Happy Lazaruses: when social housing can destroy lives

Thesis presented by

Andrea Bocchino

Supervisors

Fabio Mariani (IRES/LIDAM, UCLouvain)

Paolo Pinotti (Baffi-Carefin Centre, Bocconi University)

Reader

Jean-Francois Maystadt (FNRS, LIDAM/IRES,UCLouvain, University of Lancaster)

Academic year 2020/2021

In order to obtain the Joint Degree

Master 120 en Sciences économiques, Orientation générale, Finalité approfondie (UCLouvain/UNamur) and

Laurea specialistica in Discipline Economiche e Sociali (Bocconi)

Ecole d'économie de Louvain/UCL • Place Montesquieu 3 • 1348 Louvain-la-Neuve

Département des Sciences économiques/UNamur • Rempart de la Vierge 8 • 5000 Namur

Università Commerciale Luigi Bocconi• Via Roberto Sarfatti, 25 • 20136 Milano - Italy

1 Acknowledgments

This project is only the end of a path started two years ago. The support I received from all the persons I met enable me to reach this point. At this stage, I would like to thank all of you, but particularly my supervisors. Professor Fabio Mariani, thank you for your thoughtful and detailed feedback. Professor Paolo Pinotti, through your explanations I was able to deeply understand new procedures and methods, which have been crucial to improve my thesis. In addition, I would like to thank also my reader, Professor Jean-Francois Maystadt for accepting to support me. I have appreciated working with you, thank you.

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2 Introduction

Social housing interventions are generally costly, affect many families and are long lasting. Through public housing, the community is willing to bear the cost to offer better living conditions to those that otherwise could not afford them, but which is the best way to intervene? Since social housing complexes last decades impacting generations, it is necessary that all the elements that can benefit users are present. This means avoiding ghettoisation which would yield criminal take-over in these areas. In the past, there have been many examples of this phenomenon that have captured the media attention: Parisian banlieues in France, Scampia and Secondigliano in Italy, South Side of Chicago in the United States of America, etc...

This document tries to analyse whether social housing fosters criminal presence in the area of intervention and what are the critical elements that make these projects fail, if they do. To assess the causal link, a difference in difference approach will be applied to the natural experiment consisting in the residential reconstruction in the aftermath of the 1980 Iripinia earthquake, which devastated a substantially large area of Southern Italy. Indeed, with the law 219 of 1981 the Italian government gave special powers to the mayor of Naples and the President of Region Campania to enforce an enormous recovery plan that would not only rebuild what was destroyed in the unfortunate event, but relaunch the area. Among this plan, an important component was public housing located in 17 different municipalities in the province of Naples.

Our work will provide evidence that treated municipalities experienced an increase in criminal presence. Furthermore, expanding the economic literature of crime analysis, we will prove that social housing projects impact also bordering municipalities. We show that the magnitude of influence goes beyond the borders of the treated municipalities, hence increasing the relevance of such policy. Furthemore, we demonstrate that building new neighborhoods closer among them creating ghettoes and locating such conurbations far from the social and economic center of the community will increase criminal presence.

3 The earthquake and its Recovery Plan

In the night between the 23^{rd} and the 24^{th} of November 1980, a series of telluric shocks hit the regions of Campania, Apulia and Basilicata causing 2735 casualties, 8850 wounded, 400 000 displaced, 77 000 destroyed and 275 000 damaged buildings (Commissione d'inchiesta bicamerale, 1991; Rossomando, 2016). Immediately after the emergency, the government and countless volunteers invested manpower and equipment to rescue the victims. Then the Government and Parliament planned a massive intervention program for the short and the long period (Commissione d'inchiesta bicamerale, 1991).

The effects of the shocks completely destroyed the housing stock in around 30 municipalities located in the provinces of Avellino, Salerno and Potenza, impacted individual buildings or groups of them in a much wider area and caused harm on an extended space across the regions of Campania, Basilicata and in the hilly zone of the Foggia province, in Apulia (Commissione d'inchiesta bicamerale, 1991) as shown by Figure 1.

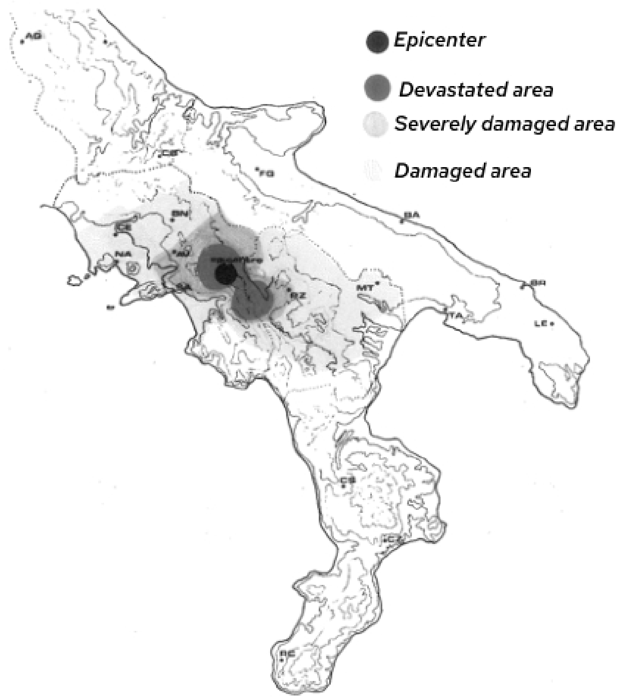

Figure 1: Epicenter and affected areas; Source: Giustino et al. (1980)

Far from the epicenter, the so-called *crater*, in Naples only one building collapsed dragging along 57 people of the 69 deaths registered in the city (130 in the entire province) (Rossomando, 2016). The damages occurred in the Neapolitan province are shown by Figure 2.

After the emergency period, which costed 4 684 billions of liras, the government decided to proceed towards a modern reconstruction of the damaged municipalities and the provisioning of an industrial development program to ensure the inhabitants of the destroyed areas a better future in their own land. This concept converged in the law 219 of the 14th of May 1981, which represented the legal backbone for the Reconstruction Plan, worth around 50 trillions of liras (Corsi and Franco, 1991).

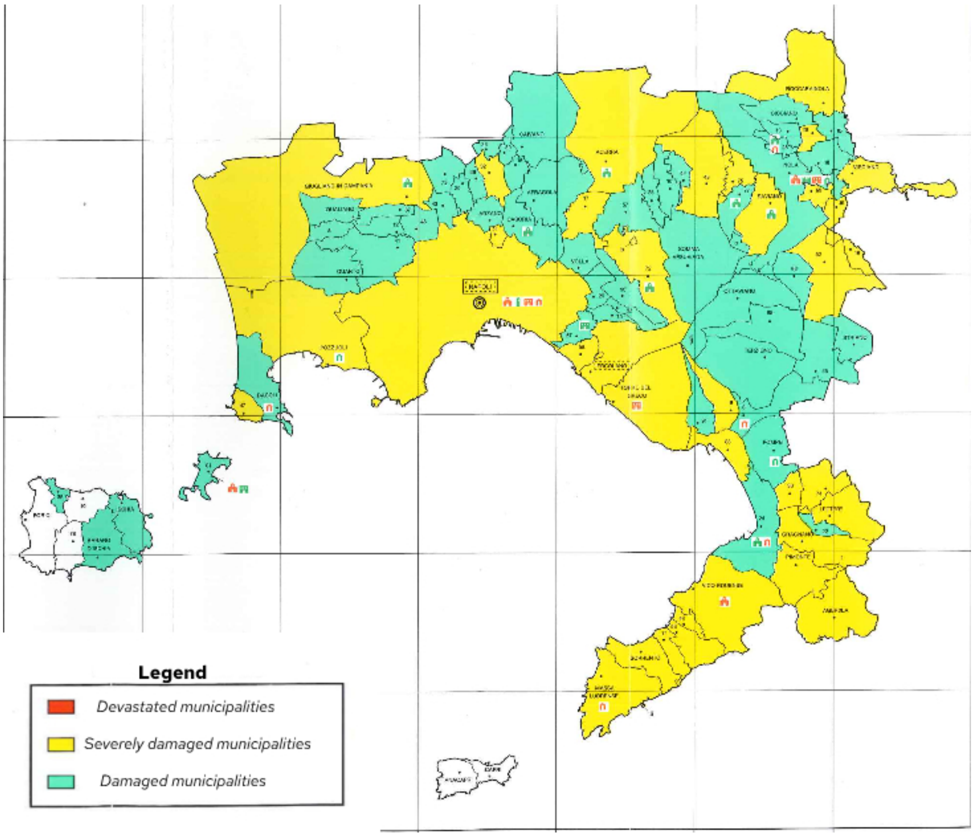

Figure 2: Damages in the Neapolitan province; Source: Proietti (1994)

