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Original article

Localized effects of confiscated and re-allocated real estate mafia assets

Filippo Boeri [1], Marco Di Cataldo [1,2,*], Elisabetta Pietrostefani [1,3]

[1]Department of Geography and Environment, London School of Economics, London WC2A 2AE, United Kingdom
[2]Department of Economics, Ca' Foscari University of Venice, Venice 30121, Italy
[3]Department of Geography and Planning, University of Liverpool, Liverpool L69 7ZT, United Kingdom

*Corresponding author. Department of Economics, Ca' Foscari University of Venice, Cannaregio 873, Venice 30121, Italy. E-mail: marco.dicataldo@unive.it

Abstract

Asset confiscation regimes are present throughout Europe. The Italian State implements a policy stipulating the confiscation of real estate assets from individuals convicted of mafia-related crimes and the re-allocation of these assets to new uses. The policy of confiscation (*confisca*) and re-allocation (*destinazione*) is meant to act as both an anti-mafia measure and a way to compensate local communities by converting real estate assets into public amenities. We evaluate the effects of this programme on local areas by estimating its impact on property values in the proximity of confiscations and re-allocations. The findings reveal a negative effect of confiscations and a positive effect of re-allocations on housing prices, mainly visible in mafia strongholds. Both of these trends can be observed in the time periods that directly follow instances of confiscation and re-allocation and appear to be highly localized. A drop in organized crime activity in the streets where re-allocations have occurred could account for some of the gain in property values caused by re-allocations. These findings have implications for the effectiveness of anti-mafia initiatives aimed at improving the quality of life in areas where criminal activity is more prevalent.

Keywords: organized crime; confiscation; hedonic analysis; urban regeneration policy; Italy
JEL classifications: K42, R32, H23

1. Introduction

In an effort to tackle organized crime, the Italian State implements a nation-wide policy stipulating the confiscation of real estate properties for individuals convicted of mafia-related crimes. Similar confiscation regimes are present throughout Europe, as a way to prevent crime perpetrators from benefiting from their crimes (Boucht 2019). Such policies can influence local communities in several interconnected ways. Confiscations are intended to harm organized crime businesses and can send signals of criminal activity to local residents. A key feature of the Italian policy is to allow for the conversion of confiscated assets into public amenities by means of 're-allocations', in order to contribute to the revitalization of local economies. Notably, most assets are transformed into local amenities such as centres for disadvantaged groups, police stations, or green spaces. In essence, the confiscation (*confisca*) and re-allocation (*destinazione*) policy is meant to act as both a deterrence measure and a way to compensate local communities, through the redistribution of former mafia assets and the provision of opportunities in neighbourhoods plagued by criminal activities.

While some descriptive and anecdotal evidence exists on the use and application of the policy (European Commission 2014; Falcone, Giannone, and Iandolo 2016; Camera dei Deputati 2019), this

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evidence says little on its actual effectiveness. When discussed in the media, the monetary value of confiscated assets is systematically presented (e.g. Gabanelli and Grossi 2020), but other local effects—let alone overall capitalization effects—are seldom considered. Even though policies to recover organized crime assets are widely diffused in several countries across the world,[1] these measures have, to date and to our knowledge, not been explored by the academic literature.

In this article, we aim to fill this gap and investigate whether the confiscation and re-allocation of mafia real estate assets produce any external effects on local neighbourhoods. Following the literature evaluating the impact of anti-crime and urban renewal policies, we capture spillover effects by examining how the monetary value of properties in the areas surrounding confiscated and re-allocated assets responds to the implementation of the policy.

Our analysis is based on a unique database which allows to aptly identify the policy's impact. We exploit detailed information on the exact location and timing of over 35,000 confiscated and over 16,000 re-allocated properties in Italy and investigate their spillover effects. Exploiting information on over 50,000 geo-localized house sale points in the 55 major Italian cities for the 2011–18 period, we provide an accurate examination of the impact of confiscations and re-allocations on the housing value of neighbouring properties, as well as a detailed investigation of the spatial decay of the estimated effect. The sale-point specification produces precise and accurate estimates thanks to the use of geo-referenced data as units of observation, and to the possibility of accounting for a very large set of property and amenity characteristics as controls. This setting allows us to minimize selection issue as well as to control for any potentially confounding housing market dynamics. We compare our estimates with a naive model estimated at the level of homogeneous local housing markets across Italy.

Our findings reveal a negative external effect of confiscation and a positive effect of re-allocation on neighbouring properties, both temporary and highly localized. We find that the confiscation of mafia assets and their conversion into new amenities modify local property values in the first years immediately following confiscation or re-allocation events, but disappear in the medium/long term. Our results also indicate that a clustered and coinciding set of re-allocations produces a sizeable positive effect on surrounding buildings.

While the depressing effect of confiscation on house prices is visible in different urban contexts across Italy, the re-allocation policy is found to be particularly effective in increasing the value of housing in cities where mafia organizations are historically rooted. This suggests that a reduction in the disamenities associated with the presence of criminal organizations could significantly contribute to the regeneration of neighbourhood plagued by mafia activities.

While we are not aware of empirical evidence assessing the external effects of confiscations of mafia assets, this article adds to the growing studies on the impact of organized crime (e.g. Acemoglu, Robinson, and Santos 2013; Barone and Narciso 2015; Pinotti 2015; Buonanno, Prarolo, and Vanin 2016; De Feo and De Luca 2017; Ganau and Rodríguez-Pose 2018; Alesina, Piccolo, and Pinotti 2019; Di Cataldo and Mastrorocco 2022; Le Moglie and Sorrenti 2022). Specifically, within this literature, this article relates to the studies examining the responsiveness of the housing market to mafia-related activities (Battisti et al., 2022) and to the works studying the societal implications of public policy initiatives against criminal organizations.[2]

The article also contributes to the literature on localized urban renewal policies. The evidence produced by previous studies assessing the external effects of regeneration policies on property prices is mixed. While some works reveal that localized investments to revitalize urban areas are capitalized into higher local house prices (Santiago, Galster, and Tatian 2001; Schwartz et al., 2006; Rossi-Hansberg, Sarte, and Owens 2010; Ooi and Le 2013; Koster and Van Ommeren 2019), others find they have no effect (Lee and Murie 1999; Ahlfeldt, Maennig, and Richter 2017). It is worth noticing that almost all these studies focus on specific neighbourhoods of single cities where the programme has been implemented.[3] In contrast to that approach, we perform our analysis on cities located across the entire

[1] According to the Asset Recovery Office of the European Commission (Bureau 2016), organized crime assets worth over 4 billion euros were recovered in Europe in 2014 alone (the last year for which data is available). Of this amount, over 1.6 billion euros were recovered in Italy.

[2] Widely analysed anti-mafia policies in the literature are the Italian law allowing the dissolution of city councils upon clear evidence of links between mafia clans and local public officials (Acconcia, Corsetti, and Simonelli 2014; Daniele and Geys 2015; Galletta 2017; Fenizia and Saggio 2020).

[3] The only exception is the recent contribution by Koster and Van Ommeren (2019), estimating the external benefits of a programme improving the quality of public housing in eighty-three deprived neighbourhoods throughout the Netherlands.

Italian territory, thus focusing on a very large and highly heterogeneous context. Hence, the main contribution of our work relates to the peculiarity of the intervention we examine: a nation-wide policy aimed at improving neighbourhoods by both tackling organized crime and increasing the stock of amenities.

A number of channels may be driving the uncovered effects. Confiscations can be viewed as disamenities, while re-allocations involve the creation of new amenities directly affecting property prices (Gibbons 2004; Gibbons and Machin 2008; Gibbons, Mourato, and Resende 2014). Another possibility is that house prices are influenced by the variation in housing supply (Glaeser, Gyourko, and Saks 2005; Caldera and Johansson 2013). However, the fact that the stronger impact of the re-allocation policy on housing value is visible in areas where organized crime is more rooted suggests that, at least in part, it may be driven by the effect the policy can have on the level of violence and crime, whose reduction increases property prices (Linden and Rockoff 2008; Ihlanfeldt and Mayock 2010). In order to test for this possibility, we have estimated the impact of the policy on criminal activity, focusing on the city of Naples. We show that the number of active mafia families within Neapolitan streets significantly reduces after re-allocation episodes, suggesting that re-allocations can have a negative impact on the intensity of crime activities.

The remainder of the article is organized as follows. Section 2 describes the legislative measures we evaluate, providing some key descriptive statistics. Section 3 presents our data. Section 4 introduces our empirical strategy. Section 5 presents our findings. Section 6 concludes.

2. Institutional background: confiscation and re-allocation of mafia assets

2.1 The 'Rognoni-La Torre' law

The rise in mafia activities throughout the 1980s and a series of violent attacks led the Italian government to introduce a set of tougher anti-mafia measures. On 13 September 1982, in the aftermath of the murders of politician Pio La Torre and anti-mafia prefect Carlo Alberto dalla Chiesa in Palermo, the national Parliament approved the 'Rognoni-La Torre' law (646/82), representing a turning point in the fight against organized crime. This bill introduced two key measures fighting mafia activities, namely the inclusion in the Penal Code of membership of a mafia-type criminal organization as a crime independent of other criminal acts (so-called 416-bis article), and the possibility for the courts to confiscate any asset belonging to members of criminal associations, as well as to relatives, partners, and other subjects who in the previous 5 years played a cover-up role for criminal organizations. Any individual condemned with article 416-bis would immediately have their assets confiscated (for more details on 'Rognoni-La Torre' law and confiscation process, see the Appendix).

