside that region. All specifications involve coefficients of year dummies interacted with SRU treatment and we report the estimated one for year 2008. All specifications include municipality fixed effects, year dummies and their interactions with LOV global list treatment, and interactions between a time trend and region dummies, the logarithm of the total number of dwellings in the municipality in 2000 and its square, the logarithm of average household income in the municipality in 2000 and its square, as well as the four corresponding variables at the city level. Standard errors are clustered at the city level.

the municipality.

We then consider the impact of the SRU law on low-income segregation within municipality, measured with the income dissimilarity index. Figure 4.D represents yearly treatment effects and shows that, while there is no pre-trend, the income dissimilarity index is negatively affected after the introduction of the SRU law. Nevertheless, even if the estimated treatment effects increase over time in absolute terms, they remain small and not significant. Still, to comprehend the order of magnitudes for point estimates, the 2008 treatment effect is such that one would need to reallocate 0.64 percentage points fewer households of the first income quintile to different neighborhoods in treated municipalities than in control ones in 2008 to reach a uniform distribution within the municipality. This is a small number, especially when compared to the impact of the SRU law on public housing segregation.

We check the robustness of our results when restricting the sample to municipalities in cities with population between 50,000 and 200,000 so that cities of treated and control municipalities are of more comparable sizes (see Table C.3). Estimated treatment effects are qualitatively similar although less precise.

6.2 Treatment effects at the neighborhood level

According to our results, the increased dispersion of public dwellings wihin treated municipalities does not go along with an increased dispersion of low-income households, even if their number is slightly increasing and poor

households within municipality could be allocated to additional public dwellings away from places concentrating the poor. Choices made by municipal authorities at the neighborhood level may explain this contrast and they can be investigated by regressing the neighborhood proportion of public dwellings on explanatory variables in line with specification (3).

We first comment on the estimated effects of neighborhood variables measured in 2000 for control municipalities. As explained in Section 4.2, only time variations in these effects relative to year 2000 are identified. Interestingly, column (5) of Table 4 shows that, over time, control municipalities tend to increase the proportion of public dwellings in neighborhoods concentrating the poor, but away from places concentrating public dwellings.[22] These trends get stronger over time as evidenced by Figure B.2.

Municipal authorities may refrain from constructing public dwellings in neighborhoods with a large proportion of homeowners to avoid displeasing them. Indeed, homeowners may not want to mix with public housing occupants due to their preferences or fear of crime. Moreover, public buildings may spoil the aestheticism of their living environment and decrease the value of their properties. These mechanisms are related to the not-in-my-backyard (NIMBY) phenomenon that has been shown for public housing in France (Goujard, 2011) and private social housing in the US (Diamond and McQuade, 2021). We find that control municipalities tend to increase the proportion of public dwellings in neighborhoods away from places concentrating homeowners, in line with these mechanisms.

We then turn to the additional effects of neighborhood variables due to treatment with the SRU law. Interestingly, column (5) of Table 4 and Figure B.3 show that each additional effect has the same sign as the effect obtained for control municipalities, suggesting that the SRU law may reinforce trends observed for control municipalities. However, estimated additional effects are not significant. Overall, our results thus show that treated municipalities behave similarly to control ones over time, and add public dwellings in neighborhoods with a larger presence of low-income households, and a lower proportion of public dwellings and homeowners. Thus, even if treated municipalities increase their number of public dwellings such that their dispersion increases, additional public dwellings are located such that they are unlikely to disperse low-income households. This is consistent with treatment effects obtained for housing and income dissimilary indices at the municipaplity level.

We also experimented with neighborhood variables capturing crowding that may deter municipal authorities from building public dwellings. In particular, we considered log-dwelling density per km^2 in 2000, but its estimated effect for control municipalities and its estimated treatment effect in 2008 are not significant when controlling for the other explanatory variables. Municipal authorities may also consider neighborhood costs of constructing public dwellings that we proxy with a housing price index computed in 2000 from second-hand housing transaction data (see Appendix A.4 for computation details). We did not include it in our main specification since it cannot be computed for a significant share of neighborhoods (because no transaction occurred), but we considered it in a

[22] Columns (1)-(4) Table 4 report estimates when introducing only one explanatory variable at a time, as well as its interactions with LOV and SRU treatments. Comparing results in these columns and column (5) shows how estimated coefficients are influenced by correlations between explanatory variables. We do not comment on the influence of these correlations to save space.

robustness check which results are reported in Table C.5. As housing prices are determined at equilibrium and can be influenced by other explanatory variables, we comment on a specification that includes only housing prices and their interactions with LOV and SRU treatments (column 4). Reported estimated coefficients are not significant. When we control for housing prices in a specification that includes all explanatory variables (column 5), our main findings remain qualitatively similar.

Table 4: Treatment effects in 2008 of explanatory variables measured in 2000

for the neighborhood proportion of public dwellings

	(1)	(2)	(3)	(4)	(5)
Treated x Prop. public dwellings	-0.004				-0.020
	(0.040)				(0.043)
Prop. public dwellings	-0.131***				-0.142***
	(0.008)				(0.009)
Treated x Prop. low-income households		0.006			0.020
		(0.012)			(0.029)
Prop. low-income households		-0.039***			0.047***
		(0.004)			(0.007)
Treated x Homeownership rate			-0.007		-0.007
			(0.010)		(0.008)
Homeownership rate			0.023***		-0.007***
			(0.003)		(0.002)
Treated x Log-dwelling density per km^2				-0.063	-0.965
				(1.355)	(1.364)
Log-dwelling density per km^2				-1.318***	0.365
				(0.459)	(0.451)
Neighborhood fixed effects	X	X	X	X	X
Municipality-year fixed effects	X	X	X	X	X
Explanatory variables	X	X	X	X	X
Nb. observations	206,628	202,812	205,230	206,628	202,812
R-squared	0.958	0.959	0.958	0.956	0.961

Note: Results are obtained from FILOCOM data on the restricted sample of neighborhoods in urban municipalities in mainland France whose 1999 population is between 2,800 and 6,000 for municipalities in the Paris region, and between 800 and 6,000 for those outside that region. Low-income households are those in the first income quintile, where the threshold defining the first income quintile is computed at the city level. The observation unit is the neighborhood-year. A neighborhood is treated (resp. not treated) if it is located in a treated (resp. control) municipality. All specifications include interactions between year dummies, LOV global list treatment and, respectively, the proportion of public dwellings, the proportion of low-income households, the homeownership rate, and log-dwelling density per km^2 measured in 2000.