The law n. 219 introduces four types of interventions (Commissione d'inchiesta bicamerale, 1991):

- Articles 8,9 and 10 regulating the reconstruction and reparation of destroyed/damaged public works

- Articles 21-24 are about the manifacturing sector reconstruction
- Article 32 promoting for SME to move in equipped areas localized in the epicenter
- Title VIII addressing the realization of an extraordinary program for residential housing (PSER), with all the necessary primary and secondary urbanizations, in Naples and its metropolitan area, as shown by Figure 3.

In fact, the recovery plan did not have in mind to rebuild what was there before the disaster, but to compensate socioeconomic inbalances. The 219/81 law summed together atavic development gaps with sudden damages (Gargano, 1985). The architect Benevolo (1991) defined the reconstruction plan as "the most important attempt done in Republican Italy to place an emergency public intervention in a correct urbanistic frame; to tie together restoration, restructoring and new edification". In fact, alongside the reconstrution mainly centered in the crater, a huge Recovery Plan was implemented. For a deeper understanding of the process and the detailed intervention in the crater is suggested referring to Commissione d'inchiesta bicamerale (1991). The province of Naples was defined the area of the "second reconstruction", where took place the "infrastractural turn" (Barbagallo, 1997). In this document, the centre of analysis is the Title VIII of law 219/81 and its PSER.

The intention was to use the opportunity of the reconstruction to mix in rebuilding with rearranging the province of Naples, moving from a monocentric layout to a wider conurbation in order to solve both the urbanistic problems originated with the muddled postwar reconstruction and the need of better housing solutions for a large portion of historic center inhabitants (Corsi, 1985).

Before the earthquake, in the public call of '76-'77, 22 500 families applied for public housing: a small army was then living at the time in caverns, caves, shacks and *bassi* and/or lived in overpopulated houses (around 3 people per room). Hence with the earthquake in one night the city passed from a difficult situation to a concrete housing crisis (Rossomando, 2016). As a solution, the central government issued the abovementioned PSER, which for its dimension and approach was defined as "laboratory experiment" (di Siena, 1985), comprehensive of 20 000 apartments for more than 100 000 rooms that

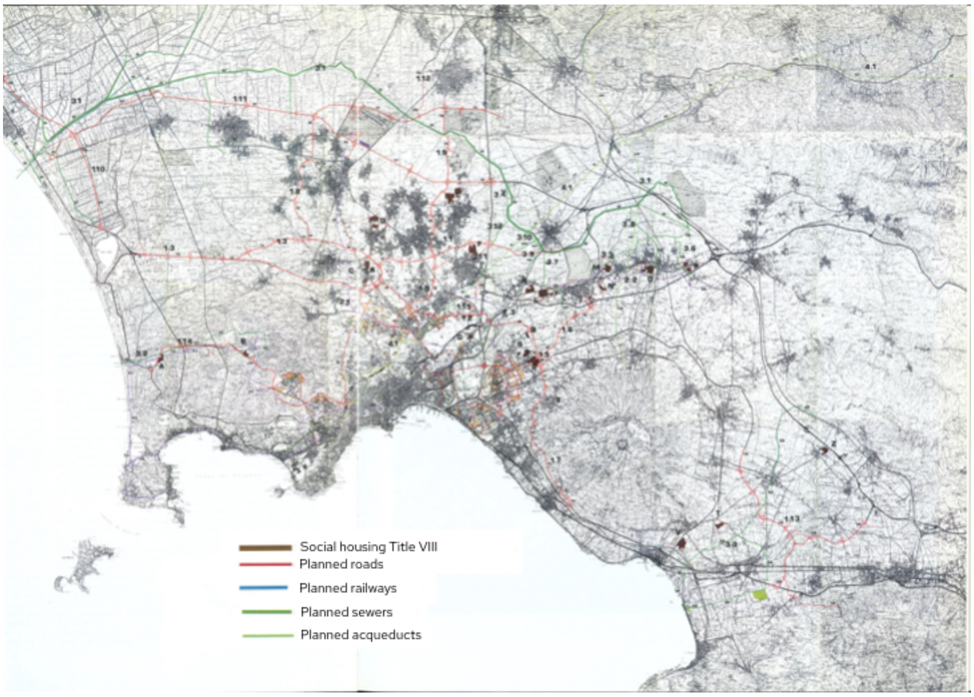

Figure 3: Interventions in the Neapolitan province; Source: Corsi and Franco (1991)

will accomodate around 95 700 people. The mayor of Naples identified enough space in the outskirts of the city for only around 13 000 apartments, hence the remaining 7 000 needed to be built in different municipalities. The mayor of the province capital was responsible for the social housing projects located in the city of Naples, while for the others the President of the Region was mandated (Commissione d'inchiesta bicamerale, 1991).

The criteria to choose the municipalities for the remaining 7 000 apartments were (Linguiti, 1990):

- The possibility to find areas included in Zone Plans, specified in the law 167 on public housing, designed by local administrators
- The evaluation of possible mitigations for commuting between Naples and the hinterland, guiding towards more satisfying settling choices for this purpose, i.e. near industrial sites
- Prioritize municipalities with Zone Plans close to railways and high speed roads to facilitate commuting between the new residence and work and new residence and city of origin

- Attention to the possible demographic imbalances given that the new settlements might cause in the receiving municipalities and on the infrastractural systems especially on service facilities like schools, etc..

- The possibility, at the moment of apartment attribution, to take into account the tenants' working location to increase the possibilities of a correct integration

The search results are 17 municipalities which constitute a band right outside Naples (Rossomando, 2016):

Location	New built apartments	Of which renovated	Percentage of resident population at 1981
Afragola	1185	245	12%
Marigliano	502		12%
Brusciano	430		25,4%
Castello di Cisterna	265		42%
Boscoreale	653		16%
Casalnuovo di Napoli	316		9%
Caivano	750		14,3%
Striano	100		10,2%
Melito di Napoli	750	86	26,3%
Sant'Antimo	356		8,2%
Quarto	300		9,2%
Cercola	482		15,7%
Pozzuoli	135		1,2%
Volla	255		13,7%
San Vitaliano	311		59%
Pomigliano d'Arco	462		7,2%
Casoria	452		4%

Table 1: Destination municipalities; Source: di Siena (1985)

The new areas have been provided with many services, including those needed by the destination municipalities before the natural disaster: schools, fitness centres, parks, churches, post offices, community centres (Commissione d'inchiesta bicamerale, 1991). However, since those areas where part of Zone Plans for social housing, they were realized at the margins of those municipalities, meaning at the periphery of the periphery. In fact, many people moving from the centre of Naples perceived the relocation as a deportation. They shifted from hard living conditions but with central location, to better housing but in an isolated location. In addition to that, this displacement was perceived as a colonization-invasion by the destination municipalities inhabitants, who felt as deprived of their areas dedicated to public housing in favour of people who did not have a good reputation. To mitigate the conflict between the two parties, the Commissioner increased the number of apartments to be realised of 20% in favour of local population (Table 1 includes them already) (Rossomando, 2016). The integration process was very difficult since local institutions were never concerned in creating any inclusion path. Furthermore, to these tensions, distress for many reasons was added, as the general lack of occupation or the fact that even though living in a shack, they still lived in the center, while now they moved to small villages with much less opportunities (Guardascione, 1991).