Figure 1 reports the number of confiscations from 1980 until 2018, as registered in the database elaborated by the National Authority for Mafia-Confiscated Assets (hereafter ANBSC). As we can see, confiscations started increasing in the early 1990s, following a set of deadly terrorist attacks operated by the Sicilian mafia.[4]

A fundamental step in the management procedure of confiscated assets is their re-allocation to a new use by 'returning them to the citizenry' (Frigerio and Pati 2007). This is operated by the Italian State after the confiscation period has been completed. The procedure of re-allocation, already introduced in the 646/82 law, was regulated more clearly in 1996, when law 109/96 was promulgated. As shown in Fig. 1, the number of re-allocations increased drastically in the aftermath of the approval of the 1996 law, and the large majority of re-allocations have occurred in the last few years.

The approval of the 1996 law on re-allocation was the result of lobbying activity from the anti-mafia association *Libera*, who asked for a faster management of confiscated assets and the possibility to use re-allocated goods for social purposes. As a result, the law lists a whole set of different uses for the re-allocated assets. As discussed in more detail in the Appendix, the two broader categories are: 'social use' and 'institutional, justice and public order'. The logic of the policy is to use re-allocated assets to establish the principle of legality precisely where the control of the mafia is most entrenched, for example, with the creation of police stations. Alternatively, buildings re-allocated for social use (e.g. centres for employment seekers) may contribute to provide concrete alternatives for individuals

[4] The decrease in confiscations visible in 2018 is due to the fact that not all assets confiscated in the last few years have to date been included in the digital system of the ANBSC.

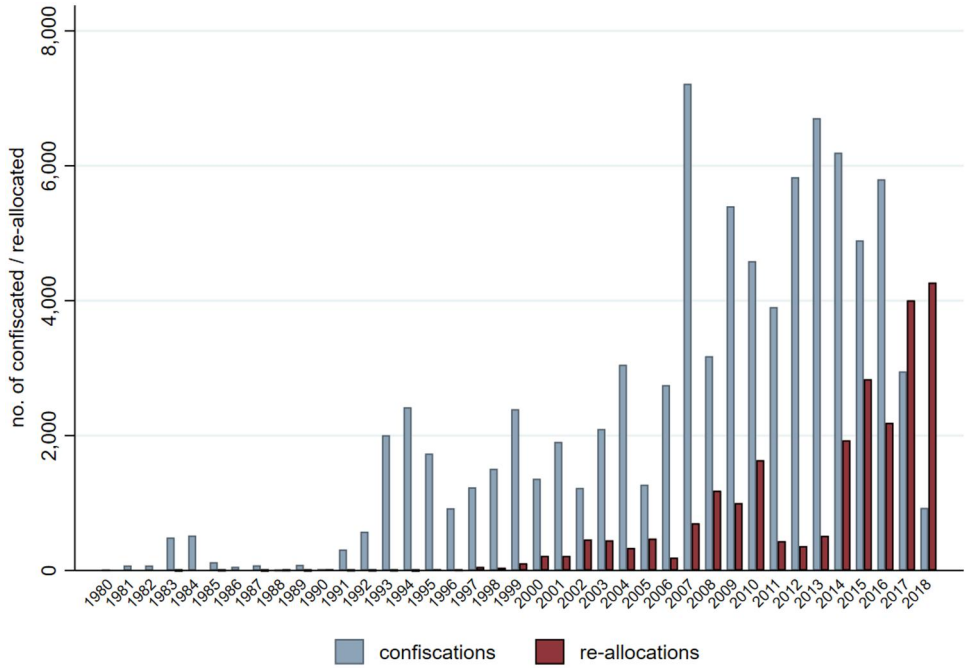

Figure 1. Confiscated and re-allocated real estate assets by year.

potentially attracted by organized crime. In all cases, the main principle behind this measure is the possibility for re-allocated assets to contribute to the regeneration of a local area and/or to become a fundamental resource in the fight against criminal organizations, eradicating the presence of the mafia in the areas where it is most deeply rooted (Dalla Chiesa 2016; Falcone, Giannone, and Iandolo 2016).

Figure 2 illustrates the geographical location of confiscated and re-allocated properties across the Italian national territory. The confiscated and re-allocated mafia assets seem to be concentrated in metropolitan urban areas. Clusters can be observed in cities such as Milan, Rome, Naples, Reggio-Calabria, and Palermo. A concentration of assets also seems to emerge in Southern Italian cities, with fewer clusters in Northern cities and even less in the central regions of Italy. The regions of Sicily, Apulia, Calabria, and Campania also present higher concentrations of re-allocated assets, which comes as no surprise given the publicized presence of mafia organizations in these regions.

The average time of re-allocations has been over 8 years from the confiscation of assets, with no significant patterns correlating the length of the re-allocation procedure with the characteristics of local areas, or the type of real estate asset being assigned to a new use, once time-invariant characteristics of local neighbourhoods are accounted for. We do find some evidence of a correlation between the length of the process and the characteristics of the local administration, or different average speeds of re-allocation of different courts across the country. All this is controlled for in the analysis (for more details, see the Online Supplementary Appendix).

3. Data

Our empirical analysis relies on a novel dataset constructed from a wide range of sources. First, data on confiscated and re-allocated real estate assets were confidentially shared by the ANBSC. This dataset includes detailed information on all confiscated assets (*confische*) across Italy, both those already re-allocated and those not yet re-allocated, included in the ANBSC managing system, with their exact address, date of confiscation, the local court imposing the confiscation, and type of asset. The dataset also includes all re-allocated assets (*destinazioni*) across Italy, with their date of confiscation and re-allocation, exact address, type of asset, type of re-allocation, the local court responsible for completing the procedure, the administrative entity responsible for managing the asset. Of these properties, a relatively small portion is sold on the housing market (1,423 or 4.3%) or demolished (14). These assets are

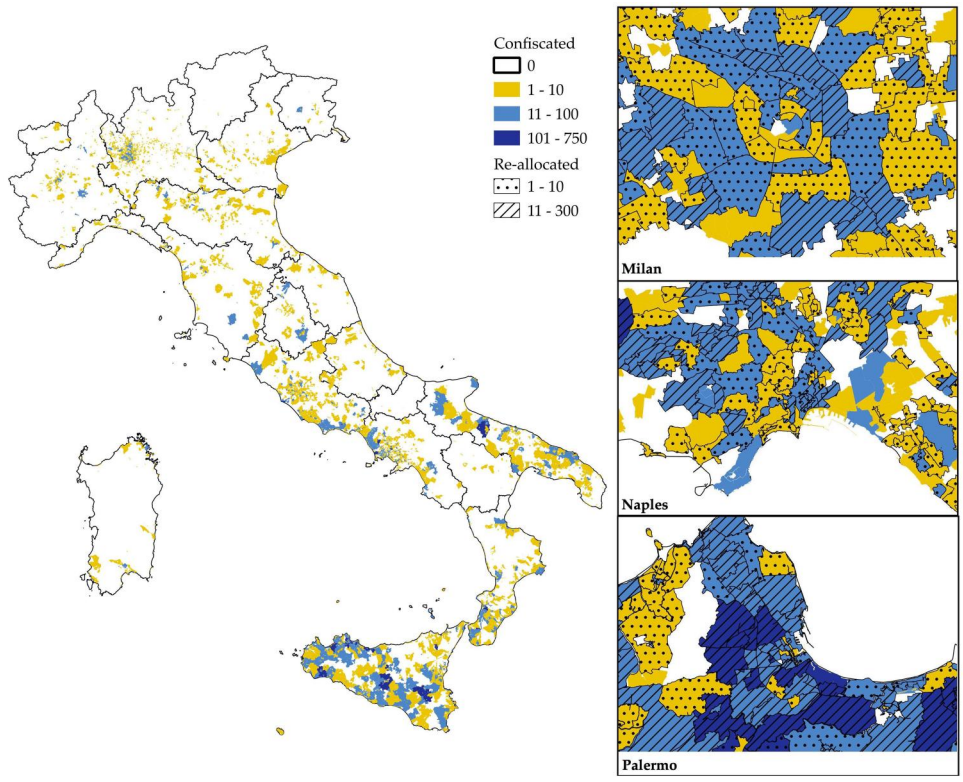

Figure 2. Confiscations and re-allocations in Italy.

dropped from our sample, given our goal is to assess the impact of confiscations and the conversion of assets through re-allocation. We also drop terrains from the sample. We are left with 30,758 not yet re-allocated and 21,554 re-allocated assets. A total of 13,176 were confiscated and 10,004 were re-allocated in the 55 Italian cities used in the analysis, of which 8,012 were confiscated and 5,471 were re-allocated during the 2011–18 sample period.

Secondly, the analysis exploits over 53,000 geo-localized house sale points, spanning from 2011 to 2018 and collected from *Immobiliare.it*, the biggest Italian real estate website. These data are based on real estate properties sold in the fifty-five major Italian cities,[5] with homogeneous coverage of the website across different cities as shown in Appendix Fig. A1. The dataset provides 'asking prices' that we use as proxies for actual transaction prices.[6] The files have been compiled, cleaned, and checked for duplicates through the website's unique identifier for each advertisement.[7] We have excluded extreme values to avoid issues of outliers by trimming the highest 1 per cent of the sample. Finally, some of the missing values were filled by us using the textual description of the ads. Loberto, Luciani, and Pangallo (2018) focus on the comparison between *Immobiliare.it* data and OMI data (see Supplementary Appendix), showing that the *Immobiliare.it* data provide an appropriate picture of the Italian housing market, consistent with official sources.

The *Immobiliare.it* dataset includes a wide range of structural attributes of sold buildings, including floor space in squared metres, building height, type of property (studio, apartment, house, and villa), number of bedrooms and bathrooms, floor, date of construction, garage or parking facility, and type of heating and energy consumption.

