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## Conference Paper

# Can Urban Renewal Policies Reverse Ethnic Tipping Points?

55th Congress of the European Regional Science Association: "World Renaissance: Changing roles for people and places", 25-28 August 2015, Lisbon, Portugal

## Provided in Cooperation with:

European Regional Science Association (ERSA)

*Suggested Citation:* Pampillon, Nicolas Gonzalez; Jofre-Monseny, Jordi; Viladecans-Marsal, Elisabet (2015) : Can Urban Renewal Policies Reverse Ethnic Tipping Points?, 55th Congress of the European Regional Science Association: "World Renaissance: Changing roles for people and places", 25-28 August 2015, Lisbon, Portugal, European Regional Science Association (ERSA), Louvain-la-Neuve

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# Can Urban Renewal Policies Reverse Ethnic Tipping Points?

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March 2, 2015

## Abstract

This paper assess the impact of a place-based policy implemented in Catalonia on the neighborhood composition. Neighborhoods affected by this program could be described as evolving towards full immigrant equilibrium. In this context, we empirically test whether there is scope for reversal after this policy. To test this hypothesis, we use a difference-in-difference evaluation methodology. The novelty of this intervention is that treated areas were selected based on a first round score constructed with socio-economic and urban indicators, and a second round score which depends on objective features of the proposal and the quality of the project. In that sense, our control group consist of areas that were rejected areas in the second round, areas initially rejected in the second round but accepted in future calls, and future applicants. As an alternative and complementary approach, we use control areas outside Catalonia. To find these control units, we exploit the fact that we have the information necessary to replicate the first round score in other areas of the country.

JEL Codes: R23, R30, R58

Keywords: place-based policies, difference-in-difference, immigration, neighborhood segregation.

# 1 Introduction

Cities are nowadays a crucial element in the achievement of economic prosperity and welfare (Glaeser, 2012). But globalization forces are creating huge differences between a handful of successful metropolis and a larger group of lagging cities (Moretti, 2012). At one extreme there are the brain hubs (e.g., San Francisco), with workers who are the most productive, creative, and best paid in the world. At the other extreme there are the former manufacturing capitals (e.g., Detroit), which are losing jobs and residents. These declining cities are poor, unsafe, unhealthy, and environmentally unfriendly. And all cities, vibrant or lagging, have neighborhoods with a high concentration of social problems. In fact, as a result of the current economic crisis the differences between rich and poor neighborhoods may have widened Berube (2014).

These problems are also relevant in the Spanish case, which show huge disparities in unemployment, concentration of immigration, and poverty, both across cities and neighborhoods. For instance, the unemployment rate is 40% in Cádiz and 10% in San Sebastian, two Spanish cities ([www.ine.es](http://www.ine.es)). The percentage of immigrants is 24% in Vic and 5% in Matadepera, two Catalan cities, while the average household income is 3 times larger in Sant Gervasi than in Nou Barris, two districts belonging to the city of Barcelona ([www.bcn.cat](http://www.bcn.cat)). Thus, a better understanding of the causes and possible solutions to these disparities might be especially helpful in Spanish and Catalan contexts. Both local and upper levels of government struggle to design urban development policies to curb these problems. These policies might use a wide variety of instruments, either in isolation or combined (Bartik, 1991): (i) subsidies and tax credits for job creation or business location in designated areas; (ii) unemployment training and business counseling; (iii) investment in urban infrastructure and transportation; (iv) land use regulations channeling some activities (e.g., industrial activity, tourism, retailing) into these areas and out of others; (v) housing, immigration and schooling policies aiming at distributing social problems over a wider area.

Sometimes these policies are designed, funded and implemented by local governments. However, revenue shortages and limited administrative capacity prevents the needy local governments to handle these problems all by themselves. So, upper layer governments often intervene to help distressed places. But can upper layer public policies targeted at specific places (the so-called “place-based policies”) deal with such localized problems successfully? Several authors have expressed skepticism regarding this possibility (see, e.g., Gibbons and Overman (2014), and Kline and Moretti (2014)). According to these authors, place-based policies are an imperfect solution to deal with social problems, for many reasons. First, because these policies create incentives to work, invest and live in less productive of hospitable areas (Busso & Kline, 2014), shifting activity from good to bad places and perpetuating the problems of lagging areas (Jofre-Monseny, 2014). Furthermore, it is not clear that shifting resources from one place to other would deliver aggregate benefits. Unless there is spatial heterogeneity in agglomeration economies, and assuming that policymakers design the intervention considering this fact, this kind of policy would lead to a zero sum game or even worse raising distortions among areas. Second, assuming a low level of housing supply constraints and highly mobile individuals, it might lead to the unintended effect of increasing house prices in the targeted area and then increasing the cost of living in those areas making difficult to improve conditions. In fact, the main beneficiaries of these policies may be the landlords, and it might happen that poor people are actually expelled of the area as a result of an apparently successful policy (Kline & Moretti,

2014).