4 Literature review

4.1 Economics literature

The economic literature on social housing is surprisingly small. Weinhardt (2014) analysed projects' impact on student performance showing that in neighborhoods with a high density of social housing, finding no effects on teenage test scores. This study contributes to a wider experimental literature on neighborhood effects, e.g. Katz et al. (2001), Sanbonmatsu et al. (2006), Kling et al. (2005) and Ludwig et al. (2012) who all find little evidence for neighborhood effects in both short and long-run. Non-experimental literature tends to find evidence of neighborhood effects: Maurin and Goux (2007) detect strong effects in France for junior high-shool performance, while Card and Rothstein (2007) find evidence of city-level racial segregation on black-white test score differentials. On the other hand, Jacob (2004) does not find any influence of public housing on academic results.

The study of the connection between the physical environment and crime is conducted in the general framework defined by Becker (1968), who theorized individual decision to engage in criminal activity as function of costs (the proability of being caught and the connected disutility of punishments) and benefits (income from legal activities, criminal expected gains). Applied to the study of urban design: high income neighborhoods will offer more potential theft targets, while having a vacant building will offer a location in which crimes can be carried unobserved (Spader et al., 2016). An early example of crime analysis linked to neighborhood characteristics is the "eyes on the street" discussion carried out by Jacobs (1961) who shows how it was an important component of neighborhood safety. Another example is the "broken windows" hyothesis which argues that physical disorder signs are indicators that an area lacks of social infrastructure to deter or catch criminals, hence working as a pull factor for more criminal activity (Kelling et al., 1982). Spader et al. (2016) tested these theories studying the effects of demolition of foreclosed and vacant properties on surrounding neighborhoods performed in Cleveland, Chicago and Denver as part of the federal Neighborhood Stabilization Program (NSP). The results suggest that demolition activity brought down burglary and theft rates.

In mid-90s, Chicago was the city in USA that had the third largest public housing stock. Only New York and Puerto Rico exceeded this measure, but Chicago had the the most troubled projects of the country due to the presence of organized crime and periods of mismanagement by the housing authority. Sandler (2017) examines criminal activity before and after public housing projects demolition in the city between 1995 and 2010 using block-level data. Through a difference-in-differences approach the author finds that crime decreases by 8.8% after the demolition. The contraction is mainly in violent crime. Furthermore, neighborhoods with more demolitions and in particular of those projects that were poorly maintained display the largest crime decrease. The author develops the work by Aliprantis and Hartley (2015) who find a decline in crime after the public house demolition in Chicago.

A comparable construction plan realized in Italy is the INA-Casa plan (1949-1963), commonly known as "Piano Fanfani", named after the Christian Democrat politician who promoted it. This construction plan aimed at building decent housing for working class in the aftermath of the World War II, giving shelter to 350.000 families, 40% of which lived in basementes, caverns, shacks and understairs. De Blasio et al. (2021) show that the new housing can give to a municipality a competitive advantage attracting additional workforce. This means that it can be convenient to implement labour-intensive productions, such as manufacturing. The authors demonstrate that municipalities where social housing projects were built underwent manifacturing industry growth compared to similar ones in 1951, which did not receive the treatment.

Our framework of analysis, consisting in the 1980 earthquake, is peculiar. Cipollone and Rosolia (2007) used it to estimate the peers effect in individual schooling choices. Indeed after the earthquake few specific cohorts of males living in the crater were exempted from compulsory military service and this is showned to have increased the high-school graduation rates by more than 2 percentage points. For each percentage point increase in graduation rates among males, female's rates increased by between 0.7 to 0.8 percentage points.

Marcolongo (2020) instead used the quasi-random assignment of municipalities to emergency relief in the aftermath of 2009 L'Aquila earthquake to analyse the infiltration of organised crime in public procurement showing that criminal firms increase their participation in public procurement auctions in emergency-designated municipalities.

4.2 Criminology literature

The concepts of "eyes on the street" and "broken windows" cited so far are borrowed from criminology since on these subject economics and criminology's literature overlap substantially, but the latter is far richer. There is an entire branch dedicated to Environmental Criminogy and in particular to Crime Prevention through Environmental Design (CPTED). CPTED asserts that "the proper design and effective use of the built evironment can lead to a reduction in the fear and incidence of crime, and an improvement in the quality of life" (Crowe, 2000). First generation CPTED took into account only physical design, while the second generation uses risk assessments, socio-economic and demographic profiling (Saville, 1996; Plaster Carter, 2002). Taking into account only the components of physical environment, Moffait (1983) proposed six characteristics to analyse first-generation CPTED:

- Territoriality: a design concept oriented at reinforcing a "sense of owernship" in the users of public spaces, hence reducing offending opportunities

- Surveillance: planning characteristic that promotes informal and natural surveillance opportunities for residents and it is a part of capable guardianship (Painter and Tilley, 1999). Surveillance can be informal/natural when we analyze the behavior of bystanders, formal/organized if provided by shop keepers or security guards or mechanical in the case of CCTV

- Access Control: is a CPTED notion focused on guarding the access to the area and creating a heightened perception of risk in offender to reduce crime opportunities. Access control can be informal/natural with spatial definition, formal/organized with security personel and mechanical, with locks and bolts

- Target Hardening: it increases the offenders' effort in the commission of a crime

- Image/maintenance: in order to ensure the correct functioning of the physical environment is effective to transmit positive signals to the users through the promotion of positive image and routine maintenance

- Activity Support: is the feature that through design itself and signage encourages intended patterns of public space usage.

For a more comprehensive review see Cozens et al. (2005).

CPTED has shown to be effective in reducing crime and fear of it, but the functioning of its mechanisms are still unknown and so is the location of where it works best and how to evaluate its effectiveness (Cozens et al., 2005). However, CPTED has been deemed to have a simplistic, formulaic approach, while Evironmental Criminology can offer more holistically constructed theories of which the following three theoretical assumptions are key: permeable street configurations, mixed-use developments and high densities (Cozens, 2011).

On street permeability there are two approaches: the "encounter" model and the "enclosure" model (Dovey, 1998). The former one asserts that permeable streets encourage walking, social interaction and increase "eyes on the street", hence making them safer (Jacobs, 1961). This means that the presence of strangers is positively seen since they can help informally policing the area, while at the same time inhabitants police the strangers. This approach is widely adopted in recent international planning policy as in the case of New Urbanism (Cozens, 2011). Instead, the advocates of the "enclosure model" argue that controlling accesses hence avoiding strangers' access would give residents a higher possibility of recognising outsiders and criminal behavior hence reducing illicit behavior.

There is general consensus on the fact that mixed land uses is better than purely residential areas since residents have services and facilities close to them (Jacobs, 1961; Grant, 2002; Burton et al., 2006). This is because mixed-use developments are thought to provide more opportunities for activity hence more "eyes on the street" for longer time (Jacobs, 1961). On the other hand, Dempsey (2008) observes that in the literature there is no agreement on how to set the mix between the two design types.

Theoretically, high residential density has as advantages the possibility to reach key services within walking distance, strong local identity and more "eyes on the street" (Jacobs, 1961). However, there is no consensus on whether high density are consistently positive: residents might not prefer it (Churchman, 1999), open spaces may not be easily accessible (Burton, 2000) and also low-density areas can be of high quality (Nicholson-Lord, 2003).

For a more extensive analysis of Environmental Criminology see Cozens (2011).

5 Data

The aim of our research is to analyze the effect of social housing projects on criminal outcome using the Reconstruction Plan implemented in the aftermath of 1980 Irpinia earthquake in Italy. The PSER comprehended the construction of 17 new neighborhoods in as many municipalities located in the province of Naples.