We now investigate municipal strategies regarding the occupation of additional public dwellings by poor households. For that purpose, we consider the proportion of public dwellings occupied by poor households as the dependent variable of specification (3) and results are reported in Table C.6. The main difference with previous

results is that the proportion of low-income households in 2000 interacted with SRU treatment now has a negative effect, but it is small and significant only at the 10% level. Hence, there might be a very slight tendency for treated municipalities to de-segregate low-income households using public dwellings, but it cannot influence much the overall dispersion of low-income households in treated municipalities. This is consistent with the non-significant small negative treatment effect on income dissimilarity index at the municipality level that is reported in Table 2.

7 Internal validity of the approach: Placebo and externalities

We finally conduct two exercises at the municipality level to assess the internal validity of our approach. The first one is a placebo analysis that considers a fake design of the SRU law. We restrict the sample to municipalities outside the Paris region and wrongly consider that the municipality threshold to be treated is 1,500 instead of 3,500. We replicate our analysis at the municipality level on the subsample of municipalities with population in the [800 ; 3,000] interval for which no municipality is actually treated, and compare the results with those obtained when using the right threshold and rather considering the subsample of municipalities outside the Paris region with population in the [800 ; 6000] interval.[23] If the SRU law has significant effects on our outcomes that are not spurious, we expect significant effects when using the right threshold, but non-significant negligible effects when relying on the wrong threshold. Tables 5 and C.4 are in line with these expectations. Indeed, when using the wrong threshold, the estimated effects of the SRU law on treated municipalities are small and not significant at the 5% level, in contrast with results obtained when using the right threshold.

[23]For this exercise, we need to reconstruct the treatment dummy from FILOCOM and census data. A municipality is considered to be treated when its 1999 census population is above 1,500 (resp. 3,500 for the right threshold), its proportion of public dwellings is below 20% according to FILOCOM data, its urban unit population is above 50,000 and its urban unit includes at least one municipality with population higher than 15,000. When considering the right threshold of 3,500, it is possible to compare the results with those obtained when resorting to the observed treatment available in our data (not shown here). Differences are very small.

Table 5: Treatment effects on main outcomes outside Paris region in 2008, placebo experiment using wrong municipality threshold to define treatment

	(1) Log-number of public dwellings	(2) Log-number of low-income h.	(3) Housing dissimilarity index	(4) Income dissimilarity index
Treated	0.032	0.024*	-0.467	-0.003
	(0.057)	(0.013)	(1.436)	(0.494)
Municipality fixed effects	X	X	X	X
Explanatory variables	X	X	X	X
Nb. observations	12,497	15,034	12,274	14,800
R-squared	0.124	0.252	0.026	0.013
Nb. municipalities	1,901	2,148	1,874	2,121

Note: Results are obtained from FILOCOM data on the restricted sample of urban municipalities in mainland France outside Paris region whose 1999 population is between 800 and 3,000. A municipality is considered to be treated when its population is above 1,500, its proportion of public housing is below 20% according to FILOCOM data, its urban unit population is above 50,000 and its urban unit includes at least one municipality with population higher than 15,000. "Low-income h.": Low-income households who are those in the first income quintile, where the threshold defining the first income quintile is computed at the city level. All specifications involve coefficients of year dummies interacted with SRU treatment and we report the estimated one for year 2008. All specifications include municipality fixed effects, year dummies and their interactions with LOV global list treatment, and interactions between a time trend and region dummies, the logarithm of the total number of dwellings in the municipality in 2000 and its square, the logarithm of average household income in the municipality in 2000 and its square, as well as the four corresponding variables at the city level. Municipalities with a single block (i.e. neighborhood) are not taken into account in specifications (3) and (4). Standard errors are clustered at the city level.

We then assess whether treatment effects may cause externalities on non-treated municipalities surrounding treated ones. Indeed, there might be a displacement effect if public and not-for-profit landlords building public housing are limited in their building capacities, and are pushed by local authorities into constructing new public dwellings into treated municipalities rather than the non-treated ones close to them. Moreover, the construction of public dwellings in treated municipalities might influence the spatial sorting of low-income households across treated municipalities and their neighbors. In those cases, we would not be able to conclude on the overall effects of the SRU law from the treatment effects on the treated. We now add to our sample all non-treated municipalities sharing a common border with treated or control municipalities, and run regressions that include a dummy for being a neighbor and its interaction with the SRU treatment dummy. Identification of the treatment effects on municipalities neighboring the treated comes from the comparison of their outcomes with those of municipalities neighboring the controls. Table 6 shows that, for non-treated neighbors of the treated, no estimated effect is sizable or significant at the 5% level.[24]

[24]Note that treatment effects on the treated are slightly different from those reported in Table 2. This is because we added some municipalities to our sample and they affect the coefficient estimates for all control variables, which themselves affect the estimates of treatment effects.

Table 6: Evaluation of treatment effects on main outcomes in 2008

for the treated and their non-treated neighbors

	(1) Log-number of public dwellings	(2) Log-number of low-income h.	(3) Housing dissimilarity index	(4) Income dissimilarity index
Treated	0.154***	-0.002	-3.655***	-0.442
	(0.040)	(0.013)	(0.745)	(0.395)
Non-treated neighbor of a	0.025	-0.013	0.309	0.245
Treated	(0.022)	(0.008)	(0.543)	(0.325)
Municipality fixed effects	X	X	X	X
Explanatory variables	X	X	X	X
Nb. observations	40,413	62,224	40,028	60,978
R-squared	0.144	0.216	0.021	0.007
Nb. municipalities	6,231	8,894	6,178	8,745

Note: Results are obtained from FILOCOM data on the restricted sample of urban municipalities in mainland France whose 1999 population is between 2,800 and 6,000 for municipalities in the Paris region, and between 800 and 6,000 for those outside that region. Non-treated municipality neighbors of municipalities in the restricted sample are also added to the sample used for regressions. "Low-income h.": Low-income households who are those in the first income quintile, where the threshold defining the first income quintile is computed at the city level. All specifications involve coefficients of year dummies interacted with SRU treatment and we report the estimated one for year 2008. All specifications include municipality fixed effects, year dummies and their interactions with LOV global list treatment or/and with being a non-treated neighbor, and interactions between a time trend and region dummies, the logarithm of the total number of dwellings in the municipality in 2000 and its square, the logarithm of average household income in the municipality in 2000 and its square, as well as the four corresponding variables at the city level. Municipalities with a single block (i.e. neighborhood) are not taken into account in specifications (3) and (4). Standard errors are clustered at the city level.