Other authors have suggested that these policies could have some role if there are agglomeration economies in job or firm creation (Glaeser & Gottlieb, 2008), if there is a multiplier effect in the case of social problems (Cutler & Glaeser, 1997), or if there are any prior inefficiencies in local labor markets which creates frictions in the housing or labor market leading to involuntary unemployment or restricting mobility across locations (the spatial mismatch hypothesis). In absence of inefficiencies or social multiplier, it would be better to target policies to firms or individuals rather than to places. Other two arguments that rationalize the use of place-based policies are knowledge spillovers and network effects. One of the mechanisms behind agglomeration economics is related to the fact that densely populated areas facilitates knowledge generation, diffusion and accumulation of new ideas. The presence of networks defined by location could decrease employment searching costs and then, it could increase the benefit associated with policies targeted to places.

At a more practical level, the design of these aid programs is fraught with many problems. First, it might be that these policies end up being ineffective because they were designed by a centralized bureaucracy lacking information on local needs and on what works better in different situations. Or it might be that the upper layer of government acts in a partisan way in the allocation of funds (Solé-Ollé & Sorribas-Navarro, 2008), not choosing therefore the most effective projects. Second, the participation of several layers of government might make the implementation ineffective. For instance, it might be that the program ends up funding a project that would have been carried out by the local government anyway (Wilson & Leduc, 2013). Or it might be that local governments lack administrative capacity or institutional quality to ensure that the project is carried out efficiently and that the resources are not diverted to other goals. For example, recent work shows that the EU regional funds have a positive impact on regional development only in a handful of regions with high levels of institutional quality and social capital (E. P. Becker S. & Ehrlich, 2013). Lastly, whether this policy is welfare improving or not is an empirical question.

In this context, this paper studies the effect of a place-based policy carried out in Catalonia on the neighborhood composition. This place-based policy is defined as an urban integral program aimed at improving the quality of life and/or the economic performance of small areas. Interestingly, the policy is not only meant for reducing social problems and improving housing condition but also at improving neighborhood amenities. In the context of a segregation model with amenities, neighborhoods affected by this program could be described as evolving towards full immigrant equilibrium. Depending on the number of immigrants already in the neighborhood, preferences of both groups, and the magnitude of the shift, we could observe a reversal in the share of immigrants in the targeted areas after this urban intervention. Therefore, in this context, we empirically test whether there is scope for reversal after this policy intervention.

In order to test this hypothesis, we use a difference-in-difference evaluation methodology. The selection process was based on two rounds. In the first round, the area of intervention of every application is determined to need (or not) special attention. Neighborhoods that require special attention are defined by a first round score (a deprivation index) which is constructed using urban and socio-economic indicators.<sup>1</sup> Local areas with a first round score above certain threshold

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<sup>1</sup>The main source of information to build the urban and socio-economic indicators is the 2001 census. Additionally, they use the Municipality Records, data from the Council and the Catalan Institute for Social Assistance (ICASS).

determined by law were eligible for funding. In the second round, the committee based its final decision based on the first round score, other objective measure (such as the financial effort of the council, inhabitant in the intervention area, number of dimensions to be intervened, type of area and whether the application is presented by two different councils) and a subjective assessment of the quality of the project. Hence, our identification strategy exploits the timing in the exposure to the treatment. In particular, our control group is compounded by: 1) areas that were rejected in the second round; 2) areas initially rejected in the second round but accepted in future calls and; 3) future applicants.

Since there are differences in some of the dimensions used to construct the first round score between treatment and control areas, we will estimate reweighted regression as described in Kline (2011). As an alternative and complementary approach, we use control areas outside Catalonia. To find these control units, we exploit the fact that we have the information necessary to replicate the first round score in other areas of the country. Similarly to Kline and Moretti (2014), the idea is to find areas in the rest of the country with similar pre-intervention characteristics to make a robust comparison.

The paper is structured as follows: section 2 explains in which consist this neighborhood regeneration program; section 3 describes the potential effects of this program; section 4 present the data that will be used; in section 5, the empirical approach is described; results and conclusion are presented in section 5 and section 6, respectively.

## 2 The Neighborhood Regeneration Program

This program is defined as urban interventions that aim to raise levels of quality of life for residents in small areas and/or the economic performance of that areas. This kind of policies are implemented through transfers from Government of Catalonia to local governments. Projects are designed by local governments and they might include several instruments: improvements in urban infrastructure, housing, training and job creation counseling, etc. This program was established by law which was passed by the Catalan regional government in 2003. There were seven calls between 2004 and 2010 and during that period a number of neighborhoods with high concentration of social problems (e.g., immigration, poverty, deteriorated housing, crime, etc.) received the aid. The law was enacted on June 4<sup>th</sup>, 2004 and established a Fund (99 MEUR by call) with the purpose of allocating resources to neighborhoods and urban areas that require special attention.