The sample includes 90 municipalities of the province of Naples over the years 1983-2019. The city of Naples has been dropped from the dataset since it is not comparable with the other municipalities given its size, criminal and socioeconomic characteristics. In 1988, the locality of Cercola called Massa di Somma became an indipendent municipality (Bellini et al., 2001). The two units have been reaggregated to make them comparable with the other sample elements throughout the timespan. No other significant change occured in the province of analysis[1]. The treated group is composed of the 17 municipalities

[1]The municipalities of Cimitile and Camposano have experienced negligible variations in 1982 with

in which the social housing projects were located, while the remaining 73 represent the control group. Figure 4 shows the discussed municipalities and their location.

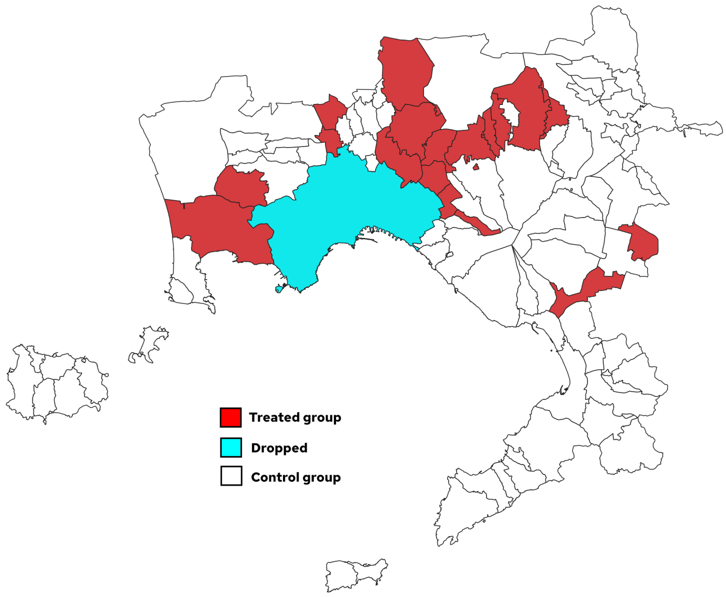

Figure 4: Area of analysis

The proxy for criminal presence used in this document is overdose death. Indeed, in general criminal statistics suffer from measurement error due to underreporting and for this reason it is necessary to choose variables that are less influenced by this issue (Pinotti, 2020). Overdose deaths have been chosen since, as for homicides, are not influenced by this type of measurement issue and are widely used in literature. Data are provided by the Central Direction for Antidrug Services of the Italian Ministry of Interior at the municipality level per 100,000 population.

Overdose deaths are extreamely volatile at municipal level since they are a rare event and this analysis considers small areas. In fact, given the latter reason, if an overdose death is observed in a municipality of 5000 inhabitants, it would become 20 per 100,000 population, which is more than double the 2018 value for Sweden, the EU country with the largest amount of overdose deaths (EMCDDA, 2020). This example shows clearly how

a small portion of the territory and 75 inhabitants passing from Cimitile to Camposano and 81 from Camposano to Cimitile (Bellini et al., 2001).

a fortuitous overdose death in a small municipality over the 37 years would signal a strong presence of criminality in the territory for that year when truly is a random event. Hence, to reduce this noise in the dataset, if a municipality had only one obervation throughout the entire period of analysis which is over 15 deaths per 100,000 population, then that observation is set to zero. Only four municipalities have these characteristics and three of them would have had over 30 overdose deaths per 100,000 inhabitants. Analyzing the population size of the four removed municipalities is likely that in the year of interest they experienced only one overdose death.

To further stabilize the observed variance we resort to a widely used approach: log-transformation. Indeed, logarithmic transformations are often adopted to obtain a more homogeneous variance of a series or to make its distribution closer to a normal especially in cases of skewed data (Lütkepohl and Xu, 2012), as it is in this case where the vast majority of observations are null or very small.

Distance from Naples has been used to account for the isolation of each municipality. Indeed, the province capital is the istitutional, socio-economic centre and being far from it means being at the margins of society[2]. The distance from Naples has been calculated as the average time, at three different moments of the day, needed to reach, by car, Naples from the municipality.

Population density has been retreived dividing the reconstructed population time series by the municipality area obtained from the General Censuses of the Italian Population carried out by Istat. Any other data at municipal level was available from the latter source where each municipality was at the 1971 borders.

As a proxy for the education level, we consider the ratio of population aged 6 and over with a high school diploma or university degree over the total population with the same age. To capture school dropouts we use the ratio of resident population aged between 15 and 24 with middle school diploma that does not attend regularly any course of study and/or professional training over resident population of the same age has been used.

[2]In development economics is very common to use the distance from the capital as a proxy for institutions' relevance as done by Michalopoulos and Papaioannou (2014). A similar reasoning can be used also in this setting.

Unemployment rate is computed as the ratio between resident population aged 15 and older searching for a job over total population with the same age.

Table 2 and Table 3 present descriptive statistics for the variables of analysis for respectively the pre-treatment and post-treatment period. In both periods the panel is balanced.

Variable	Obs	Mean	Std. Dev.	Min	Max
Ln(overdose x 100 000 inhabitants)	720	-12.62506	4.067101	-13.81551	2.936144
Education	720	10.54071	4.40632	2.272057	22.84359
Unemployment	720	30.60023	5.178687	18.68888	46.26978
Population density	720	2547.063	2880.694	250.6406	17515.93
Distance from Naples	720	43.24815	26.35576	19.33333	130
Bordering treated municipalities	720	.9666667	1.502525	0	9
School dropout	720	42.69441	8.920963	21.16754	64.51613

Table 2: Pre-treatment summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Ln(overdose x 100 000 inhabitants)	2,610	-11.64849	5.306049	-13.81551	3.302258
Education	2,610	27.66469	10.25215	3	55.25906
Unemployment	2,610	30.99104	10.35426	5.94958	54.16394
Population density	2,610	2872.608	3065.041	240.8979	29063.49
Distance from Naples	2,610	43.24815	26.3425	19.33333	130
Bordering treated municipalities	2,610	.9666667	1.501768	0	9
School dropout	2,610	28.21581	10.4525	5.355191	57.14286

Table 3: Post-treatment summary statistics

6 Methodology

To estimate the impact of social housing projects' construction, a difference in differences approach is used comparing outcomes in the treated municipalities relative to non-treated municipalities before and after the completion of the projects. The model of the baseline specification is:

$$lnO_{it} = \alpha_i + \beta_1 T_t + \beta_2 T_t S_i + \beta_3 E_{it} + \beta_4 U_{it} + \beta_5 P_{it} + \epsilon_{it} \quad (1)$$

where lnO_{it} is natural lof of the overdose deaths at the municipal level and per 100,000 inhabitants in municipality i and at time t; α_i is the municipal fixed effect; T_t is a dummy variable set to 1 if time t is greater or equal to the cutoff and 0 otherwise; S_i is a dummy variable set to 1 if municipality i is part of the 17 treated municipalities and 0 otherwise; the interaction term $T_t S_i$ between the two dummy variables will be set to 1 if municipality i is part of the treated group and time t after the cutoff or otherwise it will be set to 0; E_{it} is the education level of municipality i at time t; U_{it} is the unemployment level of municipality i at time t; P_{it} is the population density of municipality i at time t; ϵ_{it} is the error term.

For the interpretation of the difference-in-differences model results, it is of great importance to look at the sign and significance of the interaction term TS, which is expected to be positive and statistically significant.

The focus of the analysis is not only the coefficient sign, but the timing of the effect. In fact, residents started moving in the projects since 1985 (Rossomando, 2016) but it is reasonable to think that the impact on criminal presence is not immediate. Indeed, it might take time for criminals to build a network and start impacting on the territory. Hence, the regression in (1) will be repeated every year since 1985 so as to identify a discontinuity and have an estimate of how many years takes criminality to radicate in the territory.