8 Conclusion

In this paper, we studied the effects of the SRU law introduced in December 2000 to help poor households access housing and to increase social mixity. This law imposes medium and large municipalities in large-enough cities to reach a proportion of public dwellings above 20%. Our empirical investigation was conducted using municipality and neighborhood data constructed from fiscal datasets. A difference-in-differences approach at the municipality level showed that the law increased the number of public dwellings in treated municipalities and, to a lesser extent, the number of low-income households. This occurs because additional public dwellings are of types accessible to medium households and they were not much attributed to poor households. We also found that the SRU law decreased public housing segregation within treated municipalities but not low-income segregation.

To better understand the contrasted results on segregation, we then investigated public housing choices of local authorities within treated municipalities, where the SRU law does not impose any contraint, using a difference-in-differences approach at the neighborhood level. We showed that, over time, municipalities tended to increase the proportion of public dwellings in neighborhoods concentrating the poor, but away from public dwellings and homeowners. Treated municipalities had a behaviour similar to control ones, suggesting that de-segregation of the poor was not a priority.

Overall, our results suggest that the design of the SRU law deserves more attention. More social mixity might be obtained by applying the SRU law to neighborhoods rather than municipalities, and by imposing that new public dwellings have to be occupied by poor households in rich municipalities. More generally, the different thresholds on municipality size, city size and proportion of public dwellings used to determine the treatment group are quite ad-hoc. It could be of interest to estimate a spatial general equilibrium model such that public housing can be constructed in every municipality and neighborhood at the cost of generating negative spillovers for the rich, and to evaluate counterfactual situations such that the law imposes proportions of public dwellings to municipalities or neighborhoods that maximize welfare. Public housing policies could also be compared to housing subsidy policies that are often considered as less costly.

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A Data appendix

A.1 Fine for municipalities violating the SRU law

The fine for municipalities violating the SRU law is equal to 20% of their fiscal potential multiplied by the gap between their proportion of public dwellings and the 20% objective expressed in percentage points.[25,26] It is capped to 5% of the municipality operating expenditures of the previous year and it is not enforced if its amount is below 3,811 euros. Put differently, the fine is given by:

$$Fine_t = A1_{\{A \geqslant 3,871\}} \text{ with } A = \max\left[.2F_t\left(20 - P\right), .05E_{t-1}\right] \tag{4}$$

with $Fine_t$ the fine, F_t the fiscal potential, P the proportion of public dwellings (in %) and E_{t-1} the municipality operating expenditures of the previous year.

Municipalities that do not reach the objective of the SRU law have to catch up over a fifteen-year period. The evaluation of efforts to reach the objective is conducted every three years by government authorities. During a three-year period, municipalities violating the law are supposed to bridge 20% of their initial gap. Moreover, after 2006, public dwellings built during one of the three-year periods should not represent less than 30% of those built during the previous three-year period. If a municipality does not meet these conditions, its fine is increased. The increase rate is at most equal to the ratio between the number of missing public dwellings and the three-year period objective. Put differently, the fine becomes $(1 + m) Fine_t$ with $0 \leqslant m \leqslant \left(N_{obj} - N_{constr}\right)/N_{obj}$ where N_{constr} is the number of public dwellings constructed in the three-year period and $N_{obj} = .2\left(.2 - P/100\right)N_{princ}$ is the three-year objective with N_{princ} the number of main residences. Moreover, municipal authorities may then have to settle an agreement with a public housing provider to meet the objectives fixed by the law, either by constructing new public dwellings or by acquiring existing dwellings, with the municipality being constrained to participate to the financing of the project.

A.2 Data on municipalities treated with *Loi d'orientation de la Ville* (LOV)

The LOV law was voted in 1991 but its implementation was postponed several times. It was finally implemented in 1995 but the final list of the 209 municipalities concerned by the law is not available. However, we could construct an approximate list which is quite accurate.

Indeed, we did a search for paper records at National Archives and found the initial list of municipalities considered by the French Ministry of Cities for LOV law. This list contains the 460 municipalities verifying the

[25] The fiscal potential of a municipality corresponds to the fiscal resources obtained if local tax rates were equalized to the average national values over the whole territory. The higher the fiscal potential, the richer the municipality.

[26] This simplified formula is introduced in 2006. Before that date, the fine is equal to 152.45 euros per missing dwelling for municipalities with a fiscal potential lower than 762.25 euros, but to 20% of the fiscal potential multiplied by the gap between their proportion of public dwellings and the 20% objective for the other municipalities.

three criteria to be concerned by the law: A proportion of public dwellings among main residences below 20%, a proportion of social benefits recipients among main residences below 18%, and a urban unit population larger than 200,000. Importantly, there is initially no municipal population threshold to be concerned by the law. It was added later in 1995 and it was decided that municipalities would be concerned only if their 1990 population was above 3,500 inhabitants. There was also some bargaining with municipalities at the limits of thresholds and the final list of municipalities is not strictly the list of the 224 municipalities meeting the four eligibility criteria.

We could also access paper records of the 1995-1997 overview report for municipalities concerned by the law with 1990 population above 10,000. Matching these records with the list of municipalities meeting the four criteria, we could identify 16 municipalities in the list that were not included in the sample of concerned municipalities. In fact, these are municipalities at the limit of the eligibility thresholds. There were also two municipalities in the overview record that were not in the list (for unclear reasons) and they were added to the list. We end up with a list of 210 municipalities verifying the municipality population constraint that are in the overview report when having a population above 10,000 (and 462 municipalities when ignoring the municipality population threshold, whereas the figure mentioned by *Le Moniteur* newspaper on October 21, 1994 is 466). For the 1998-2000 period, it was decided to lower the population threshold to 1,500 for municipalities in the Paris region. Consequently, we extend our list for that period to include the additional municipalities in the Paris region with population between 1,500 and 3,500, and we end up with 232 municipalities.

A.3 Additional information on FILOCOM data

The FILOCOM data contain 30.3 million dwellings for mainland France in 2000 (among which 23.4 millions are main residences).