The eligibility criteria consisted of two rounds. In the first round it was determined whether neighborhoods that applied for this Fund required “special attention” or not. Areas that require special attention are defined based on a first round score which is constructed using urban and socio-economic indicators (see Appendix A for a detailed description of the construction of this measure). Local areas with a first round score above certain threshold determined by law were eligible for funding. Project that do not fulfill this first requirement were discarded for the second round. At this second stage, the committee made its final decision based on a second round score that depends on the first round score, other objective measure (such as the financial effort of the council, inhabitant in the intervention area, number of dimensions to be intervened, type of area and whether the application is presented by two different councils) and a subjective assessment of the

quality of the project.<sup>2</sup> This second score was used to rank projects. For every of the seven calls the Catalan Government established a subsidy of 99MEUR to be distributed among the accepted project. Hence, this limit implicitly defines a "cut-off" point which varies across calls depending on the proposed budget of the projects that ranked at the top according to the second score. Above this "cut-off", projects were accepted. The committee is composed of representatives of the Catalan Government, local authorities, and involved sectors.

Projects suitable for financial support suggested assistance in some of the following eight items: 1) improving public spaces and provision of green spaces; 2) improving and equipping common areas of buildings; 3) provision of equipment for collective use; 4) the incorporation of information technologies in buildings; 5) promotion of sustainable urban development especially with regard to efficient use of energy; 6) gender equality in the use urban space and equipment; 7) the development of programs that promote social, urban, and economic improvement of the neighborhood and; 8) improving accessibility. In that sense, projects receive points depending on its contents and goals (see Appendix A for a detailed description of the criteria).

The policy is not only meant to reduce social problems and improve housing conditions but also to improve neighborhood amenities. Moreover, the normative place high priority to old towns and old quarters, large groups of buildings and urban areas with poor living conditions.

The aid for approved projects represent 50% of its budget. Project which were targeted to small towns received financial help of 75% of its budget. The remaining part of the budget was financed by local government resources in some cases and other entities (e.g. European funds, private institutions, etc) in others. Its duration must not be longer than four years. However, the project could be extended two years after assessment of the committee. Also, there is the possibility of "renewal contracts" which imply carrying out another four years' project in the same area. Apart from the local government of Barcelona which could receive financial support for two projects, a local government could only receive funding for one project in each annual call. Then, it also tries to follow the principle of territorial equity to ensure an efficient distribution of resources over Catalonia. This program feature contributes to our identification strategy since it avoided getting treated all the most deprived areas of each municipality in one call.

Proposals must include: 1) the boundaries of the area of intervention; 2) the description of its urban and social situation; 3) the proposed action or type of intervention; 4) assessment of the needs to perform the intervention and also maintenance requirements; 5) the development schedule and budget; 6) institutional framework and civic participation for its development, and any other additional information required for compliance of the intervention. Furthermore, the proposal should indicate whether there are other public interventions in progress or planned in the same area. In practice, projects that did not present all the required information and documents were rejected.

Rejected projects did not received feed-back unless they asked for it. In this latter case, the authorities in charge of the application process explained the reasons of the decision and also gave some recommendations in case they resubmit the proposal in a future call.

The law establishes that there is a committee in charge of assessing and monitoring each project. Its composition and rules, as well as, the frequency of meetings must be determined by regulations. However, the committee must have at least three meeting per year and it also has to present a

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<sup>2</sup>See Appendix A for further details

report every semester. After the projects ends, the committee must perform an evaluation of the results. Although, there has been an evaluation of the process and outcomes achieved by each of the projects (see Iválua, 2009), the evaluation has been non-experimental (i.e., comparing, at most, outcomes before and after for a treated case).

Table 1 shows the number of approved project during its implementations. First, we observed that the number of accepted proposals has increased across the seven calls of the program, as well as, the number of municipalities being involved. It is also important to point out that there has been a total of 143 neighborhood treated by the policy between 2004 and 2010. However, while programs of the first and second call are almost finished, there is a plenty of project which are currently being executed. We also observe that average amount invested by inhabitants in the treated area is around 3,335 euros which represents a considerable level of investment.

Figure 1 shows that the average of the percentage of execution decrease by calls. Finally, among the seven calls, there were invested a total of 1,330 MEUR to the overall improvement of neighborhoods throughout Catalonia. We also observe that out of the 8 items to the projects were mainly invested in item 1, which is "improving public spaces and provision of green spaces" and item 3, which is "provision of equipment for collective use" (see Table 2).

Figure 2 shows the treated and rejected areas for Barcelona.