Furthermore, it is possible that the effect of social housing in a treated municipality increases if the municipality borders with another treated unit. This concentration effect can be estimated using the following specification:

$$lnO_{it} = \alpha_i + \beta_1 T_t + \beta_2 T_t S_i B_i + \beta_3 E_{it} + \beta_4 U_{it} + \beta_5 P_{it} + \epsilon_{it} \quad (2)$$

where B_i is the discrete variable representing how many treated municipality borders municipality i. The interaction coefficient illustrates the percentage increase in overdose deaths between control and treated group at the cutoff for every bordering treated municipality. The coefficient is expected to be positive as the presence of more bordering treated municipalities could imply that criminality would have less resistence infiltrating social fabric of the community and a ghetto effect would be in place given the concentration of the projects.

To estimate the impact of isolation we estimate the following equation:

$$lnO_{it} = \alpha_i + \beta_1 T_t + \beta_2 T_t S_i I_i + \beta_3 E_{it} + \beta_4 U_{it} + \beta_5 P_{it} + \epsilon_{it} \quad (3)$$

where I_i is the continous variable measuring the time it takes to move from municipality i to the province capital. The coefficient is expected to be positive for the reasons explained in the previous section.

There might also be an interaction between isolation and segregation of the projects, which is taken into account in the specification:

$$lnO_{it} = \alpha_i + \beta_1 T_t + \beta_2 T_t S_i I_i B_i + \beta_3 E_{it} + \beta_4 U_{it} + \beta_5 P_{it} + \epsilon_{it} \quad (4)$$

where the variables are the same as in the models above. The interaction term includes the proxy for isolation I_i and the discrete variable counting the bordering municipality in the treated group B_i. The β_2 coefficient thus measures the percentage increase in overdose deaths in treated municipalities as the distance from Naples and as the number of bordering treated municipalities varies compared to control municipalities. It is expected to be positive, which would mean that as distance from the capital increases and the more concentrated are the projects the higher would be the treatment impact on the outcome variable.

Social housing projects might not have an impact solely on criminal output, but can also influence education, as shown by Weinhardt (2014). In turn, schooling can be a channel through which the treatment could manifest itself as school dropout is widely known to be linked to early criminal affilition.

Social housing projects are built to offer better living conditions for the inhabitants. The same effect has higher education level, hence if social housing is negatively influencing school attendance and the latter is causally linked with a higher level of criminality

(Dragone et al., 2012; Backman, 2017; Thornberry et al., 2006), then it is failing its mission.

Hence there is the necessity to investigate the treatment effect on school dropout, as done by the following regression:

$$SD_{it} = \alpha_i + \beta_1 T_t + \beta_2 T_t S_i + \beta_3 U_{it} + \beta_4 P_{it} + \epsilon_{it} \tag{5}$$

where SD_{it} is the proxy for school dropout rate in municipality i at time t. The interaction coefficient will represent the percentage increase in school dropout rate between control and treated group at the cutoff.

7 Results

7.1 Baseline model

The aim is to estimate the impact of social housing projects built in 17 municipalities located in the province of Naples using the difference in differences approach. As discussed in the previous section, we aim at estimating the sign and the size of the treatment effect, as well as the timing. Table 4 shows the results for regression (1) where the cutoff is set at every year from 1985 to 1994. As can be seen, the only cutoff at which the interaction term is statistically significant is the one in 1991. This means that it took six years from the relocation start for criminality to have an impact on the treated group.

The document will now focus on this cutoff.

A necessary condition for implementing the difference in differences approach is the satisfaction of the parallel trend assumption. Indeed, before the cutoff control and treatment group shall be parallel. In Figure 5 is possible to see a graph where the y-axis is represented by the mean natural logarithm of overdose deaths in the referred group and on the x-axis consists in the years of analysis. Treated and control group move similarly before the cutoff, hence satisfying the abovementioned assumption. Since the outcome variability is large, as discussed in the previous sections, a better picture can be obtained if smoothing is performed. Figure 6 shows better the parallel trend before the cutoff. In the latter figure an increase can be visible already from 1989, but comparing it with the

	1985	1986	1987	1988	1989	1990	1991	1992	1993
Education	0.0144	0.00573	-0.00674	-0.0229	-0.0338**	-0.0622***	-0.116***	-0.0425**	-0.0401**
	(0.0113)	(0.0120)	(0.0130)	(0.0142)	(0.0161)	(0.0193)	(0.0265)	(0.0206)	(0.0181)
Unemployment	0.0774***	0.0698***	0.0588***	0.0445***	0.0349*	0.00938	-0.0383	0.0353*	0.0445***
	(0.0147)	(0.0151)	(0.0157)	(0.0165)	(0.0179)	(0.0202)	(0.0258)	(0.0197)	(0.0181)
Population	0.0000214	0.0000220	0.0000230	0.0000246	0.0000272	0.0000297	0.0000395	0.0000345	0.0000278
density	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Time dummy	1.061**	1.180***	1.388***	1.623***	1.635***	2.009***	2.804***	1.474***	1.426***
	(0.4220)	(0.3674)	(0.3434)	(0.3378)	(0.3500)	(0.3882)	(0.4976)	(0.3776)	(0.3286)
Interaction	0.827	0.553	0.462	0.457	0.450	0.667	0.843*	0.153	0.3152
	(0.9036)	(0.7500)	(0.6603)	(0.6007)	(0.5590)	(0.5276)	(0.5050)	(0.4838)	(0.4666)
Constant	-15.81***	-15.40***	-14.90***	-14.23***	-13.64***	-12.47***	-10.33***	-13.17***	-13.44***
	(0.6455)	(0.6334)	(0.6435)	(.6711)	(0.7235)	(0.8212)	(1.060)	(0.8500)	(0.7644)
R^2 within	0.0167	0.0179	0.0199	0.0220	0.0213	0.0231	0.0243	0.0184	0.0201
R^2 between	0.185	0.179	0.155	0.120	0.0972	0.0499	0.00590	0.0769	0.0864
R^2 overall	0.0468	0.0450	0.0422	0.0387	0.0347	0.0282	0.0159	0.0292	0.0325
N	3 330	3 330	3 330	3 330	3 330	3 330	3 330	3 330	3 330

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; standard deviation in parentheses

Table 4: Impact timing estimation

pattern showed in Figure 5, this undesired movement can be attributed to the smoothing with the later years.