[5] These are: Alessandria, Ancona, Aosta, Ascoli Piceno, Bari, Bergamo, Bologna, Bolzano, Brescia, Cagliari, Campobasso, Caserta, Catania, Catanzaro, Cosenza, Florence, Foggia, Genoa, Isernia, La Spezia, L'Aquila, Latina, Livorno, Matera, Messina, Milan, Modena, Monza, Naples, Novara, Nuoro, Padua, Palermo, Parma, Perugia, Pesaro, Pescara, Pordenone, Potenza, Prato, Reggio Calabria, Rome, Salerno, Sassari, Savona, Taranto, Teramo, Terni, Turin, Trento, Trieste, Udine, Venice, Verona, and Viterbo.

[6] Loberto, Luciani, and Pangallo (2018) calculate a 12% discount between *Immobiliare.it* sale-adverts and OMI-data.

[7] When a change of price was tracked, the final most conservative price was recorded.

We complement our dataset with a list of variables collected from the Italian National Geoportal of the Environment, the Real Estate Observatory of the *Agenzia del Territorio*, the Ministry of Education, and the Open Street Map, which we can associate with each sold building. These include a series of indicators for the presence of amenities (in the pre-sample period), such as the typology of buildings on the street of the asset, distance to a range of natural and commercial amenities, distance to parking and transport controls, as well as the locations of schools. Finally, data on the labour market, education, real estate quality, and demographic characteristics from the 2011 Italian Census were obtained from the Italian Institute of Statistics (ISTAT).

Descriptive statistics of all variables are reported in Supplementary Appendix D.

4. Empirical strategy

Our main analysis is performed as a comparison of sale points located *within* the same homogeneous micro-aggregated local housing market (OMI) defined by the Italian Revenue Agency. For each OMI area, we have compiled information on their average housing value over time, which we use for preliminary estimates performed at that level (this dataset and related estimates are described in Supplementary Appendix C).

We estimate the spillover effect of the policy on house prices, capturing the spatial decay of the estimated effect, and investigating the heterogeneous treatment effect.

4.1 Baseline model

We estimate a hedonic pricing model using micro geo-localized data at the level of sold properties. Although this is considered the ideal approach in the hedonic literature, few studies have used this strategy to explore the impact of public policies as punctually localized as the one under consideration. Moreover, our dataset is novel in terms of size and spatial detail for the Italian territory. In line with other policy evaluations (e.g. Ahlfeldt, Maennig, and Richter 2017), our first assumption lies in expecting a very localized effect of confiscated assets on surrounding real estates.

We begin by drawing perimeters up to 500 m radii around each sold building. These buffers roughly correspond to an average of 5 min walking distance from buildings, spatially translating the expected local effect (Gibbons and Machin 2008; EVstudio 2019). Given the punctuality of the policy, we expect externalities to be very localized.[8] Figure 3 provides an illustration of our approach. All sale points with no assets in their buffer zone act as controls, while sale points located (in the same OMI area) with at least one re-allocated asset within their buffer radius and re-allocations occurring before the sale, act as treated units. We expect that sales occurring *after* confiscations or re-allocations may be affected, while sales occurring *before* confiscations or re-allocations should produce no effect on the price of the sold building. In practice, our analysis compares properties whose value is observed in the aftermath of nearby confiscation(s)/re-allocation(s) with that of properties located at a given distance from confiscated or re-allocated assets. The analysis is performed within homogeneous local housing markets (OMI).

By utilizing details on the sale date of each property and the timing of the confiscation/re-allocation, we can determine the effect of the policy on the prices of properties located near confiscations/re-allocations. This method allows us a highly accurate focus on the neighbourhood of the confiscated asset, identifying the treatment area with precision. To compute the external impact of the confiscated and the re-allocated real estate assets we estimate the following hedonic pricing model:

$$\ln p_{ijmt} = \beta_1 C_{i,t+n}(d) + \beta_2 R_{i,t+n}(d) + \rho X_i + \delta_j + \theta_{mt} + \varepsilon_{ijmt} \quad (1)$$

where $\ln p_{ijmt}$ is the natural logarithm of house price per m^2 of real estate property i in OMI zone j, municipality m, sold in year t.[9] The two treatment indicators are $C_{i,t-n}$ and $R_{i,t-n}$. $C_{i,t-n}$ is defined as the number of buildings confiscated within radius d from building i in year $t+n$ ($n=1, 2, 3$) before it was sold. Similarly, $R_{i,t+n}$ is the number of buildings re-allocated within distance d from sale point i in year

[8] In choosing our buffer radii, we follow the literature on the evaluation of the spillover effects of urban renewal policies (Schwartz et al., 2006; Linden and Rockoff, 2008; Rossi-Hansberg, Sarte, and Owens 2010; Ahlfeldt, Maennig, and Richter 2017).

[9] To minimize the bias possibly induced by outliers we exclude sale points in the 99.9% percentile of the highest house prices.

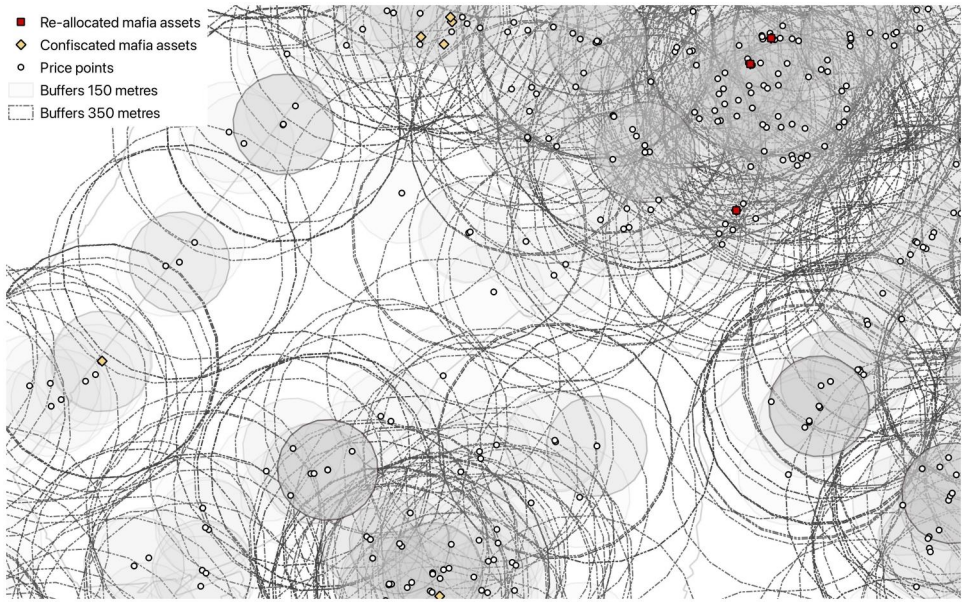

Figure 3. Buffer zones around sold buildings.

$t+n$ after the re-allocation. The treatment variables capture the intensive margin effect of confiscations and of re-allocations on house prices of neighbouring buildings, a given period after the confiscations or the re-allocations.

X_i is a vector of structural and amenity controls of property i, the latter of which was constructed from multiple geographical datasets for the Italian territory and ε_{ijmt} is the error term for property i. We compute distances to a large range of amenities as specified in the data section (including distance to the city CBD) to account for omitted variable bias. We also control for socio-economic conditions by census tract from the 2011 Italian Census. Local time-invariant factors, time-varying municipal characteristics, and year-of-sale-specific shocks are accounted for by adopting OMI zone (δ_j) and municipality–year (θ_{mt}) fixed effects. The model is estimated for the 2011–18 period, for every distance $d = 100$, 150, 200, 250, 300, 350, 400, 450, and 500 from sold assets. Standard errors are clustered at the OMI zone level so to correct for the presence of spatial auto-correlation. This research design allows us to separate the effect of the policy on property values from correlated location effects (Noonan and Krupka 2011; Koster, van Ommeren, and Rietveld 2012).

We also study the timing of the policy effect by distinguishing between buildings sold before and buildings sold after the confiscation(s) and re-allocation(s) events. We compute the number of events for each sold building and each year before and after the sale, and estimate the following model:

$$\ln p_{ijmt} = \sum_{\tau=1}^{q} \varphi_{-\tau} C_{i,t-\tau} + \sum_{\tau=1}^{q} \varphi_{+\tau} C_{i,t+\tau} + \sum_{\tau=1}^{q} \gamma_{-\tau} R_{i,t-\tau} + \sum_{\tau=1}^{q} \gamma_{+\tau} R_{i,t+\tau} + \rho X_i + \delta_j + \theta_{mt} + \varepsilon_{ijmt} \quad (2)$$

where $C_{i,t+n}$ and $R_{i,t+n}$ refer to confiscations and re-allocations that took place before the sale of the building i, similar to those in Equation (1) but disaggregated by year, while $C_{i,t-n}$ and $R_{i,t-n}$ allow to examine the value of real estate for each year prior to confiscations and re-allocation events.

4.2 Estimation issues

In order to correctly identify the effect of confiscated/re-allocated assets on housing prices, a number of estimation issues need to be addressed.

First, we need to consider potential problems of selection. According to Savona and Berlusconi (2015), mafia organizations tend to invest more often in territories they control. If housing prices in these areas have peculiar trends for reasons not associated with the analysed policy, our results may be biased. Secondly, the application of the policy may depend on the quality of public institutions. In

areas where public authorities are more likely to be captured by criminal organizations through bribes and/or where the re-allocation procedure takes more time to be completed, we expect a lower density of confiscated assets. In this sense, Supplementary Appendix Fig. OA1a is reassuring, in that it shows no obvious geographical/regional pattern in relation to the efficiency of local courts responsible for re-allocations. Re-allocation procedures exhibit a high degree of heterogeneity, with no clear differences in the average duration between Northern and Southern Italian regions. However, Table OA2 (Supplementary Appendix) shows some evidence that the duration of the re-allocation procedure may vary depending on the political colour of the local government administrating the municipality where the asset is located.