It is important to point out that there were other initiatives mostly from the European Union (EU) which aimed at improving urban infrastructure of local areas (E. P. Becker S. & Ehrlich, 2013). However these initiatives from the EU were only targeted at a small set of local areas in the case of Catalonia. In fact, the neighborhood regeneration program has change the way that local interventions have been implemented by focusing on a broad set of interventions from an integrated point of view.

### 3 Potential Effects of the Policy Intervention

As described in the previous section, the neighborhood regeneration program is aimed at improving (or providing) urban infrastructure, urban amenities and housing infrastructure. Then, the question that immediately arises is: which could be the potential effects of this intervention? To analyze the potential effects of this intervention we build upon Becker and Murphy's model (from G. Becker and Murphy (2000), BM hereafter) of social interaction that explains when segregation arise and which is based on preferences for group of peers and on demand for housing in an specific neighborhood. The main idea is to incorporate amenities to this framework in order to analyze which could be the effect of increasing amenities in a particular neighborhood on the share of immigrants and natives. In this framework, there are two groups: natives (denoted by  $N$ ) and immigrants (denoted by  $I$ ). In BM's model individuals from the two different groups bid for a house in an specific neighborhood and from the interaction between these two groups an equilibrium housing price is determined.

It is important to point out that the policy was targeted to neighborhood that already have a high proportion of immigrants and which are probably in the process of convergence to a full immigrants equilibrium. Then, to simplify our analysis, we focus on the decision of natives to move to the neighborhood after the policy intervention. The model treat bid functions as primitives. In

particular, the bid function of natives in neighborhood  $i$  is denoted by  $b_i^N (A_i (Y^N), p_i^I, u_i^N)$ , while  $b_i^I (A_i (Y^I), u_i^I)$  represents the bid function of immigrants in neighborhood  $i$ .

For both groups, the willingness to pay for housing in a neighborhood  $i$  depends on the demand for amenities ( $A_i$ ), which is a function of characteristics of the neighborhood such as urban infrastructure, facilities, etc. We also assume that demanded amenities depend positively on income and that they are a convex function of income ( $A_i(Y^j)$  where  $j = N, I$ ). Then, an increment of the level of amenities in neighborhood  $i$  increases the willingness to pay for housing at  $i$  of the two groups. However, individuals with higher income value more an increment of amenities in neighborhood  $i$ . In other words, the high income group find certain amenities particularly appealing.

The effect of the share of immigrants at neighborhood  $i$  ( $p_i^I$ ) on the willingness to pay for housing of natives depends on preference of natives over immigrants, which it is usually referred as the interaction effect. It is usually assumed that after certain threshold (the tipping point) a rise in the share of immigrants reduces the natives' bid function ( $\partial b_i^N (A_i (Y^j), p_i^I) / \partial p_i^I < 0$  after  $p > p^*$ , where  $p^*$  refers to the tipping point). On the other hand, the willingness to pay for housing of immigrants depends on amenities but they are indifferent about the proportion of natives in neighborhood  $i$ . Finally, the random term  $u_i^j$  (where  $j = N, I$ ) represent heterogeneity in tastes for immigrants.

Similarly to the Schelling model, we assume that agents are myopic since they based their current decision on previous levels of share of immigrants.<sup>3</sup> This assumption cause that agents do not switch from one equilibria to another immediately and then, it enables to model tipping as a smooth path toward the convergence of the new equilibrium in where  $p_i^I = 1$ . Then, the proportion of immigrants in equilibrium in neighborhood  $i$  is determined when the willingness to pay of natives equals the willingness to pay of immigrants,

$$b_i^N (A_i (Y^N), p_i^I, u_i^N) = b_i^I (A_i (Y^I), u_i^I) \quad (1)$$

In the context of this framework, the number of equilibria depends on the shape of the bid functions. As in Card and Rothstein (2008) one equilibrium is reached when the willingness to pay for a house is equal across groups. In our case, we model the willingness to pay of natives  $b_i^N$  to depend linearly on: its average income which is denoted by  $\bar{Y}^N$  (and it is positively related with amenities as we mentioned earlier); the share of immigrants in the neighborhood  $i$  ( $p_i$ ) and  $u_i^N$  which is a random term which captures the heterogeneity of taste for immigrants. The willingness to pay of immigrants  $b_i^I$  also depends linearly on its average income and a random term which captures preference among residence location in terms of proportion of immigrants. Then, the bid function of natives and immigrants are formally set as follows,

$$b_i^N = \bar{Y}^N + \alpha p_i^I + \beta p_i^{I^2} + u_i^N$$

Given these functional forms, we proceed to find the equilibrium points. First, we assume that  $\beta = 0$  and that  $u_i^I = \delta u_i^N$  and  $\delta < 0$ . Then, the willingness to pay of natives is a linear function of

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<sup>3</sup>One can depart from this assumption by letting agents behave rationally and then enable strategic behaviors. For instance, if a neighborhood with higher share of immigrants than share of natives become more attractive because of the policy intervention then natives could anticipate that more immigrants will move to this neighborhood since it is more appealing. Hence, natives living in this neighborhood could decide to leave.