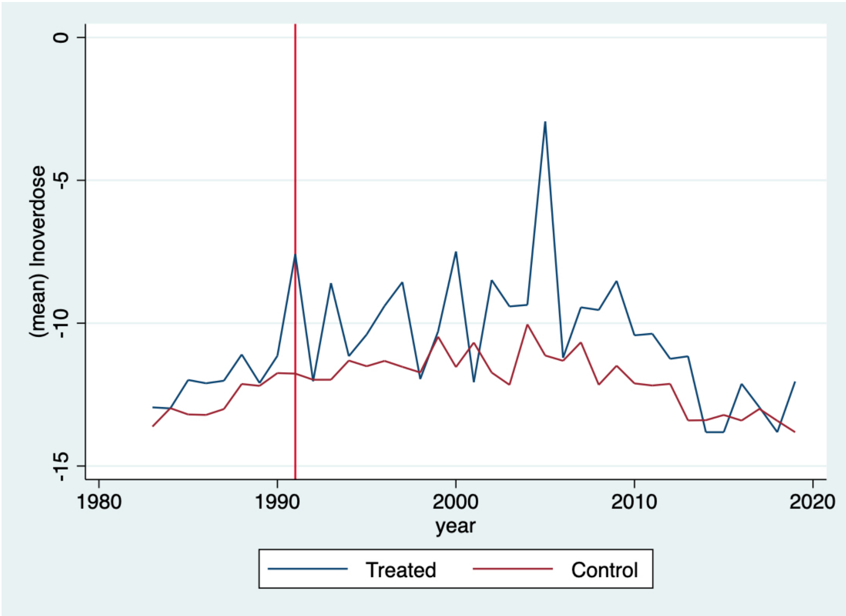

Figure 5: Cutoff 1991

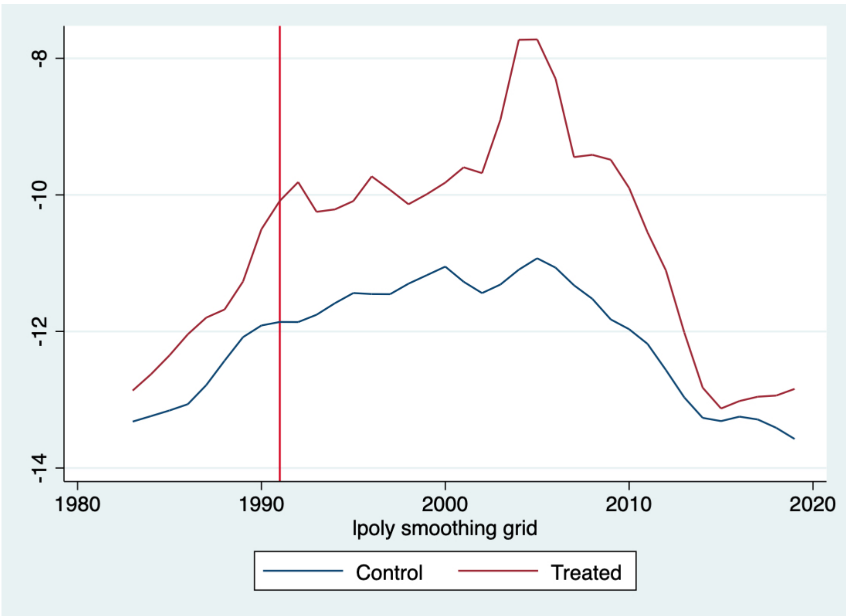

Figure 6: Cutoff 1991 with smoothing

Table 5 shows in detail the results obtained when the cutoff is set at 1991. The education coefficient is negative and statistically significant at 1%. As widely affirmed in the literature a higher level of education would have a negative impact on the dependent variable.

Variable	Coefficients	Std. Err.	T-stat	Conf. Int.	P-value
Education	-0.1159***	0.0265	-4.3716	[-0.1679,-0.0639]	0.0000
Unemployment	-0.0383	0.0258	-1.4863	[-0.0888, 0.0122]	0.1373
Population density	0.00004	0.0001	0.6160	[-0.0001,0.0002]	0.5380
Time dummy	2.8040***	0.4976	5.6354	[1.8284,3.7795]	0.0000
Interaction	0.8427*	0.5050	1.6686	[-0.1475,1.8329]	0.0953
Constant	-10.3324***	1.0602	-9.7450	[-12.4113,-8.2535]	0.0000
R^2 within	0.0243				
R^2 between	0.0059				
R^2 overall	0.0159				
F	16.14				
N	3 330				

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Detailed results at 1991 cutoff

The unemployment coefficient is statistically not significant contrary to what expected. Indeed, in the Beckerian framework low socioeconomic status is linked to lower losses in case of detention and higher relative gains in case of illicit earnings. Hence, unemployment was expected to be positively linked with criminal presence. The interplay between this variable and education can explain the result and it will be analyzed further in the document. The population density coefficient is positive, very close to zero but statistically not significant. Instead, the time dummy variable taking the value of 1 for the observations of the year 1991 and later is positive and statistically significant at 1% and the interaction term, our coefficient of interest, is positive indicating that criminal presence in the treated units after the cutoff has increased more than in the control. The coefficient, statistically significant at 10%, can be interpreted, being a log-linear regression, as that the construction of social housing projects has increased criminality by 84,27% in the treated group.

The presence of education and unemployment in the same regression is very common in any analysis of crime as these two variables are both key determinants of criminal behaviour. However, they are strongly correlated and in our regression only one is statistically significant. It may be interesting to see what happens if one of the two variables is removed from the estimated equation.

Table 6 displays the results of the baseline regression with no education covariate. The time dummy and constant coefficient remain of the same sign and statistical significance, while the unemployment coefficient now is positive and statistically significant at 1% but the interaction term is not significant. Table 7 shows the regression output if unemployment is removed. The coefficients for education, time dummy, population density and constant have the same sign and statistical significance as in the standard case, while the interaction term is not significant.

Variable	Coefficients	Std. Err.	T-stat	Conf. Int.	P-value
Unemployment	0.0634***	0.0111	5.6959	[0.0416,0.0852]	0.0000
Population density	0.0000	0.0001	0.1348	[-0.0001,0.0001]	0.8928
Time dummy	0.8405***	0.2147	3.9146	[0.4195,1.2615]	0.0001
Interaction term	0.5745	0.5027	1.1430	[-0.4111,1.5601]	0.2531
Constant	-14.5860***	0.4224	-34.5315	[-15.4142,-13.7578]	0.0000
R^2 within	0.0186				
R^2 between	0.1552				
R^2 overall	0.0411				
F	15.31				
N	3 330				

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Detailed results at 1991 cutoff with no education

Variable	Coefficients	Std. Err.	T-stat	Conf. Int.	P-value
Education	-0.0803***	0.0114	-7.0362	[-0.1027,-0.0579]	0.0000
Population density	0.0001	0.0001	0.5080	[-0.0001,0.0002]	0.6115
Time dummy	2.2048***	0.2917	7.5586	[1.6329,2.7767]	0.0000
Interaction term	0.7238	0.4987	1.4513	[-0.2541,1.7017]	0.1468
Constant	-11.8612***	0.2572	-46.1091	[-12.3656,-11.3568]	0.0000
R^2 within	0.0237				
R^2 between	0.0333				
R^2 overall	0.0247				
F	19.62				
N	3 330				

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Detailed results at 1991 cutoff with no unemployment rate

The fact that the unemployment coefficient is statistically significant when education is removed shows for a correlation between the two variables in crime estimation. As schooling may impact crime through labor market opportunities (Buonanno et al., 2009), but education also has a “civilization” effect (Fajnzylber et al., 2002) and represents the most important predictor for political and social engagement (Helliwell and Putnam, 1999). both are clearly necessary in the analysis of crime.

It may be reasonable to think that the treatment effect is driven by a composition effect. In fact, in some treated municipalities the share of new inhabitants was considerably high and being low socioeconomic condition linked to criminal affiliation, areas where a higher percentage of population has been added should register a larger impact. To analyze this, an equation like (1) has been used substituting the treatment dummy with the share of the population at 1981 transfered in the treated municipality as indicated by Table 1.

Table 8 shows the results. The education coefficient is negative and statistically significant at 1%, while the ones for unemployment rate and population density are not statistically significant. As in the standard case the coefficient for the time dummy is large and the one for constant term is negative, both are significant at 1%.

Variable	Coefficients	Std. Err.	T-stat	Conf. Int.	P-value
Education	-0.1130***	0.0267	-4.2344	[-0.1653,-0.0607]	0.000
Unemploymen	-0.0343	0.0259	-1.3227	[-0.0852,0.0166]	0.1861
Population density	0.0001	0.0001	0.8112	[-0.0001,0.0001]	0.4173
Time dummy	2.8681***	0.4965	5.7761	[1.8945,3.8416]	0.0000
Interaction term	0.0124	0.0220	0.5646	[-0.0307,0.0555]	0.5724
Constant	-10.5166***	1.0661	-9.8641	[-12.6069,-8.4262]	0.0000
R^2 within	0.0235955				
R^2 between	0.0004399				
R^2 overall	0.0126139				
F	16.14				
N	3 330				

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Detailed results at 1991 cutoff with intensity

Differently, the coefficient of interest is not statistically significant. This means that the composition effect is not the one driving the treatment effect. It is reasonale to think that many different characteristics may have played a role: distance from the municipality centre, actual presence of schools and other services, reaction from the locals, integration, etc..

The extent of social housing projects impact on criminal outcome might depend on different location characteristics. Table 9 summarizes the results obtained carrying out regressions (2) (3) and (4) plus the regression with the interaction term $T_tI_iB_i$ to check the time effect of the interaction and finally a regression with the three triple interactions and the quadruple one.