A.3.1 Potential biases on the number of public dwellings

The number of public dwellings at the municipality level may be under-estimated in FILOCOM data because it only includes individual dwellings. Indeed, workers' hostels, senior citizens' residences, homes for disabled people, and accommodation and social rehabilitation centres are omitted from the data. Nevertheless, the corresponding bias is negligible for the restricted sample used in our analyses which only includes medium-size municipalities. Indeed, omitted dwellings are mostly concentrated in large municipalities (Meunier *et al.*, 2013). The number of public dwellings at the municipality level may also be slightly over-estimated in FILOCOM data as it includes public dwellings old enough to be out of the funding-related agreement with local authorities, but these dwellings might not be included in the official data. For treated municipalities in our restricted sample (i.e. the sample of urban municipalities with population in the interval [800 ; 6,000] in the Paris region, and in the interval [2,800 ; 6,000] in the other regions), the median and mean numbers of public dwellings in 2002 are respectively 114 and 133 (resp. 107 and 128) in FILOCOM (resp. official) data, and the correlation between the two sources is as high

as 0.92.

A.3.2 Dissimilarity indices

Our housing and income dissimilarity indices are computed from blocks (i.e. neighborhoods) for each municipality in our restricted sample. From now on, we only report descriptive statistics computed on that sample. It includes 1,785 municipalities and 23.2 thousand blocks. The mean (resp. median) number of blocks in a municipality is 11 (resp. 13). The number of dwellings in blocks varies between 1 and 4,322, and its mean and median are respectively 137 and 72. Public housing (resp. low-income) segregation is measured with the dissimilarity index proposed by Duncan and Duncan (1955) applied to the number of public dwellings among all dwellings (resp. the number of households in the first income quintile among all households, where the threshold defining the first income quintile is computed at the city level). We detail this index for housing. It verifies:

$$D_j = \frac{1}{2} \sum_{h \in \mathcal{H}_j} \left| \frac{p_{j,h}}{p_j} - \frac{d_{j,h} - p_{j,h}}{d_j - p_j} \right| \tag{5}$$

where j indices the municipality, h indices the block, $\mathcal{H}_j$ is the set of blocks in municipality j, d_j is the total number of dwellings in the municipality, p_j is the total number of public dwellings in the municipality, $d_{j,h}$ is the number of dwellings in block h of the municipality and $p_{j,h}$ is the number of public dwellings in block h of the municipality. This index can be computed only for municipalities that include at least one public dwelling. It varies between 0 and 1. A specificity of this index is that it does not involve the internal geography of a municipality, and in particular distances between blocks with small and large proportions of public dwellings.

In 2000, the mean and median values of the housing dissimilarity index are respectively 0.59 and 0.61. Moreover, the first quartile is as high as 0.47, which points at a significant concentration of public dwellings within municipalities in our selected sample. The mean and median values of the income dissimilarity index are respectively 0.19 and 0.20. Moreover, the third quartile is as low as 0.24, which points at a rather low concentration of low-income housholds within municipalities in our selected sample.

A.3.3 Construction of neighborhood panel data with time-invariant definition of blocks

Our algorithm to construct our panel dataset of blocks with time-invariant delineation can be decomposed into three steps:

1. **Geolocation of dwellings**

   We first recover geographical coordinates for all dwellings in FILOCOM data over the 1998-2014 period:

   (a) We start with dwellings in 2014, for which data include both a unique identifier (used for linkage with previous years back to 1998) and the parcel code. We compute the geographical coordinates of these

dwellings as those corresponding to the barycenter of their parcel (which are recovered from the French Cadastre).

(b) We then assign coordinates to dwellings in all uneven years from 1998 onwards using the 2014 coordinates. Two cases arise:

- If the dwelling still exists in 2014, we simply assign it the 2014 coordinates.
- If the dwelling was demolished before 2014, we assign it coordinates using the following rule. If the dwelling was part of a condominium (which is determined thanks to a condominium identifier) and other dwellings in that condominium have coordinates, we assign it the average coordinates of those dwellings. Otherwise, we assign it the average coordinates of dwellings located in the same block (since we have a block identifier every year).

As a result, every dwelling is assigned geographical coordinates. Since demolitions are rare during our study period, the vast majority of dwellings (over 99%) are geolocated precisely using 2014 coordinates.

2. **Assigning dwellings to 2013 blocks**
   The geography of 2013 blocks is available as a shapefile (with 2013 being the first year for which such shapefile is available for France). We determine in which 2013 block each dwelling is located using its coordinates. This procedure is applied every year such that dwellings are all assigned a time-invariant block identifier corresponding to its 2013 block.

3. **Computation of neighborhood variables**
   We can then compute neighborhood variables at the block level in every year using the information available for dwellings located in every 2013 block.

A.4 Neighborhood housing price index

A.4.1 Dataset

For housing prices, we resort to notary databases which gather information on all transactions of second-hand dwellings occurring in mainland France. They are available every even year over the 2000-2008 period. Transactions are reported by the regional chamber of notaries in the Paris region (BIEN database) and other regions (PERVAL database) at the end of the year. For instance, the total number of transactions involving second-hand dwellings is around 800,000 per year in the early 2000s (Friggit, 2008). Premises not used as residences, agricultural properties, garages and private parkings are excluded from our analysis. Notary databases include the municipality and block identifiers, the construction year of the dwelling in interval brackets (before 1850, 1850-1913, 1914-1947, 1948-1959, 1960-1980, 1981-1991 and after 1991, or missing which occurs for around 30% of observations), the dwelling type (single-family house or flat), the floor area and the price. A specific procedure is implemented to impute floor areas

that are missing for 25.7% of the transactions (see Appendix A.4.2).