In order to deal with these issues, we include a number of controls in our models. To start with, we always include municipality–times–year and OMI-zone fixed effects in the estimates. As mentioned above, OMI are micro-geographical areas, smaller than neighbourhoods, characterized by homogeneous real estate markets. Areas are revealed at the infra-municipality level, sharing similar socio-economic and urban characteristics, building infrastructures, and quality, namely the features which are crucial to determining house prices (Budiakivska and Casolaro 2018). Thanks to this approach, our baseline model absorbs all the variation across municipalities and time-invariant OMI-level unobservables. Nevertheless, it might still be the case that confiscation and re-allocations are not randomly distributed across space. For instance, a judge might choose to speed-up the confiscation/re-allocation process for assets localized in strategic areas.

We perform a number of additional tests, whose results are reported in the Supplementary Appendix. In Tables OA3, OA4, and OA5, we exploit data retrieved from the 2011 Italian Census to test the balancing properties of our setting. In panel A, Supplementary Appendix Table OA3, we analyse the relationship between the time required to confiscate an asset and local characteristics.[10] In panel B, we focus on the length of the re-allocation procedure, that is, the time between confiscation and re-allocation. In Supplementary Appendix Tables OA4 and OA5, our main treatment variables—the number of confiscated assets or the number of re-allocated assets within a short distance from sale points—are regressed on a set of Census characteristics aggregated at the buffer level (150 or 350 m). All these estimates are performed with and without the inclusion of OMI fixed effects. In all these tests, once OMI fixed effects are included, we find no significant correlation between local characteristics and the timing of the policy, and (with just one exception) no significant relationship between the number of confiscation/re-allocations and local characteristics.

Overall, these exercises confirm the homogeneity of OMI areas. In addition, we choose to include a set of controls in our hedonic models for census area characteristics (Supplementary Appendix Table OA9), further minimizing any potential confounder within OMI. Moreover, the specifications account for generalized shocks in housing markets, as well as for any municipality-specific characteristics varying over time with municipality–year interacted fixed effects. The latter control also accounts for any change in the political composition of the local government, potentially influencing the timing of the policy and its implementation. To conclude, the very large set of control variables at the level of the building—including a number of variables identifying pre-existing amenities—further minimizes the possibility that any observed policy effect is due to non-random characteristics of the local area where the policy is put in place.

Another possible issue relates to the fact that our study focuses on a policy being implemented in two steps: first the confiscation, and then the re-allocation. Having accurate information on each confiscated and each re-allocated asset over time allows us to correctly and precisely determine the number of confiscated and re-allocated assets, and re-construct the exact timing of the policy events prior to/after the sale of each neighbouring building. Using this information, we can estimate event study-like models testing for significant differences in house prices in the immediate surroundings of areas where confiscations and re-allocations will take place. All our specifications include variables referring to both steps of the policy in the model, thus accounting for both. The two-step treatment may give rise to one additional concern, namely the fact that the policy affects other outcomes such as labour mobility. To minimize this issue, we test the impact of the policy within a very limited distance from the treatment site, where the probability of any labour/firm relocation is unlikely to be more concentrated than in the outer ring.

[10] The dependent variable is the number of years between the confiscation of the first asset to a mafia family (defined on the basis of the surname of the convicted members) and each subsequent confiscation. This variable can be considered a good proxy for the time between conviction and confiscation.

5. Results

Table 1 reports the results of the hedonic analysis conducted at the sale point level using four distance thresholds around sale points: 150, 250, 350, and 450 m buffer radii. The sample is composed of sold properties in the fifty-five largest Italian cities. All specifications include structural, building, pre-existing amenity, and socio-economic controls, as well as OMI and municipality–year fixed effects. The full model reporting the coefficient of control variables is shown in Table OA9 of the Supplementary Appendix.

The specifications include the two cumulative treatment proxies. 'Confiscations' and 'Re-allocations' correspond to the sum of neighbouring assets confiscated/re-allocated over a 3-year period before the sale of each property at the stated distance. The estimates report a negative significant coefficient of confiscations and a positive significant coefficient of re-allocations, both reducing in magnitude (in absolute value) with distance from the sold property. Column 1 shows that each confiscated asset converts into a decrease in neighbouring properties' value of up to 0.7 per cent per asset, for confiscations occurring within 150 m of sold buildings. Conversely, for each additional re-allocated asset, the price of surrounding properties increases by up to 0.5 per cent per asset, for re-allocations taking place within 150 m of sold buildings. This indicates the presence of significant externalities deriving from the application of the anti-mafia policy. We also conducted the analysis at the OMI level, discussed in Supplementary Appendix C, using aggregate units of observation. However, this approach does not allow to detect any clear policy impact on house prices, possibly because the effect is highly spatially confined.

In order to better illustrate the distance decay of the policy, in Fig. 4, we combine the estimated coefficients of confiscations and re-allocations from 150 to 500 m, with relative 90 per cent confidence intervals (CIs), for models estimated with the full set of controls and fixed effects. Figure 4a and b allow us to appreciate the spatial decay characterizing the cumulative treatments. As seen in Fig. 4a, at shorter distances from confiscations the coefficients are more negative, while they become progressively less negative moving away from the asset. Similarly, moving away from the re-allocated assets, the positive coefficients decrease in magnitude (Fig. 4b). The declining coefficients suggest a rapid spatial decay of the policy effect, with the transactions localized further than 400 m away from the asset looking mostly unaffected.

While the coefficient of confiscation remains marginally significant at 500 m, this does not imply that the effect of confiscated assets reaches that distance. The statistical significance of the effect at very small distances is quite strong, making the coefficient still significant at 500 m in within-OMI

Table 1. Sale point analysis by distance

***Dep. variable*: Log euro per m^2**	**Buffer radius:**			
	150 m (1)	**250 m (2)**	**350 m (3)**	**450 m (4)**
Confiscations	−0.00703***	−0.00289**	−0.00223**	−0.00219***
	(0.00226)	(0.00129)	(0.00101)	(0.000766)
Re-allocations	0.00515**	0.00350**	0.00221***	0.000702
	(0.00227)	(0.00170)	(0.000658)	(0.000836)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
OMI FE	Yes	Yes	Yes	Yes
Municipality–year FE	Yes	Yes	Yes	Yes
Observations	50,485	50,485	50,485	50,485
R^2	0.786	0.786	0.786	0.786

$^{***}P < .01$, $^{**}P < .05$, $^{*}P < .1$.
Standard errors clustered at OMI level in parentheses. Dependent variable: price recorded for each sale point i in year t. Re-allocations: nr. of re-allocations up to 3 years before the sale of the building, within buffer zone. Confiscations: nr. of confiscations up to 3 years before the sale of the building, within buffer zone. Column (1): buffer 150 m around sold property; column (2) buffer 250 m; column (3): buffer 350 m; column (4): buffer 450 m. Controls: sale property, amenity, and socio-economic characteristics.

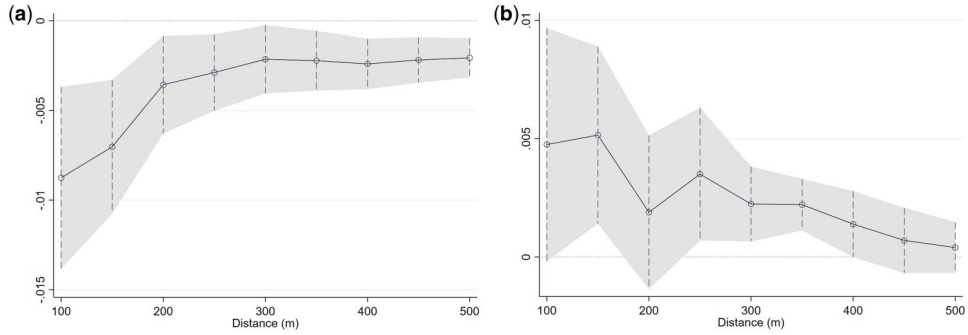

Figure 4. Distance decay effect. Coefficients of a model estimating differences in house price for buildings located within 150–500 m of confiscations/re-allocations and sold up 3 years after confiscations/re-allocations. Dashed lines around point estimates refer to 90 per cent CIs. Treatment variable: number of confiscated/re-allocation assets within buffer. (a) Confiscation—distance decay and (b) Re-allocation—distance decay.

estimates with few controls. If, however, the model is estimated using sale point comparisons within municipalities, excluding OMI fixed effects, the control group becomes much larger and the estimated coefficient of confiscations is only significant up to 200 m (Appendix Fig. A2).[11]

The magnitude of coefficients is higher when considering a smaller buffer distance, consistent with the fact that, the closer the confiscations or the re-allocations, the larger the effects. The fact that the impact materializes within such a short distance from confiscated and re-allocated assets reduces endogeneity concerns, possibly due to the presence of time-varying confounding dynamics at the OMI level. The likelihood that these dynamics are stronger at such a short distance from the treatment sites than in the rest of the OMI area is very low.

5.1 Timing of the policy impact

If the policy has an effect on house prices, we should expect only post-confiscation and post-re-allocation sales to be affected, while all sales that occurred *before* the application of the policy should not be impacted. To verify this, we estimate model 4.1, exploring the timing of the policy impact by including a set of variables referring to the number of confiscated and re-allocated assets each year before and after the sale of each property. We report the estimated effect on sold buildings in the period surrounding the confiscation/re-allocation events, 4 years prior and 3 years after those events.[12]

The results for 350 m buffer are summarized in Fig. 5, while the results for a 250 m buffer are in Appendix Fig. A3. Crucially, they show that all year-specific variables referring to sales preceding confiscations and re-allocations return insignificant coefficients, as one would expect if the policy displays no anticipatory effects.