$p_i^I$ . In the case of immigrants, we allow the bid function to depend on preferences. Thus, the share of immigrants at the equilibrium is determined as follows,

$$b_i^N = \bar{Y}^N + \alpha F(u^*) + u^* = \bar{Y}^I + \delta u^* = b_i^I \Rightarrow u^* = \frac{\gamma[2(\bar{Y}^I - \bar{Y}^N) - \alpha]}{(2\gamma + \alpha - 2\gamma\delta)} \Rightarrow s^* = F(u^*)$$

This case is presented in Figure 1 (Panel 1, a) and we observed that there is one stable equilibrium (stable equilibrium points are those in where the  $b_i^N$  curve cut the  $b_i^I$  curve from below). Beginning from a stable equilibrium (point 1), after a shock that increase  $p_i^I$ , the share of immigrants returns to its previous level. Since 2000, the influx of immigrants to Spain has increased sharply. As a consequence, some neighborhood experienced an important increase in the share of immigrants. In this context, an increment of the demand of housing in neighborhood  $i$  could be modeled as upward shift of the immigrants' bid function (see Figure 1, Panel 1, b). As a result, the share of immigrants in neighborhood  $i$  in equilibrium increase (from point 1 to 2 and later, from point 2 to 3). Next, we ask what would be the potential effect of a policy intervention which increase amenities. Assuming that the increment of amenities are valued more by natives than by immigrants, then, we observe a right shift in the bid function of natives. Hence, this might lead to a reduction in the share of immigrants at the new equilibrium (point 3 in Figure 1, Panel 1, c). In a second case, we assume that  $\alpha > 0$ ,  $\beta < 0$  and as in the previous case, that  $u_i^I = \delta u_i^N$  and  $\delta < 0$ . Then, the willingness to pay of natives is quadratic in  $p_i^I$ . Then, the proportion of immigrants at the equilibrium is determined as follows,

$$b_i^N = \bar{Y}^N + \alpha F(u^*) + \beta [F(u^*)]^2 + u^* = \bar{Y}^I + \delta u^* = b_i^I \Rightarrow \beta u^{*2} + [4\gamma^2(1 - \delta) + 2\gamma\alpha + 2\gamma\beta] u^* + 2\gamma^2\alpha + \beta\gamma^2 - 4\gamma^2(\bar{Y}^I - \bar{Y}^N) = 0 \Rightarrow s^* = F(u^*)$$

In this case, in Figure 1 (Panel 2, a) there are two stable equilibria (point 1 and 3) and one unstable equilibrium (point 2). In a state of the world where the equilibrium is set at the unstable one after a shock that increases  $p_i^I$ , more immigrants will demand housing at neighborhood  $i$  and then, we will move to an equilibrium where almost all agents in the neighborhood are immigrants (the full immigrants equilibrium which is point 3 in Figure 1, Panel 1, a).

As mentioned earlier, in our case neighborhood affected by the policy could be described in a situation where the proportion of immigrants is moving to the full immigrants equilibrium. That is, a case where neighborhood is evolving towards a full immigrants equilibrium. This latter fact is presented in Figure 1, Panel 1, b. After the flow of immigrants initiated in 2000, some neighborhood received a lot of immigrant and as a consequence its share started to increase. Again, if amenities are valued differently between the two groups then we will observe a right shift in bid function of natives (see Figure 1, Panel 2, c). Depending on the number of immigrants already in the neighborhood and the magnitude of the shift, we could observe a reversal if the share of immigrants after the right shift in the bid function of natives, lies below the new unstable equilibrium (which is point 3 in Figure 1, Panel 2, c). In this case, the neighborhood will evolve towards the new stable equilibrium (point 2 in Figure 1, Panel 2, c) where there is a low portion of immigrants. Therefore, in this latter case there is room for reversal after a policy intervention. According to Card and Rothstein (2008), once a neighborhood is above the tipping point then, it is difficult that

a downward shift in the demand of housing of minorities could induce a reversal of this process. Overall, it is not clear what would be the effect of the policy intervention and then, it is an empirical question.

## 4 Data

To carry out this research, we use data from three sources: 1) the Spanish Municipality Registry which contains information about population by country of birth at the census tract level; 2) the 2001 Census which have socio-economic and urban infrastructure information at the census tract level and; 3) other official sources of the program provided by the Government of Catalonia, which includes the first round score (and all the indicators necessary to build it), the second round score, degree of execution of every project, investment by sources and dimension, and the maps of the areas of intervention.