In the first one, the education coefficient is negative and statistically significant at 1%. This result is consistent with what discussed in the previous section about the link between education and crime. The coefficients of unemployment and population density are not statistically significant as in the baseline regression. The coefficient of the time dummy is positive and statistically significant at 1% as in the previos regressions. The coefficient of interest is the interaction term and it is positive and statistically significant at 10%. This means that if a treated municipality borders with another treated unit, then crime presence increases. This effect can be called "ghetto effect" as it is clear how clustering the intervention in a small area can create a rundown section of an urban area.

The second equation of interest, instead, captures the impact of the distance from Naples on the excess crime presence in the treated treated group. All the control variables are similar to the previous case, but the interaction variable coefficient is not statistically significant.

On the other hand, it might be that distance plays a role when analysing the ghetto effect. Indeed, in the third column of Table 9 is possible to see how the interaction term is positive and statistically significant, meaning that given a concentrated intervention, the increase in crime compared to the control group will increse with the distance from the socio-economic centre of the area. Hence, a ghetto is more dangerous as its isolation increases.

The second-to-last column tries to find whether the treatment effect is mainly driven by the cutoff year. However, the $T_t I_i B_i$ coefficient is not statisticaly significant, hence it is not the year effect to yield the significance but the combination of the treatment and year dummy.

Finally, the last column shows the results of the regression with all the interactions analyzed singularly before. The outcome shows that when inserted simultaneously none of them is statistically significant and coefficient for $T_t I_i B_i$ is omitted because multicollinear. This means that when analysing the possible interactions it is necessary to consider them one at the time.

Variable	(2)	(3)	(4)	Time interaction	Complete
Education	-0.1169***	-0.1162***	-0.1158***	-0.1111***	-0.1135***
	(0.0265)	(0.0273)	(0.02645)	(0.0264)	(0.0273)
Unemployment	-0.0393	-0.0385	-0.0378	-0.0322	-0.0353
	(0.0256)	(0.0269)	(0.0257)	(0.0255)	(0.0268)
Population density	0.0001	0.00005	0.00004	0.0001	0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Time dummy	2.7367***	2.9956***	2.8027***	2.8221***	2.2934***
	(.50484)	(0.6853)	(0.5032)	(0.5032)	(0.7407)
$T_tS_iB_i$	0.4777*				2.1348
	(0.2617)				(1.4752)
$T_tS_iI_i$		0.0174			0.0174
		(0.0174)			(0.0271)
$T_tS_iI_iB_i$			0.0177*		-0.0854
			(0.0099)		(0.0611)
$T_tI_iB_i$				-0.0017	Omitted
				(0.0034)	
Constant	-10.1933***	-10.4589***	-10.33404***	-10.5548***	-9.9073***
	(1.0687)	(1.0610)	(1.0642)	(1.0572)	(1.0982)
R^2 within	0.0251	0.0239	0.0245	0.0236	0.0273
R^2 between	0.0054	0.0010	0.0064	0.0004	0.0000
R^2 overall	0.0161	0.0131	0.0064	0.0129	0.0133
F	13.90	13.19	13.55	15.62	9.08
N	3 330	3 330	3 330	3 330	3 330

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; standard error in parentheses

Table 9: Projects characteristics estimation

7.2 Spillover effects

The construction of these new neighborhoods might not only impact the municipalities in which they are built, but also the ones surrounding them. Hence, to identify whether there were spillover effects, the analysis is repeated from the beginning dropping from the control group all the municipalities bordering with the treated ones.

In Table 10 are summarized the outcomes of the regressions with moving cutoff as done in the standard case.

Given the new control, it is possible to see how the impact now is significant in 1990 and its magnitude is larger. This means that there were spillover effects in the control municipalities bordering with treated units hence showing how the construction of social housing projects is not only relevant for the receiving areas, but also for the ones close to them. The control variables have the same sign and significance and the same can be said for the p-value associated with the F-test statistic, but the R^2 is slightly increased.

Spillover effects might be relevant also when analysing the interactions. Table 11 summurizes the results obtained carrying our regressions as in (2) (3) and (4) plus the regression with the interaction term $T_t I_i B_i$ to check the time effect of the interaction and finally a regression with the three triple interactions and the quadruple one on the new dataset that does not include the municipality adjacent to the treated ones.

The first column shows the results when capturing the "ghetto effect". As in the previous setting the education coefficient is negative and statistically significant at 1%, the ones for unemployment and population density are not statistically significant, while the time dummy is positive and significant at 1%. The coefficient of interest is also in this case positive but its magnitude, statistic relevance and R^2s are higher. This means that when removing possible spillover effects on bordering control municipalities, the estimation shows a higher negative effect of social housing concentration.

The results in the second column are analysing the interaction between isolation and the treatment. As in the stardard case the coefficient of interest is not statistically significant.

The third one captures the interaction between the isolation and the ghetto effect. Control variables have the same sign and statistic significance as in the base scenario but what is of great importance is the interaction variable and, compared with the previos scenario, its coefficient is larger and significant at 5% instead of 10%.

	1985	1986	1987	1988	1989	1990
Education	0.00877	-0.00131	-0.0110	-0.0247	-0.0292*	-0.0582***
	(0.0126)	(0.0133)	(0.0143)	(0.0156)	(0.0176)	(0.0208)
Unemployment	0.0599***	0.0515***	0.0430**	0.0311*	0.0268	0.00166
	(0.0158)	(0.0163)	(0.0169)	(0.0177)	(0.0190)	(0.0212)
Population density	0.00001	0.0000102	0.00000941	0.00000941	0.00000851	0.00000987
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Time dummy	1.007**	1.236***	1.269***	1.413***	1.245***	1.667***
	(0.4910)	(0.4242)	(0.3933)	(0.3826)	(0.3909)	(0.4235)
Interaction term	1.032	0.674	0.717	0.764	0.827	1.004*
	(0.8840)	(0.7341)	(0.6472)	(0.5896)	(0.5499)	(0.5196)
Constant	-15.37***	-14.96***	-14.47***	-13.88***	-13.47***	-12.35***
	(0.6950)	(0.6785)	(0.6871)	(0.7141)	(0.7663)	(0.8600)
R^2 within	0.0157	0.0177	0.0190	0.0209	0.0188	0.0219
R^2 between	0.191	0.169	0.148	0.119	0.110	0.0639
R^2 overall	0.0526	0.0476	0.0449	0.0412	0.0380	0.0310
F	7.09	8.01	8.62	9.49	8.52	9.96
N	2 294	2 294	2 294	2 294	2 294	2 294

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; standard error in parentheses

Table 10: Impact timing estimation with no bordering municipalities

Variable	(2)	(3)	(4)	Time interaction	Complete
Education	-0.0585***	-0.0555***	-0.0580***	-0.0540 ***	-0.0538***
	(0.0208)	(0.0211)	(0.0208)	(0.0207)	(0.0211)
Unemployment	0.0018	-0.0057	0.0027	0.0084	0.0076
	(0.0211)	(0.0218)	(0.0211)	(0.0209)	(0.0218)
Population density	0.00001	0.00001	0.00001	0.0001	0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Time dummy	1.6899***	1.5554**	1.7274***	1.8525***	1.158179 **
	(0.4207)	(0.6719)	(0.4212)	(0.4169)	(0.6880)
$T_t S_i B_i$	0.6895**				-2.9378
	(0.3084)				(1.5914)
$T_t S_i I_i$		0.0253			0.0253
		(0.0187)			(0.0268)
$T_t S_i I_i B_i$			0.0211**		Omitted
			(0.0104)		
$T_t I_i B_i$				-0.0008	0.1417
				(0.0038)	(0.0583)
Constant	-12.4084***	-12.3716***	-12.42718***	-12.6213 ***	-10.7631***
	(0.8593)	(0.8890)	(0.8573)	(0.8525)	(1.0908)
R^2 within	0.0230	0.0210	0.0221	0.0203	0.0259
R^2 between	0.0758	0.0483	0.0647	0.0134	0.1126
R^2 overall	0.0342	0.0269	0.0312	0.0181	0.0132
F	8.73	7.98	8.37	9.21	6.56
N	2 294	2 294	2 294	2 294	2 294

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; standard error in parentheses

Table 11: Projects characteristics estimation with no bordering municipalities

The second-to-last columns analyses, as in Table 9, the interaction with time dummy and as in the standard case the coefficient is not significant underlininig that the significance of the previous coefficients is not driven by a time effect.