Looking at the effect of confiscations in Fig. 5a and Appendix Fig. A3a, we note a significant decrease in the value of nearby buildings from the second year after confiscation events. Figure 5b and Appendix Fig. A3b, illustrate the effect of re-allocations, showing a positive jump in house prices materializing in the immediate aftermath of operative re-allocations, that is, in the first year following the re-allocation events.

So far, the analysis has focused on the relationship between the number of assets confiscated/re-allocated in the neighbourhood and housing prices. This approach does not allow us to distinguish between extensive-margin treatment—the occurrence of a single confiscation/re-allocation event, regardless of the number of properties involved—and intensive-margin treatment. To test if the results are exclusively driven by the extensive-margin treatment, we replicate the year-by-year analysis using

[11] As an alternative estimation method, rather than using buffers we have estimated the baseline model—with OMI and municipality–year fixed effects, and controls—adopting rings around confiscations/re-allocations. Figure OA3 in the Supplementary Appendix reports the result of estimates including a set of variables referring to the number of confiscations/re-allocations up to 3 years before sales at 0–100 m, 100–400 m, 400–700 m, and 700–1,000 m from confiscations/re-allocations. It confirms that the negative effect of confiscations and the positive effect of re-allocations converge to zero at higher distances from the policy events.

[12] When we adopt continuous variables counting the total number of confiscated/re-allocated assets, to avoid outlier bias we trim the sample to exclude the 0.1% highest values of re-allocated assets.

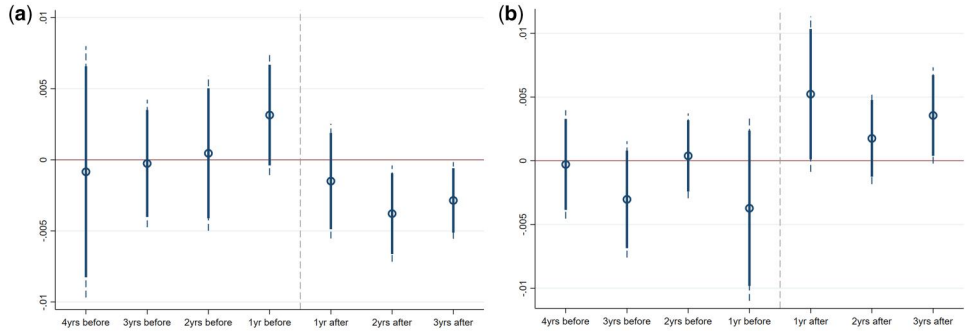

Figure 5. House values before/after confiscations and re-allocations (350 m). Coefficients of a model estimating year-by-year differences in house price for buildings located within 350 m of confiscations/re-allocations and sold up to 4 years before and 3 years after confiscations/re-allocations. Continuous (dashed) lines around point estimates refer to 90 per cent (95%) CIs. Treatment variable: number of confiscated/re-allocation assets within buffer. (a) Confiscation and (b) Re-allocation.

dummy variables for confiscations/re-allocations by each period before and after the policy application, rather than using a count measure of confiscated/re-allocated buildings. The results for 250 and 350 m buffers are displayed in Appendix Fig. A4. While the impact of confiscation and re-allocation seems visible at 250 m, all post-re-allocation coefficients are insignificant at 350 m (Appendix Fig. A4d), consistent with the idea that, at that distance, a larger number of assets is needed in order to induce an increase in the value of neighbouring buildings.

Next, we test for an effect of confiscation/re-allocations in the medium/long term, looking at their impact on house prices up to 9 years after the policy event(s). The results in Appendix Fig. A5 show that the variation in house prices induced by the policy is relatively short-lived. Buildings sold 4–9 years after the event display limited or no significant difference in house prices. The short duration of the recorded effects may be ascribed to different factors, including the rapid adjustment of local housing markets, made possible by the substantial number of unoccupied properties in Italian cities, or the post-policy decisions taken by local administrators in the medium-term, in terms of allocation of resources and local services.

5.2 Spatial heterogeneity

Having uncovered a general effect of re-allocations on the value of surrounding properties, in this section, we explore the heterogeneity of the policy effect. Given that re-allocations are primarily an anti-mafia policy, we investigate whether they produce larger impacts in urban areas where organized crime groups are more rooted and where they invest the most. These are also the areas where most confiscations and re-allocations have occurred.

While organized crime activities are currently spread throughout Italy (and beyond), mafia regional strongholds are well known.[13] A possibility is that the policy is more effective where criminal organizations are more rooted and re-allocated assets send a stronger signal to the local housing market. To test this hypothesis, we exploit the geographical extension of our dataset and replicate the model, focusing exclusively on provinces characterized by higher mafia strongholds. These are defined on the basis of an indicator developed by Bernardo et al. (2021),[14] examining the sensitivity of organized crime and developing weights of crime variables to define the highest and lowest intensity of organized crime presence across Italian provinces.[15] Supplementary Figure OA4 illustrates the spatial distribution of the mafia intensity index.

[13] Organized crime maintains its strongest presence in the areas where it was originally formed. According to Transcrime (2013), the Cosa Nostra (Sicily), Ndrangheta (Calabria), Camorra (Campania), and Sacra Corona Unita (Apulia) preserve their strongholds in their regions of origin.

[14] Other studies mapping local mafia intensity across the Italian territory are, among others, Marselli and Vannini (1997), Calderoni (2011), and Dugato, Calderoni, and Campedelli (2020).

[15] This is obtained by using the stochastic dominance efficiency methodology on a set of commonly used crime indicators. The index gives more weight to infrequent events occurring in a limited number of provinces and makes use of the widest set of indicators available. It is based on the following set of variables: mafia murders, mafia-type associations, councils dissolved, assets confiscated, extortion, arson, usury, money laundering, drug, and corruption.

Table 2. Confiscations and re-allocation in mafia-intensive areas.

Dep. variable: Log euro per m^2	(1) 150 m	(2) 250 m	(3) 350 m	(4) 450 m
Low mafia intensity × Confiscations	−0.0183**	−0.00807	−0.00613	−0.0101*
	(0.00854)	(0.0104)	(0.00664)	(0.00521)
High mafia intensity × Confiscations	−0.00692***	−0.00273**	−0.00234**	−0.00202**
	(0.00224)	(0.00127)	(0.00106)	(0.000793)
Low mafia intensity × Re-allocations	0.0363	−0.0167	−0.0183	−0.0253
	(0.0226)	(0.0347)	(0.0266)	(0.0183)
High mafia intensity × Re-allocations	0.00388	0.00374**	0.00237***	0.000865
	(0.00238)	(0.00168)	(0.000750)	(0.000922)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
OMI FE	Yes	Yes	Yes	Yes
Municipality–year FE	Yes	Yes	Yes	Yes
Observations	50,350	50,350	50,350	50,350
R^2	0.786	0.786	0.786	0.786

$^{***}P < .01$, $^{**}P < .05$, $^{*}P < .1$.
Standard errors clustered at OMI level in parenthesis. Dependent variable: price recorded for each sale point i in year t. Re-allocations: number of re-allocated assets up to 3 years before the transaction within buffer. Confiscations: number of confiscated assets events taking place up to 3 years before the transaction within buffer. Mafia intensity is a binary dummy variable, distinguishing cities with high mafia intensity (1) from those with low mafia intensity (0) at the at the median of Bernardo et al. (2021)'s index as described in Section 5.2. Low Mafia intensity indicates areas with below-media scores. High mafia intensity indicates areas with above-median scores. All specifications include: Structural controls, Building controls, Amenity controls, Socio-economic controls, OMI fixed effects, and municipality–year fixed effects.

For ease of interpretation, we construct a dummy that distinguishes between high and low mafia intensity at the province level on the basis of the median value of the mafia intensity indicator. We interact this dummy with our treatment indicators in the baseline model. The results of the model are shown in Table 2. While signs of the negative effect of confiscation on house prices are visible in both more mafia-intensive and less mafia-intensive areas, the positive effect of re-allocations on house prices appears to be driven particularly by re-allocations in areas of higher mafia activity. It is unsurprising that confiscations would have a negative effect on housing prices across all cities in Italy since the underlying mechanisms (social stigma and expected negative externalities from an empty property) are relevant regardless of the location of the asset. On the other hand, the findings suggest that re-allocation policies are only effective in areas where mafia organizations are more rooted, thanks to the higher utility associated with the creation of new social and institutional amenities in areas which are generally considered abandoned by the Italian State. It is possible that cities with smaller mafia presence, which tend to be more socio-economically successful, may not pay as much attention to the introduction of new social and institutional facilities.[16]

5.3 Size of the effects and channels

Despite the fact that a proper cost–benefit analysis is beyond the scope of this study, we can discuss the magnitude of the policy effect. To our knowledge, this is the first study to investigate the impact of confiscation/re-allocation policies on property prices. As a result, there is no immediate benchmark to compare our results with. However, our findings can be compared with studies analysing the effect of crime at a similar spatial scale. Thaler (1978) finds that a one standard deviation increase in the incidence of property crime reduces home values by about 3 per cent. A more significant effect is reported by Gibbons (2004), that finds a standard deviation decrease in the local density of criminal damage to be associated with a 10 per cent price increase in the average Inner London property.