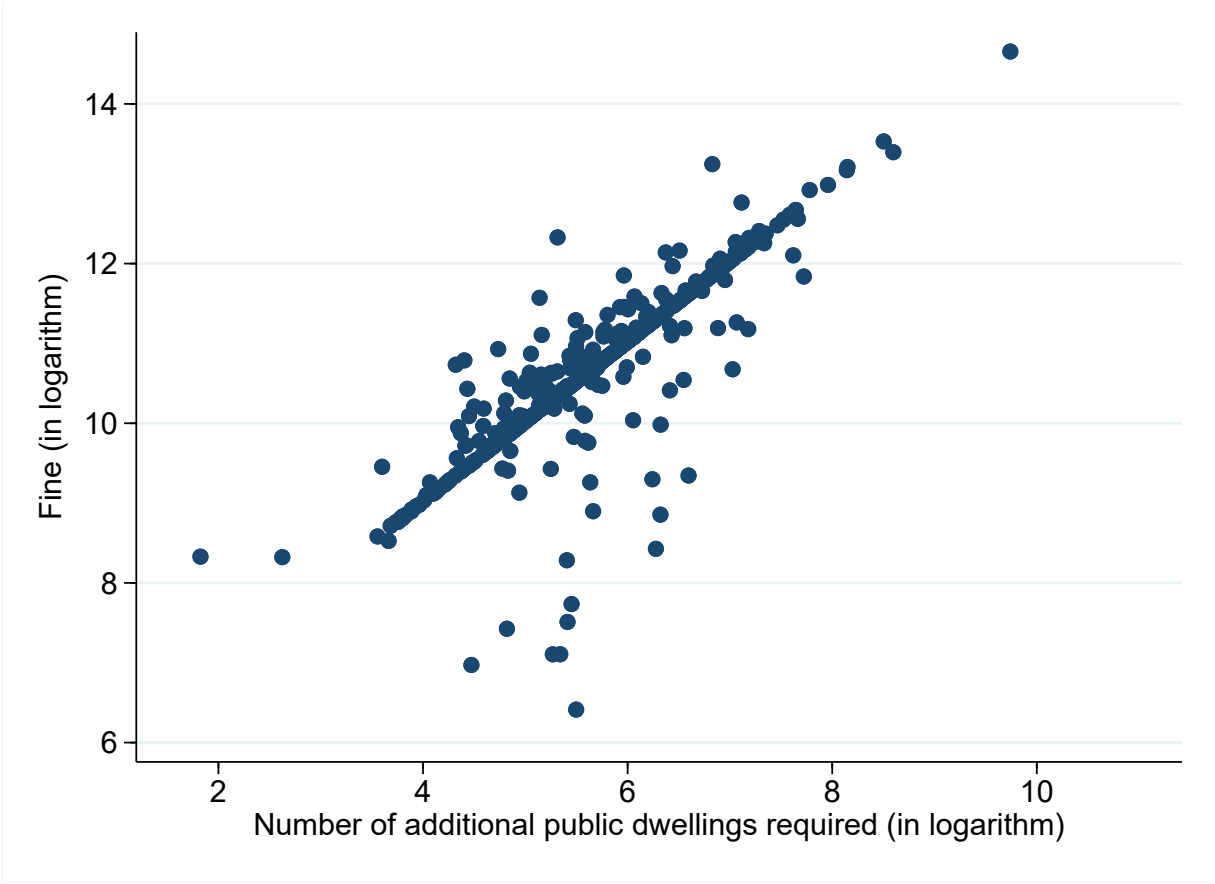
To construct our neighborhood housing price index, we regress, at the transaction level, the logarithm of prices per squared meters on dummies for the construction period in brackets (reference: before 1850), the logarithm of the floor area centered around 60 squared meters (which is the average floor area for flats over the whole sample period), a dummy for single-family house (reference: flat) and a block x year fixed effect. The neighborhood housing price index for a given year and block is then defined as the constant plus the block-year fixed effect. As blocks do not experience transactions every year and this generates missing values, we interpolate block-year fixed effects over years within blocks.

A.4.2 Floor area imputation in the notary database

We attribute to dwellings with missing values for floor area in notary databases, the average floor area of dwellings in FILOCOM data located in the same block, involved in a transaction during the same year, which are of the same type (single-family house or flat) and have the same number of rooms. We assess the accuracy of this approach by imputing the floor area for dwellings for which it is not missing and by comparing the imputed values with the observed values. The average absolute error is around 5%, and the R2 of the regression of the observed floor area on the imputed one is around 0.75. The imputation is more accurate for flats (for which the two values are respectively 2% and 0.83) than for single-family dwellings (for which they are respectively 15% and 0.51). The imputation makes the proportion of dwellings with missing floor area decrease to 5.1%, and the observations with remaining missing values are discarded.