Table 3 Figure 4, Figure 5 Figure 6.

## 5 Empirical Approach

The objective of this paper is to evaluate the impact of the inclusion of a neighborhood in an area regeneration program on its composition in terms of the share of natives and immigrants. To do so, we will make use of the difference-in-difference evaluation methodology.

In the context of this study case, the application of this methodology implies, mainly, two major challenges. First, it is necessary to delimit clearly the area of influence of the intervention, that is, the treatment units. In that sense, the law requires that the project includes explicitly the area affected by the policy, which is usually defined as a neighborhood.

The second challenge consist of building the counterfactual by finding for each treated neighborhood (or treatment area) an appropriate control one which was not included in the policy but that is identical to the treated one in terms of pre-treatment characteristics. The empirical literature related to the assessment of place-based has usually defined control areas based on proximity. Nevertheless, the fact of potential spillover effects of treated areas on nearby untreated areas might represent a possible confounding factor of the true effect.

Recently, the literature on this topic try to tackle this issue by using rejected areas or using later on treatment areas as control units. Similarly, we could exploit the fact that since 2004 (the year in which the policy intervention started), more and more neighborhoods have become to be treated. Then, our identification strategy exploits the timing in the exposure to the treatment. In particular, our control group is compounded by: 1) areas that were rejected areas in the second round; 2) areas initially rejected in the second round but accepted in future calls and; 3) future applicants. One concern related to this latter strategy could be the lack of enough control areas (neighborhoods). As an alternative and complementary approach, we use control areas outside Catalonia. To find these control units, we exploit the fact that we have the information necessary to replicate the first round score in other areas of the country. Similarly to Kline and Moretti (2014), the idea is to find areas in the rest of the country with similar pre-intervention characteristics to make a robust

comparison. In other words, we will use propensity score matching (PSM) in order to build control units similar to the treatment ones in terms of observable characteristics such as high level of social problems and urban deterioration.

After, defining the treatment and control group we will look at the before-after differences between the two groups in order to compute the difference-in-difference estimator. In particular, we estimate the causal effect of the program using the following regression setting,

$$\Delta Y_{nm} = \beta T_n + X'_n m + C'_m \quad (2)$$

Where  $\Delta Y_{nm}$  represents the change in the share of non EU immigrants between period  $t$  and  $t + 1$  in the neighborhood  $n$  of municipality  $m$ ;  $T_n$  is a treatment status indicator in neighborhood  $n$ ;  $X'_n m$  is a vector of controls (such as age composition, working force composition, education composition) at the neighborhood level; and  $C'_m$  is a vector of controls at the municipality level. One alternative would be to use a synthetic control (see Abadie and Hainmueller (2014)), which consists on constructing a specific counterfactual for each of the treated units as a weighted average of other non-treated municipalities, and has the advantage of providing an estimate of the impact for each unit. Hence, to perform this analysis we require microdata from different sources in order to construct a panel dataset at the neighborhood level (and later construct panel data considering the areas of influence mentioned above).

## 6 Results

### 6.1 Robustness Check

## 7 Conclusions

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# Figures

Figure 1: Average degree of execution by call.