Our results can also be analysed in relation to studies investigating the effect of local amenities on property prices. Confiscations can be seen as a disamenity for various reasons. First, signalling the presence of criminal operations or criminal investments in a given area. Secondly, the management of confiscated assets often involves construction or restoration work that may result in noise pollution or other disturbances. The creation of amenities by means of re-allocations may, on the other hand, be a

[16] Our dataset comprises distinct applications of reallocated structures, namely social purposes and institutional roles. Both assets reallocated for social and institutional objectives demonstrate positive effects of comparable magnitude, with no discernible determinant.

channel through which this aspect of the policy produces a positive impact on house prices. On the one hand, the re-allocation policy could serve as an engagement device for the local community (Falcone, Giannone, and Iandolo 2016). Non-profit organizations could use assets located in critical areas to organize bottom-up initiatives and sustain institutional change. On the other hand, assets can be used by local councils to improve the local provision of public services in areas characterized by high demand and limited resources. In both cases, the increase in local amenities would foster housing demand in previously more deprived and less attractive neighbourhoods. Machin (2011) reviews eleven studies investigating the nexus between school quality and housing prices, finding a median change of 4 per cent in housing prices following a standard deviation change in school quality. Similarly, the presence of sex offenders reduces property prices by 2 per cent to 4 per cent (Linden and Rockoff 2008; Pope 2008). We find that the extensive-margin effect of confiscations and re-allocations in the years immediately following the policy application is up to −3 per cent for confiscations within 250 m (Appendix Fig. A4a) and up to +2 per cent for re-allocations within 250 m (Appendix Fig. A4c). However, the re-allocation effect appears much clearer if we count the number of re-allocated assets in the vicinity of buildings, where every additional asset leads to a 0.3–0.5 per cent increase in house prices.

Hence, with respect to other hedonic price studies, our estimates on the impact of confiscations and re-allocations appear to be somewhat lower. However, the policy considered is likely to be significantly cheaper for local authorities. The strategic position of confiscated/re-allocated assets, mostly located in deprived neighbourhoods, is such that the policy is likely to particularly benefit more disadvantaged social groups.

The policy effect may materialize through the creation of amenities, but it may also be the result of different dynamics, directly related to the activity of organized crime. Both the confiscation and the re-allocation can weaken criminal organizations, directly reducing their ability to extract resources from the territory and acting as a deterrent against future penetrations, as well as a signal of the State's presence to local communities. Thus, the policy could have an effect on the presence of criminal groups, which in turn is expected to influence the value of buildings (Gibbons 2004; Linden and Rockoff 2008; Ihlanfeldt and Mayock 2010). We investigate this possibility in the next section.

5.4 Policy effect on organized crime activity

To provide some indications regarding a possible link between the policy and organized crime activity, we exploit the 2013–18 annual reports produced by the DIA, the Anti-Mafia Investigation Directorate, reporting very detailed information on the major territories under the influence of mafia organizations (more details in Supplementary Appendix F). We focus on the city of Naples, which represents the ideal testing ground not only for its large number of confiscated/re-allocated assets but also because of the high variability over time in terms of *Camorra* (the main criminal organization rooted in the region) activity. According to DIA reports, around 80 per cent of the 14,098 streets of Naples have had one or more mafia families active in the streets during 2013–18. In addition, over 70 per cent of streets have experienced changes in criminal activity over the same period.

Thanks to this data, we construct a street-level panel dataset on organized crime presence in Naples. To assign cases of confiscations/re-allocations within streets, we also exploit buffers, identifying as 'treated' streets experiencing confiscations/re-allocations within their buffer radius. We focus on 50, 100, and 200 m radii from each street.[17] A representation of our strategy, zooming into some streets of Naples, is shown in Supplementary Appendix Fig OA5c and Appendix Fig. A6.

Using the constructed dataset, we estimate a Two-Way Fixed Effects (TWFEs) model exploiting the staggered treatment of confiscations and re-allocations, testing their effect on the number of mafia families active in a given street and year. We regress the number of families operating in one street over confiscation and re-allocation dummy variables, using different buffer radii. The model and regression results are illustrated in the Appendix. Overall, no effect of confiscations is found, while re-allocations appear to be negatively related to the number of active families in a street. We take this interesting result and look at the temporal dynamics around the re-allocation event with an event study, estimated with TWFE and Sun and Abraham (2021) estimators (model discussed in the Appendix).

[17] Out of the total 14,098 streets in the sample, 985 (2,140) have experienced confiscations and 963 (2,375) have experienced re-allocations if we consider a 100 (200) m radius, in the 2013–18 period. In these years, there have been 189 confiscations and 173 re-allocations in the city of Naples. None of these 189 confiscated assets were re-allocated prior to 2018. The average re-allocation time in the city is 12.5 years.

The results using 100 m buffers are shown in Appendix Fig. A7. They show no pre-trends and display the temporal dynamic of the effect, materializing shortly after the re-allocation and lasting for several years afterwards. They indicate a clear significant reduction in the number of active mafia families per street following the re-allocations in those streets. A decrease in the number of families may not, however, necessarily correspond to a reduction in the overall power and degree of control of criminal groups on a local territory. For this reason, these results should be interpreted with caution.[18] While we cannot provide conclusive evidence regarding the effect of the policy on mafia activity, the observed reduction in active mafia families in a street experiencing re-allocations may signal that at least part of the regeneration effect of the re-allocation policy is obtained through the reduction of the mafia presence in treated areas. This may be due to a combination of factors, such as stronger law enforcement in the aftermath of re-allocations, especially if confiscated assets have been converted into police stations. In part, the capitalization of re-allocations into higher house prices of surrounding buildings may be due to a safer environment, 'cleaner' from the activity of criminal organizations. This kind of dynamic would be consistent with the fact that a stronger effect is visible in mafia-rigged regions, where the larger proportion of mafia investment into real estate is made (Riccardi and Soriani 2016).

6. Conclusions

This article assesses the extent to which confiscation of mafia real estate assets and their re-allocation to new uses produce spillover effects on neighbouring buildings, modifying their monetary value. Our estimates, obtained by making use of unique micro-level data, unveil a highly localized impact of confiscation/re-allocation events on house prices. Confiscations have a negative effect on local prices, while re-allocations benefit local communities, acting as positive local amenities, particularly in certain areas. Our estimates stipulate that each confiscated asset decreases the monetary value of properties located within 250–350 m of the asset by 0.2–0.7 per cent. Any additional re-allocated asset is associated with a 0.2–0.5 per cent increase in housing prices.

The negative effect observed in the aftermath of the confiscation is consistent with the findings of qualitative policy assessments (Dalla Chiesa 2016), and the fact that confiscations are often followed by construction or restoration works that may result in noise pollution or other disturbances. The positive effect of re-allocations, on the other hand, can be read as the capitalization of an increase in local amenities or as the outcome of a reduction in the disamenities connected with the presence of criminal organizations.

The policy effect is characterized by spatial decay. The recorded effect is no longer visible beyond 400 m from confiscated/re-allocated assets and, consistently, tends to disappear when local housing markets are used as units of analysis. The social stigma associated with the presence of mafia organizations in a neighbourhood, the risks associated with an empty property, as well as the provision of local services and public amenities all produce their effects only within walking distance from target assets.

The effects of the policy on housing markets are found to be relatively short-lived and tend to disappear within 4–6 years. This pattern, previously observed for other very localized urban policies (Gobillon, Magnac, and Selod 2012), can have different explanations. When prompted by 'bad press' or the necessity for local businesses to adapt to a new equilibrium, the negative shocks of asset confiscation may naturally subside within a relatively brief timeframe.

The rapid decay of the positive shock following re-allocations can be attributed to the quick adjustment of local housing markets to the higher demand recorded in the area. Since Italian cities are characterized by a particularly high number of empty properties,[19] a positive price shock could convince some owners to put their property on the market, fostering an increase in supply capable of absorbing the shock even in the absence of new developments. An alternative rationale pertains to the possibility that, during the post-reallocation period, local administrators choose to redirect local services out of the areas that have benefited from the re-allocations, towards excluded areas. From this perspective, the policy effect could be 'diluted' across the whole municipality.

We have investigated the effect of the policy in areas characterized by a stronger or lower presence of criminal organizations. Mafia-controlled real estate assets exhibit varying uses in places with

[18] In an additional descriptive exercise, we find that the probability of having any active mafia family in a street is lower after re-allocations.

[19] In 2019, the country recorded almost 10 million empty properties, mostly concentrated in Southern regions and urban areas (ISTAT).

differing levels of mafia influence. In mafia-rigged territories, a large number of mafia assets are used for both operational and economic purposes, while in locations with less mafia influence real estate assets are more likely investments used by criminal organizations for money laundering (Operti 2018). Residents may be more aware of confiscations in neighbourhoods where former operational mafia assets are no longer operational post-confiscation. If this is the case, it should not be surprising to observe a negative effect of confiscations where mafia organizations have the means to 'strike back'. At the same time, the reductions of property prices induced by confiscations in areas characterized by lower mafia presence may be due to the fact that confiscation events signal the presence of criminal investments in places where they are less expected, producing resonance within the local community.

The effects of re-allocations are particularly visible in areas with a stronger presence of criminal organizations. This result can be explained by the expected returns of a policy in neighbourhoods which are generally less socio-economically prosperous. In mafia-rigged areas, re-allocation procedures signal the presence of the State through social amenities and institutions which are overall less present. In these cases, the creation of additional local amenities could naturally lead to higher welfare effects or engagement devices for local communities (Falcone, Giannone, and Iandolo 2016), contributing to the revitalization of the targeted areas. From a policy perspective, applying the policy in mafia-rigged territories could be seen as strategic due to the sub-optimal supply of public services. Although we are not currently able to fully disentangle the extent to which the estimated effect is due to the eradication of the presence of criminal organizations or is exclusively an amenity effect, our street-level exercise on Naples suggests that at least a part of it could be associated with a reduction of the intensity of mafia activities in the locations where re-allocations occur.

The analysis has important policy implications, both for Italy as well as for all countries adopting measures of asset confiscation as a means to tackle criminal activity. Overall, what emerges from our study is that the policy of re-allocating real estate assets recovered from criminal organizations can have the capacity to increase the localized value of surrounding buildings, particularly in mafia-rigged territories. However, the negative effect recorded in the aftermath of the confiscation, together with the extreme length of the re-allocation procedure, highlights the need for a profound restructuring of the policy. A key recommendation would be to reduce the number of years between confiscation and re-allocation. The timing of re-allocations varies sharply across the country and may depend on local courts, and our results indicate that efforts should be made in speeding up the re-allocation procedures. Moreover, the legislator could consider ways to temporarily allocate the assets to the benefit of local communities even during the period between confiscation and final re-allocation. Finally, the introduction of case-by-case assessment procedures would help determine whether the assets have any value for the local community. In many cases, the resources obtained by the disposal of the asset could be used to finance other types of regeneration policies with higher expected benefits for the neighbourhood.