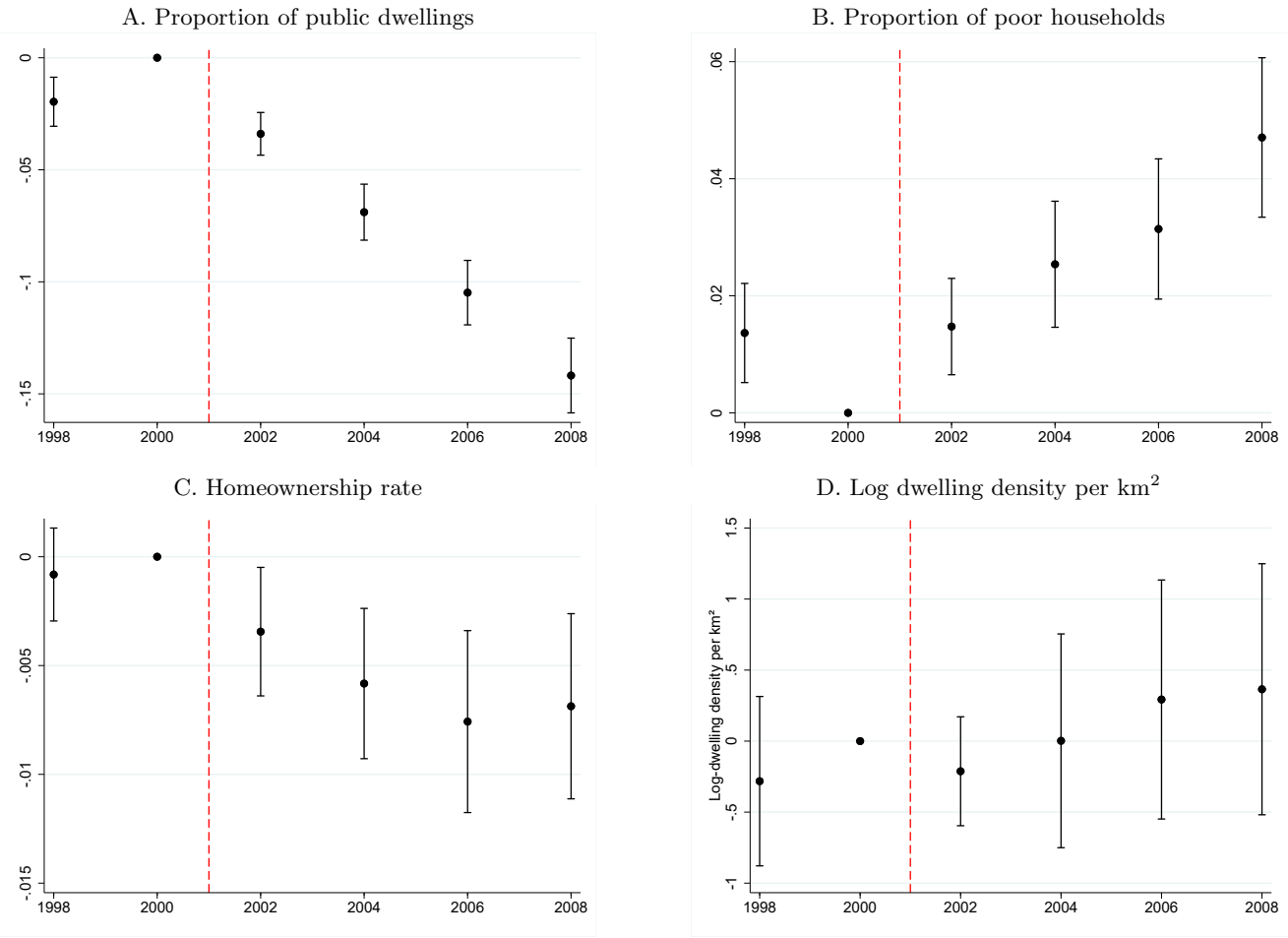
B Appendix Figures

Figure B.1: Relationship between the fine and additional public dwellings required according to the SRU law



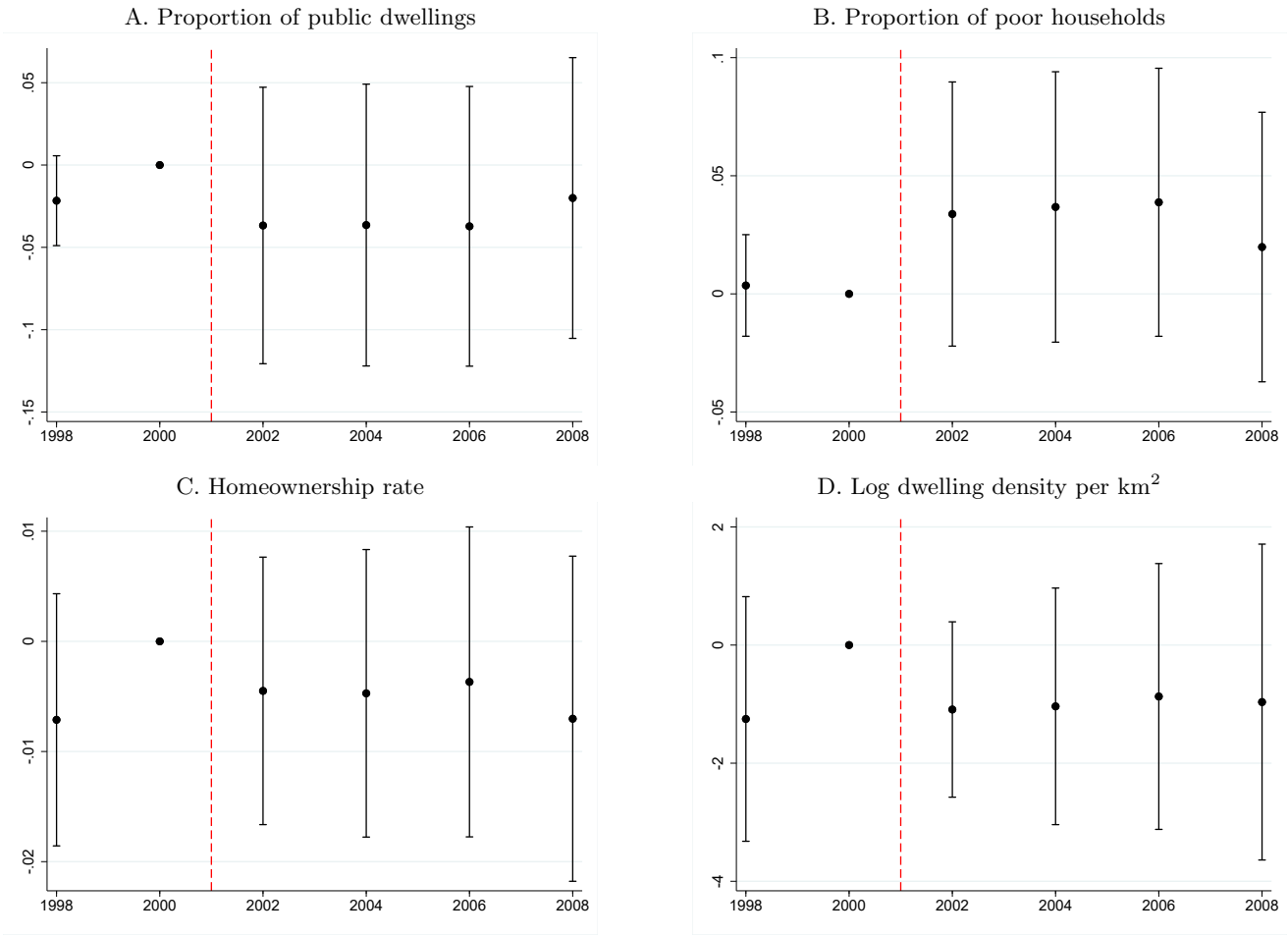
Note: Constructed from figures provided by the national office for urban planning and housing (DHUP).

Figure B.2: Effects of explanatory variables in 2000 on the proportion of public dwellings at the neighborhood level over the 1998-2008 period



Note: Results are obtained from FILOCOM data on the restricted sample of neighborhoods in urban municipalities in mainland France whose 1999 population is between 2,800 and 6,000 for municipalities in the Paris region, and between 800 and 6,000 for those outside that region. They correspond to the specification which results are reported in column (5) of Table 4. Low-income households are those in the first income quintile, where the threshold defining the first income quintile is computed at the city level. The observation unit is the neighborhood-year. A neighborhood is treated (resp. not treated) if it is located in a treated (resp. control) municipality. The specification also includes interactions between year dummies, SRU law or LOV global list treatment and, respectively, the proportion of public dwellings, the proportion of low-income households, the homeownership rate, and log-dwelling density per km^2 measured in 2000.