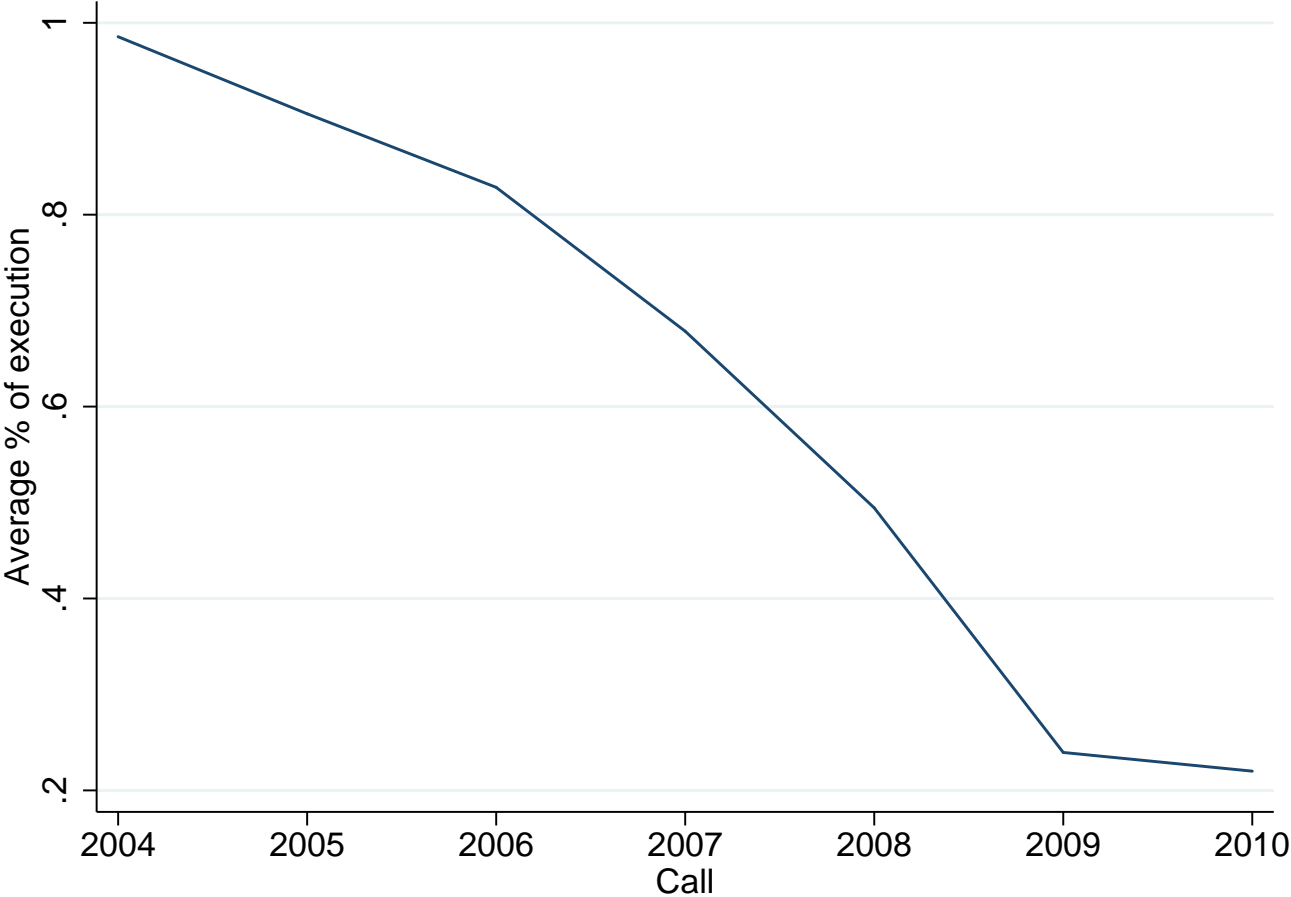
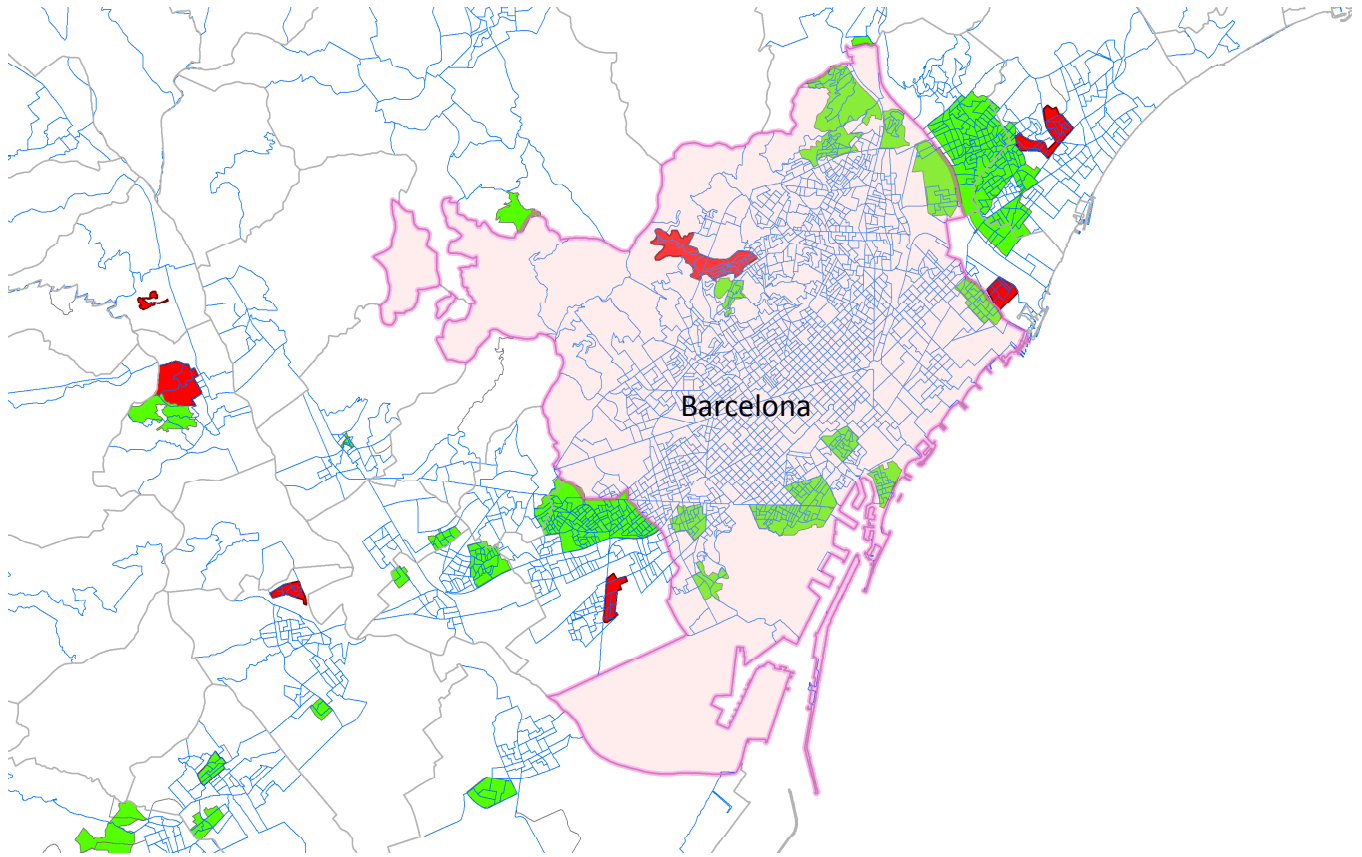