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Conflict of interest statement

None declared.

Supplementary data

Supplementary data is available at *Journal of Economic Geography* online.

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Appendices

This appendix presents text, tables, and figures complementing the main article. Additional material, tables, and figures are available in the Supplementary Appendix.

Institutional background: the 'Rognoni-La Torre' law

The 'Rognoni-La Torre' law (646/1982) stipulates the seizure of real estate asset previously owned by organized crime members or affiliates and, through re-allocations, the re-assignment of these assets to local communities by converting them into public housing amenities. The 'Rognoni-La Torre' law (646/1982) prescribes four steps to obtain the final confiscation:

- the properties of suspects of belonging to mafia groups are scrutinized by the competent tribunal;
- the seizure is decided upon by a panel of three judges. The asset goes under judiciary administration;
- the judges provide a motivation for confiscation. The asset goes under first degree confiscation; and
- if appealed, the confiscation decision is reviewed by the Court of Appeal. The order can be 'revocation' or confirmation (second-degree confiscation).[20]

The two broader categories of re-allocations are: 'social use' and 'institutional, justice and public order'. The former category includes conversions of buildings into: anti-mafia/non-for-profit associations, senior centres, under eighteen centres, disable centres, healthcare centres, sport centres, and green spaces. The latter includes: tribunal, police station, centre for migrants, archive, and council houses. In all cases, the main principle behind this measure is the possibility for re-allocated assets to contribute to the regeneration of a local area and/or to become a fundamental resource in the fight against criminal organizations, eradicating the presence of the mafia in the areas where it is most deeply rooted (Dalla Chiesa 2016; Falcone et al., 2016). This is because real estate properties have a strong symbolic meaning for criminal groups, as they are a physical representation of their power on the local territory. These properties are often chosen by mafia families for their meetings. In addition, considering the large share of liquidity laundered by mafia groups into real estate properties—more than 50 per cent of illegal mafia profits are reinvested into the legal economy, with real estate as one of the preferred sectors of investment (Savona and Riccardi 2015)—the confiscation policy is a way to harm their business model and earnings.

[20] Of all the confiscated buildings, only fourteen have been 'revoked'. This suggests that judge bribing, even if taking place, is ineffective and plays little role as a confounder of our analysis

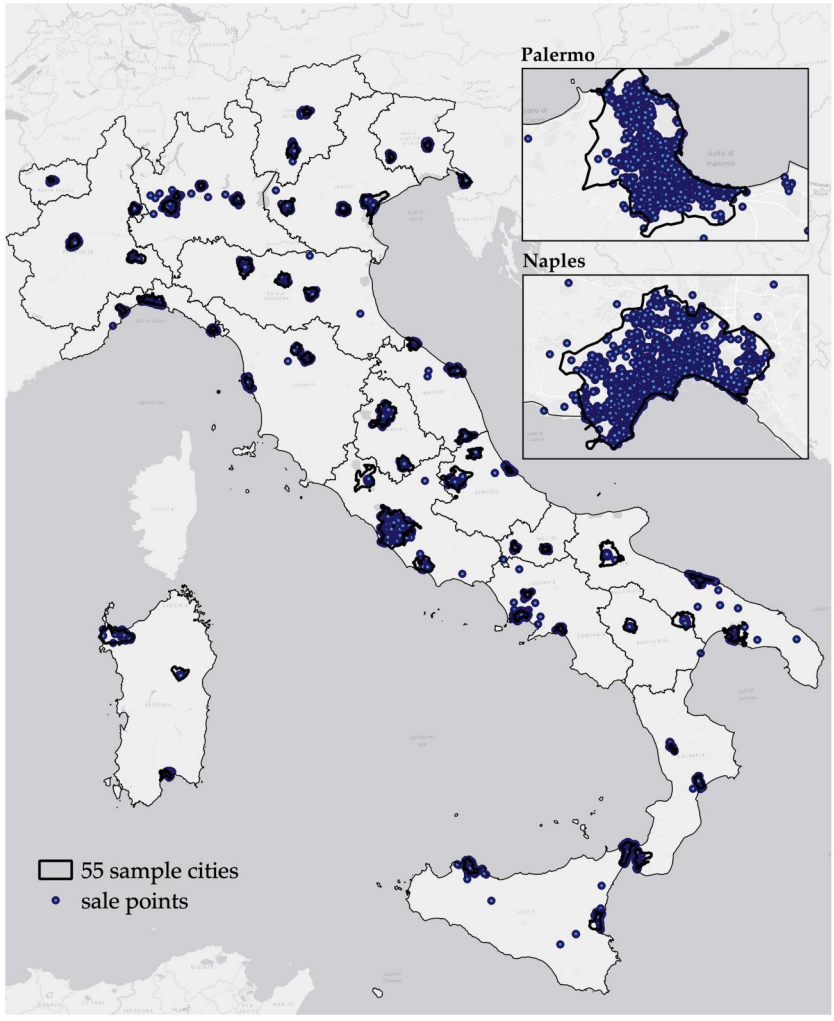

Figure A1. Sale points across the sample cities.

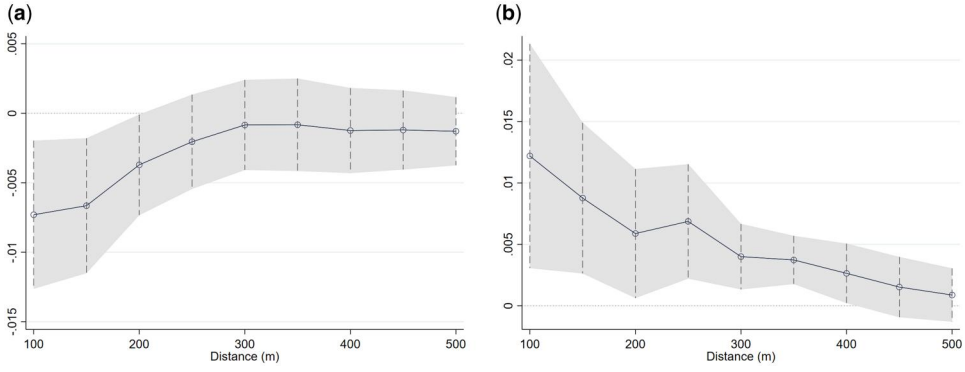

Figure A2. Distance decay effect—within municipalities. Estimated coefficients of the baseline model at different buffer distances. Relative to the coefficients shown in Fig. 4, these estimates do not include OMI fixed effects but only municipality × year fixed effects. (a) Confiscations and (b) Re-allocations.

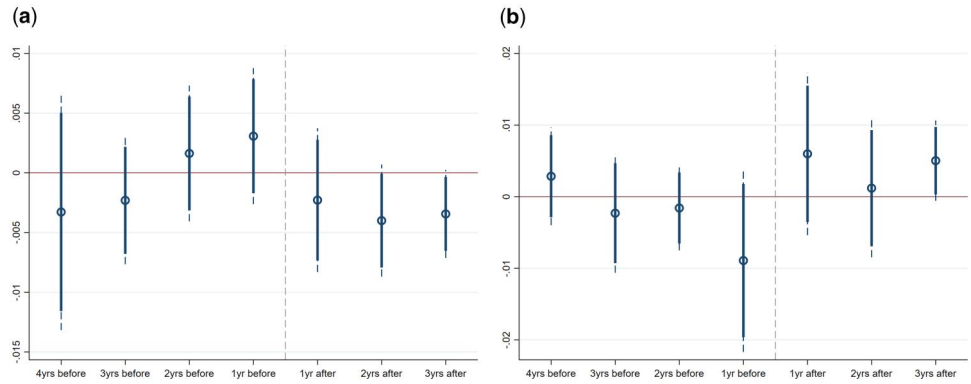

Figure A3. House values before/after confiscations and re-allocations (250 m). Coefficients of a model estimating year-by-year differences in house price for buildings located within 250 m of confiscations/re-allocations and sold up to 4 years before and 3 years after confiscations/re-allocations. Continuous (dashed) lines around point estimates refer to 90 per cent (95%) CIs. Treatment variable: number of confiscated/re-allocation assets within buffer. (a) Confiscation and (b) Re-allocations.