Figure B.3: Treatment effects of explanatory variables in 2000 on the proportion of public dwellings at the neighborhood level over the 1998-2008 period



Note: Results are obtained from FILOCOM data on the restricted sample of neighborhoods in urban municipalities in mainland France whose 1999 population is between 2,800 and 6,000 for municipalities in the Paris region, and between 800 and 6,000 for those outside that region. They correspond to the specification which results are reported in column (5) of Table 4. Low-income households are those in the first income quintile, where the threshold defining the first income quintile is computed at the city level. The observation unit is the neighborhood-year. A neighborhood is treated (resp. not treated) if it is located in a treated (resp. control) municipality. The specification includes interactions between year dummies, LOV global list treatment (resp. no treatment) and, respectively, the proportion of public dwellings, the proportion of low-income households, the homeownership rate, and log-dwelling density per km^2 measured in 2000.

C Appendix Tables

Table C.1: Evaluation of treatment effects on main outcomes over the 1996-2000 period

	(1) Log-number of public dwellings	(2) Log-number of low-income h.	(3) Housing dissimilarity index	(4) Income dissimilarity index
Treated	0.011	-0.009	0.703	0.077
	(0.029)	(0.009)	(1.065)	(0.344)
Region fixed effects	X	X	X	X
Explanatory variables	X	X	X	X
Nb. observations	11,842	12,557	11,819	12,532
R-squared	0.155	0.495	0.039	0.035
Nb. municipalities	1,726	1,794	1,723	1,791

Note: Results are obtained from FILOCOM data on the restricted sample of urban municipalities in mainland France whose 1999 population is between 2,800 and 6,000 for municipalities in the Paris region, and between 800 and 6,000 for those outside that region. "Low-income h.": Low-income households who are those in the first income quintile, where the threshold defining the first income quintile is computed at the city level. All specifications involve coefficients of year dummies interacted with SRU treatment and we report minus the estimated one for year 1996. All specifications include municipality fixed effects, year dummies and their interactions with LOV global list treatment, and interactions between a time trend and region dummies, the logarithm of the total number of dwellings in the municipality in 2000 and its square, the logarithm of average household income in the municipality in 2000 and its square, as well as the four corresponding variables at the city level. Municipalities with a single block (i.e. neighborhood) are not taken into account in specifications (3) and (4). Standard errors are clustered at the city level.

Table C.2: Evaluation of treatment effects on main outcomes over the 2000-2008 period, estimated coefficients for explanatory variables

	(1) Log-number of public dwellings	(2) Log-number of low-income h.	(3) Housing dissimilarity index	(4) Income dissimilarity index
LOV x year 1996	-0.210***	0.053***	0.370	-0.786
	(0.052)	(0.014)	(1.848)	(0.534)
LOV x year 1998	-0.053	0.034***	0.326	-0.603
	(0.035)	(0.006)	(1.336)	(0.381)
LOV x year 2002	0.046*	0.025**	-0.267	-0.060
	(0.026)	(0.010)	(0.655)	(0.327)
LOV x year 2004	0.081**	0.016	-0.321	-0.287
	(0.040)	(0.010)	(1.434)	(0.401)
LOV x year 2006	0.063	0.008	0.174	-0.505
	(0.052)	(0.015)	(1.544)	(0.464)
LOV x year 2008	0.075	0.017	0.017	-0.155
	(0.062)	(0.016)	(2.094)	(0.521)
Log-number of dwellings x t	0.102**	-0.012	-0.831	-0.076
	(0.051)	(0.014)	(1.440)	(0.429)
Log-number of dwellings^2 x t	-0.007**	0.001	0.064	0.008
	(0.003)	(0.001)	(0.093)	(0.028)
Log-mean income x t	0.412	0.300***	23.789***	1.426
	(0.568)	(0.105)	(8.906)	(4.224)
Log-mean income^2 x t	-0.018	-0.015***	-1.210***	-0.096
	(0.028)	(0.005)	(0.442)	(0.210)
Log-number of dwellings in city x t	-0.003	-0.009***	-0.047	-0.133**
	(0.006)	(0.001)	(0.147)	(0.053)
Log-number of dwellings in city^2 x t	0.000	0.000***	0.002	0.006***
	(0.000)	(0.000)	(0.007)	(0.002)
Log-mean income in city x t	-0.541	-0.310***	-23.354***	-1.003
	(0.549)	(0.104)	(8.397)	(4.373)
Log-mean income in city^2 x t	0.028	0.016***	1.192***	0.055
	(0.027)	(0.005)	(0.415)	(0.218)
Region fixed effects	X	X	X	X
Regional trends and SRU effects	X	X	X	X
Nb. observations	11,842	12,557	11,819	12,532
R-squared	0.155	0.495	0.039	0.035
Nb. municipalities	1,726	1,794	1,723	1,791

Note: Results are obtained from FILOCOM data on the restricted sample of urban municipalities in mainland France whose 1999 population is between 2,800 and 6,000 for municipalities in the Paris region, and between 800 and 6,000 for those outside that region. "Low-income h.": Low-income households who are those in the first income quintile, where the threshold defining the first income quintile is computed at the city level. All specifications also involve coefficients of year dummies interacted with SRU treatment, and interactions between a time trend and region dummies. Municipalities with a single block (i.e. neighborhood) are not taken into account in specifications (3) and (4). Standard errors are clustered at the city level.

Table C.3: Evaluation of treatment effects on main outcomes over the 2000-2008 period, restriction to municipalities in cities with population between 50,000 and 200,000

	(1) Log-number of public dwellings	(2) Log-number of low-income h.	(3) Housing dissimilarity index	(4) Income dissimilarity index
Treated	0.206**	0.025	-2.012	0.556
	(0.095)	(0.025)	(1.715)	(0.839)
Municipality fixed effects	X	X	X	X
Explanatory variables	X	X	X	X
Nb. observations	1,473	1,526	1,473	1,526
R-squared	0.313	0.374	0.160	0.109
Nb. municipalities	214	218	214	218

Note: Results are obtained from FILOCOM data on the restricted sample of urban municipalities in mainland France whose 1999 population is between 2,800 and 6,000 for municipalities in the Paris region, and between 800 and 6,000 for those outside that region. "Low-income h.": Low-income households who are those in the first income quintile, where the threshold defining the first income quintile is computed at the city level. All specifications involve coefficients of year dummies interacted with SRU treatment and we report the estimated one for year 2008. All specifications include municipality fixed effects, year dummies and their interactions with LOV global list treatment, and interactions between a time trend and region dummies, the logarithm of the total number of dwellings in the municipality in 2000 and its square, the logarithm of average household income in the municipality in 2000 and its square, as well as the four corresponding variables at the city level. Municipalities with a single block (i.e. neighborhood) are not taken into account in specifications (3) and (4). Standard errors are clustered at the city level.