The last column, comprehensive of all the interaction terms, is very similar to the standar case. The education coefficient is always negative and stastistically significant at 1%, the time dummy is similar and so does the statistic significance of all the other coefficients. In this case the omitted coefficient is that of the quadruple interaction rather than that of $T_t I_i B_i$ showing the low robustness of this regression and the necessity to examine one interaction at the time.

In conclusion, from the first three columns it is clear how there are spillover effects on neighboring areas, which have yielded in the previous case to an underestimation of the impact of the implemented policy.

7.3 Impact on education

Social housing projects might influence also school dropouts as shown by Weinhardt (2014). Hence, the difference in differences approach will be applied to estimate whether also in this case the construction of social housing projects has increased school dropout rate. The cutoff of choice is the 1991 as it is the earliest available year after the treatment. In fact, it is necessary to recall that the source of the data is the General Census taking place every ten years.

Table 12 summarizes the results. The unemployment coefficient is positive and statistically significant at 1%, which can be interpreted as a strong correlation between the two phenomenon, as widely affirmed in literature (Alspaugh, 1998). On the other hand, population density has a small but significant impact, meaning that urban areas will have a lower level compared to rural areas. The coefficient of interest, i.e. the interaction term, is large and significant at 1% indicating a considerable impact of social housing on the outcome variable. No discussion over the treatment timing is possible given the data source, but it is reasonable to hyothesize that a mechanism through which the treatment affects acts on criminal presence is school dropout, which is widely recognised to be linked to early affiliation. A brief discussion of the correlation between school dropout and overdose deaths is carried out in the Appendix.

Variable	Coefficients	Std. Err.	T-stat	Conf. Int.	P-value
Unemployment	0.7769***	0.0164	47.4520	0.7448,0.8090	0.0000
Population density	-0.0003***	0.0001	-2.7531	-0.0004,-0.0001	0.0059
Time dummy	-15.1043***	0.3160	-47.8000	-15.7238,-14.4847	0.0000
Interaction term	2.1515***	0.7398	2.9082	0.7010,3.6020	0.0037
Constant	19.5801***	0.6217	31.4962	18.3612,20.7990	0.0000
R^2 within	0.6039				
R^2 between	0.3756				
R^2 overall	0.5452				
F	1233.42				
N	3 330				

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 12: Detailed results at 1991 cutoff

7.4 Caveats

The first critique that might be raised to this analysis is that the detected effects might be due to a composition effect. Indeed, social housing project offer shelter to the lowest end of the income distribution, which are more inclined to drop from an educational path and, in general, to commit crimes. This is might be the case, however this document wants to underline how this instances have to be foreseen by the policy maker, who should set up the intervention in order to reduce the possible negative effects and actually fulfill the aim of social housing: offer better living condition to its inhabitants.

Another critique may be on the data quality. Overdose deaths have proven to be highly volatile and are a measure of only one of the shapes that criminal presence may have. Indeed, analysing violent crimes and property crimes separately and for any type of crime, i.e. homicides, car theft, burglary, etc.., may give a better figure. Unfortunately the Ministry of Interior does not release data for the entire period analysed in this document, hence different data scources are necessary. A possibility is to use local newspaper scraping, a tool widely used in the literature, especially for homicides. In fact, using different proxies for different characterizations of crime presence would also avoid the misleading interpretation of Figure 5 that shows a sharp decrease of overdose deaths in more recent years and can be interpreted as a almost absent criminal presence in the area, while this decrease is attributable to a shift in the type of drug consumption (Dipartimento delle politiche antidroga, 2018).

On top of the high outcome variability, the treated group dimension is smaller than what prescribed for a precise large sample estimation for hypothesis testing, affecting the estimation accuracy. Furthermore, the years in which overdose deaths data are available before the cutoff make it impossible to implement tecniques such as the synthetic control method which require a longer timespan before the cutoff to achieve a good quality estimation. Again, it is clear the necessity for a different outcome variable.

The natural experiment may be used to study the effect of the built infrastructure on the economic performance of the entire province or to analyse the impact of social housing projects on election results or whether the treated municipalities were more exposed to populistic propaganda.

8 Conclusion

The aim of this document was to analyze the impact of social housing projects on criminal presence using as natural experiment the Reconstruction Plan implemented in the aftermath of the 1980 Irpinia earthquake.

The results show a strong positive treatment effect, with a 84,27% increase of overdose deaths compared to the control. In Sandler (2017) crime decreased of 8.8% with public housing demolitions in Chicago, while Spader et al. (2016) estimated a 0.6 property crime incidence report reduction per demolition subsequent to the Neighborhood Stabilization Program (NSP), which provided funding for local policymakers to rehabilitate or demolsh foreclosed and vacant properties, in order to mitigate negative spillovers in Cleveland, Chicago and Denver. This means that compared to the literature, the treatment effect seems much higher. The significant difference can be attributed to the rough estimation due to the small treated group and the characteristics of the outcome variable and to the area in which the policy has been implemented. The Neapolitan province is an area with high historic criminal presence, hence both the treatment effect and the timing might be influenced, hence representing the upper limit in the former case and the lower one in the latter. It is reasonable to think that the criminal infiltration in this delicate environment might have been a slower or smaller process. However, the criminal presence characterization is miscellaneous as only in Caivano and Afragola organized crime directly controls the projects. Instead, in the other municipalities nothing but social distress is present (Rossomando, 2016). The results might seem to differ from what showed by De Blasio et al. (2021) who detected an increase in manifacture industry growth, which means higher employment hence better living conditions for the inhabitants in turn negatively correlated with crime presence. However, the INA-Casa plan took place in much different era compared to the second half of the '80s or the beginning of the '90s. Indeed, in the World War II reconstruction the manifacture sector experienced a prosperous age while the '80s and the '90s represented the beginning of its crisis explaining the apparently contrasting results.

Design characteristics and their influence on crime have been analyzed showing how concentrating projects and the combination of concentration and distance increase criminal presence in the treated municipalities, therefore providing clear policy implication on how to build public housing: spread in the area, integrated in the urban fabric and close to the socioeconomic center.

Social housing projects do not impact only destination municipalities, but also the ones near them. Spillover effect are detected underlying the seriousness of such policy and the necessity for mindful planning. Otherwise, social housing will not only fail its mission of offering better living conditions to those who would not afford it, but actively ruining tenant's lives and of those of the nearby area.

Appendix

Criminal presence and education are known to be linked, as widely described in the literature. In section 7.3 the causal relationship between treatment and school dropout shows how the construction of the social housing projects yielded a descrease in school enrollment, hence identifying a channel through which the treatment might have impacted the outcome of interest.

Table 13 shows the connection between the two variables. The coefficient of interest is positive and statistically significant at 1% indicating that an increase of school dropout rate increases of 2.5% the overdose deaths, which are a proxy for criminal presence. Although the R^2 is low indicating that dropout rate explains only in a small part criminal presence represented in this case by overdose deaths, a strong correlation of the two variables is established.

Variable	Coefficients	Std. Err.	T-stat	Conf. Int.	P-value
School dropout	0.0249336***	.0075	3.3364	[0.0103,0.0396]	0 .0009
Constant	-12.64121***	0.2502	-50.5252	[-13.1318,-12.1507]	0.0000
R^2	0.0033				
F	11.13				
N	3330				

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 13: Regression lnoverdose over school dropout

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