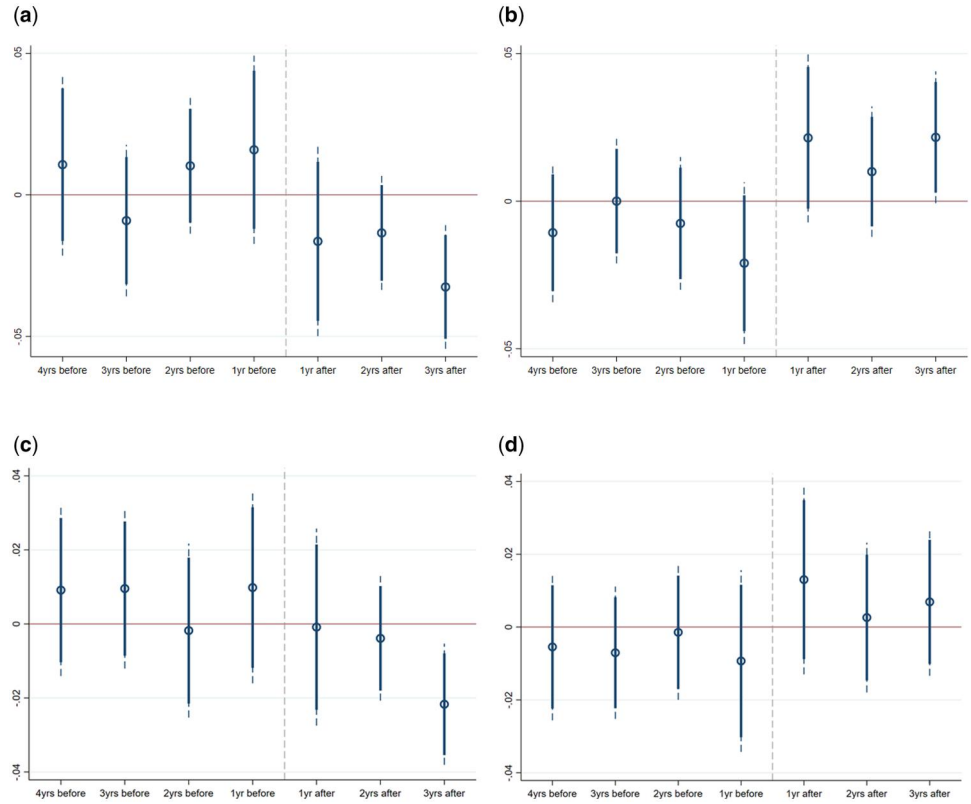

Figure A4. House values before/after confiscations and re-allocations—dummy treatment (350 m/250 m). Coefficients of a model estimating year-by-year differences in house price for buildings located within 250 m/350 m of confiscations/re-allocations and sold up to 4 years before and 3 years after confiscations/re-allocations. Continuous (dashed) lines around point estimates refer to 90 per cent (95%) CIs. Treatment variable: dummy = 1 if the sold building had confiscated/re-allocation assets within 250 m/350 m *n* years before/after its sale. (a) Confiscation 250 m, (b) Confiscation 350 m, (c) Re-allocation 250 m, and (d) Re-allocation 350 m.

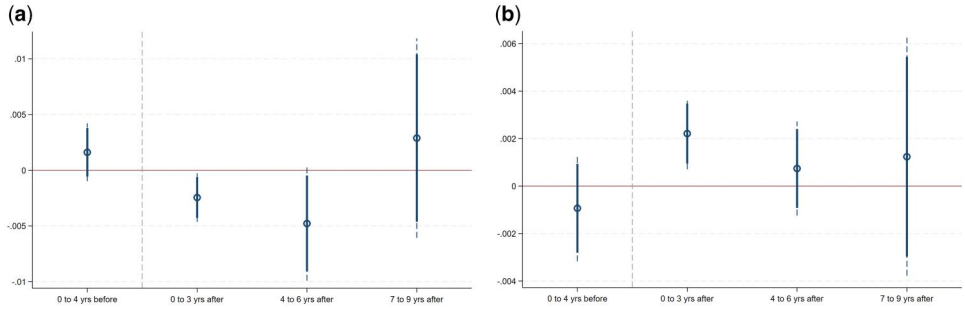

Figure A5. Long-term effect (350 m). Coefficients of a model estimating differences in house price for buildings located within 350 m of confiscations/re-allocations and sold up to 4 years before and 9 years after confiscations/re-allocations. Continuous (dashed) lines around point estimates refer to 90 per cent (95%) CIs. Treatment variable: number of confiscated/re-allocation assets within buffer. (a) Confiscations and (b) Re-allocations.

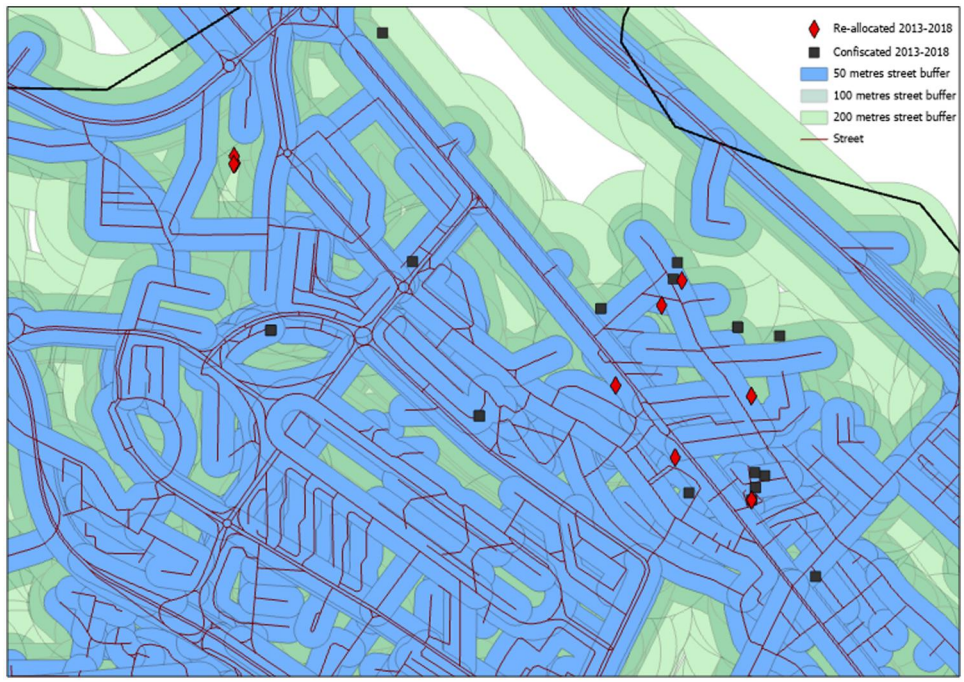

Figure A6. Buffer zones around streets in Naples.

Difference-in-differences model—street-level analysis

To investigate the effect of confiscations and re-allocations on mafia activity, we estimate:

$$Mafia\ families_{sjt} = \alpha C_{sjt} + \beta R_{sjt} + \sigma_s + \lambda_t + \delta_{jt} + \varepsilon_{sjt} \quad \text{(A1)}$$

where $Mafiafamilies_{sjt}$ is the number of *Camorra* families active in street s, OMI zone j, year t. C_{sjt} is a dummy taking value 1 from the year confiscations take place in street s, R_{sjt} is a dummy switching on from the year of the first re-allocation episode takes place in street s. All streets having experienced policy events prior to 2013 are excluded from sample. The specification controls for time-invariant street-specific factors (σ_s), time shocks (λ_t), and OMI–year fixed effects (δ_{jt}). The model takes the form of a TWFES with variation in treatment timing. Period: 2013–18. Results are presented in Table A1.

Table A1. Street-level analysis on mafia activity.

Dep. variable: Nr of mafia families	Buffer:		
	50 m (1)	100 m (2)	200 m (3)
Confiscations	−0.000893	0.0376	−0.0659
	(0.0942)	(0.0493)	(0.0434)
Re-allocations	−0.164	−0.124**	−0.241***
	(0.108)	(0.0606)	(0.0514)
Streets FE	Yes	Yes	Yes
OMI–year FE	Yes	Yes	Yes
Observations	71,808	71,808	71,808
R^2	0.946	0.946	0.946

$^{***}P < .01$, $^{**}P < .05$, $^{*}P < .1$.
Clustered standard errors at street level in parenthesis. Dep. variable: number of mafia families in each street of Naples. Confiscations: dummy variable = 1 from the first confiscation episode in a street until the end of the period (all buildings confiscated after 2013 have not been re-allocated before 2018). Re-allocations: dummy variable = 1 from the first re-allocation episode in a street until the end of the period. Column (1): 50 m buffer around each street; (2): 100 m buffer; (3): 200 m buffer.

Event study—street-level analysis

We investigate the causal relationship between re-allocations and number of mafia families with event studies. We create q leads ($R_{r,s,t-2}, R_{r,s,t-3}, \ldots, R_{r,s,t-q}$) and lags ($R_{r,s,t+1}, R_{r,s,t+2}, \ldots, R_{r,s,t+q}$) dummy variables and include them in the model to check for anticipatory effects, using the first year before re-allocation as reference category, controlling for confiscations C_{st}. We estimate with TWFE and Sun and Abraham (2021) estimators:

$$Mafia\ families_{st} = \sum_{\tau=2}^{q} \varphi_{-\tau} R_{s,t-\tau} + \sum_{\tau=1}^{q} \varphi_{+\tau} R_{s,t+\tau} + \beta C_{st} + \sigma_s + \lambda_t + \delta_{zt} + u_{st} \quad \text{(A2)}$$

The figure A7 shows the event study using number of *Camorra* families in Naples' streets as dependent variable. Continuous lines refer to 95 per cent CIs.

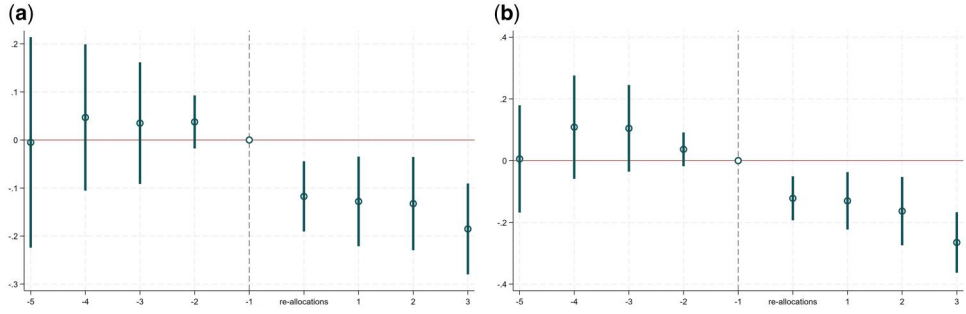

Figure A7. Event Study—re-allocation and mafia families (100 m buffer). (a) TWFE and (b) Sun and Abraham (2021).