Table C.4: Evaluation of treatment effects on main outcomes outside Paris region over the 2000-2008 period, treatment reconstructed from FILOCOM data

	(1) Log-number of public dwellings	(2) Log-number of low-income h.	(3) Housing dissimilarity index	(4) Income dissimilarity index
Treated	0.145***	0.051***	-3.426***	-0.304
	(0.040)	(0.012)	(0.985)	(0.482)
Municipality fixed effects	X	X	X	X
Explanatory variables	X	X	X	X
Nb. observations	10,445	10,765	10,429	10,749
R-squared	0.179	0.571	0.042	0.041
Nb. municipalities	1,513	1,538	1,511	1,536

Note: Results are obtained from FILOCOM data on the restricted sample of urban municipalities in mainland France outside Paris region whose 1999 population is between 800 and 6,000. A municipality is considered to be treated when its population is above 3,500, its proportion of public housing is below 20% according to FILOCOM data, its urban unit population is above 50,000 and its urban unit includes at least one municipality with population higher than 15,000. "Low-income h.": Low-income households who are those in the first income quintile, where the threshold defining the first income quintile is computed at the city level. All specifications involve coefficients of year dummies interacted with SRU treatment and we report the estimated one for year 2008. All specifications include municipality fixed effects, year dummies and their interactions with LOV global list treatment, and interactions between a time trend and region dummies, the logarithm of the total number of dwellings in the municipality in 2000 and its square, the logarithm of average household income in the municipality in 2000 and its square, as well as the four corresponding variables at the city level. Municipalities with a single block (i.e. neighborhood) are not taken into account in specifications (3) and (4). Standard errors are clustered at the city level.

Table C.5: Treatment effects at the neighborhood level in 2008 for the proportion of public dwellings, when including a housing prices index

	(1)	(2)	(3)	(4)	(5)	(6)
Treated x Prop. public dwellings	-0.003					-0.022
	(0.018)					(0.022)
Prop. public dwellings	-0.119***					-0.147***
	(0.007)					(0.009)
Treated x Prop. low-income households		-0.021				-0.018
		(0.013)				(0.016)
Prop. low-income households		-0.040***				0.039***
		(0.005)				(0.007)
Treated x Homeownership rate			-0.017			-0.032**
			(0.011)			(0.013)
Homeownership rate			0.045***			-0.019***
			(0.004)			(0.004)
Treated x Log-dwelling density per km^2				-3.298*		-2.685
				(1.794)		(1.765)
Log-dwelling density per km^2				-0.580		-0.342
				(0.564)		(0.665)
Treated x Housing price index (/100)					0.070	0.022
					(0.310)	(0.297)
Housing price index (/100)					0.051	0.108**
					(0.057)	(0.053)
Neighborhood fixed effects	X	X	X	X	X	X
Municipality-year fixed effects	X	X	X	X	X	X
Explanatory variables	X	X	X	X	X	X
Nb. observations	116,754	116,634	116,724	116,754	116,754	116,634
R-squared	0.973	0.972	0.972	0.972	0.972	0.974

Note: Results are obtained from FILOCOM data on the restricted sample of neighborhoods in urban municipalities in mainland France whose 1999 population is between 2,800 and 6,000 for municipalities in the Paris region, and between 800 and 6,000 for those outside that region. Low-income households are those in the first income quintile, where the threshold defining the first income quintile is computed at the city level. The observation unit is the neighborhood-year. A neighborhood is treated (resp. not treated) if it is located in a treated (resp. control) municipality. All specifications include interactions between year dummies, LOV global list treatment and, respectively, the proportion of public dwellings, the proportion of low-income households, the homeownership rate, the log-dwelling density per km^2, and the housing price index measured in 2000.

Table C.6: Treatment effects in 2008 of explanatory variables measured in 2000 for the neighborhood proportion of public dwellings occupied by poor households

	(1)	(2)	(3)	(4)	(5)
Treated x Prop. public dwellings	-0.002				0.001
	(0.009)				(0.011)
Prop. public dwellings	-0.044***				-0.049***
	(0.004)				(0.005)
Treated x Prop. low-income households		-0.010**			-0.012*
		(0.004)			(0.007)
Prop. low-income households		-0.017***			0.009**
		(0.002)			(0.004)
Treated x Homeownership rate			-0.002		-0.002
			(0.003)		(0.002)
Homeownership rate			0.010***		-0.001
			(0.001)		(0.001)
Treated x Log-dwelling density per km^2				-0.963**	-0.058
				(0.463)	(0.513)
Log-dwelling density per km^2				0.013	1.156***
				(0.192)	(0.204)
Neighborhood fixed effects	X	X	X	X	X
Municipality-year fixed effects	X	X	X	X	X
Explanatory variables	X	X	X	X	X
Nb. observations	202,939	202,134	202,607	202,939	202,134
R-squared	0.932	0.930	0.930	0.930	0.932

Note: Results are obtained from FILOCOM data on the restricted sample of neighborhoods in urban municipalities in mainland France whose 1999 population is between 2,800 and 6,000 for municipalities in the Paris region, and between 800 and 6,000 for those outside that region. Low-income households are those in the first income quintile, where the threshold defining the first income quintile is computed at the city level. The neighborhood proportion of public dwellings occupied by poor households is defined as the number of public dwellings occupied by poor households in the neighborhood divided by the number of main residences in the neighborhood. The observation unit is the neighborhood-year. A neighborhood is treated (resp. not treated) if it is located in a treated (resp. control) municipality. All specifications include interactions between year dummies, LOV global list treatment and, respectively, the proportion of public dwellings, the proportion of low-income households, the homeownership rate, and log-dwelling density per km^2 measured in 2000.