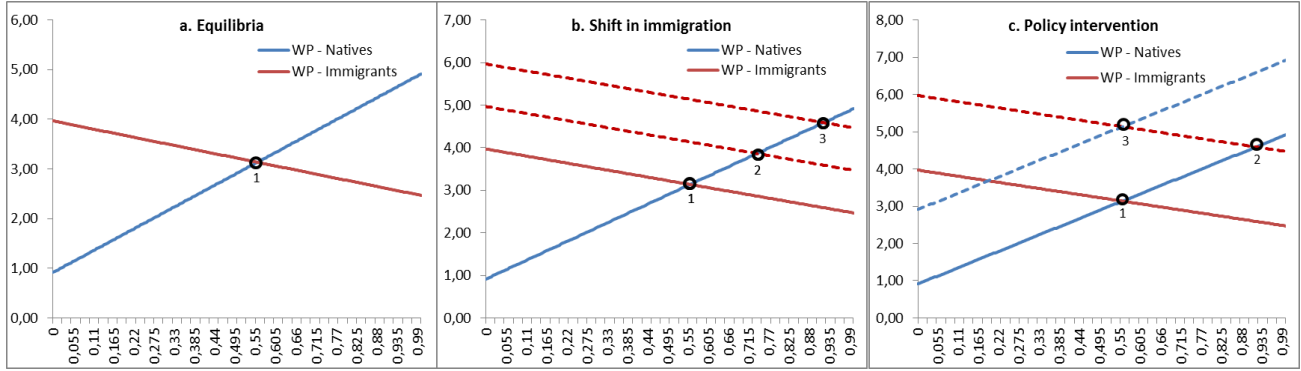
Figure 2: Treated and rejected areas in Barcelona.



Treated areas in green; Rejected areas in red.

Figure 3: Prediction of a segregation model with amenities.

Panel 1



Panel 2

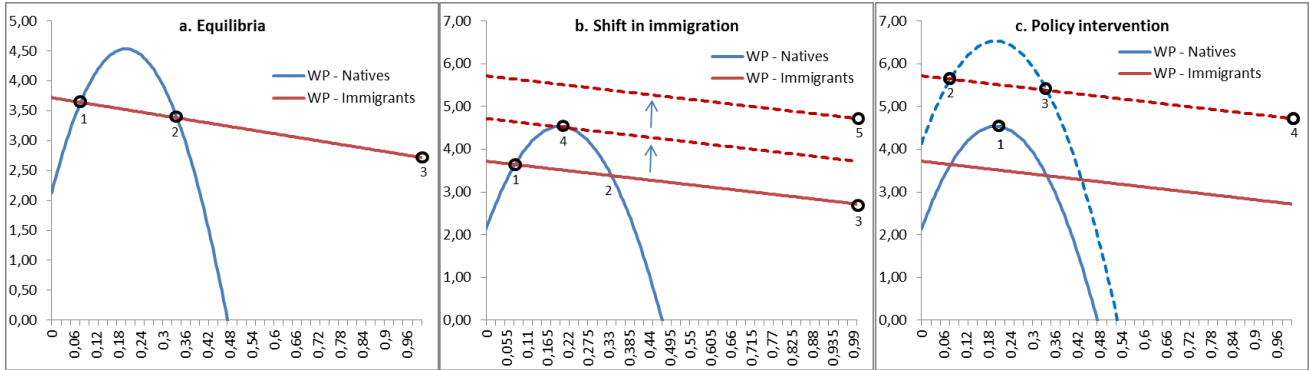


Figure 4: First round score by call.

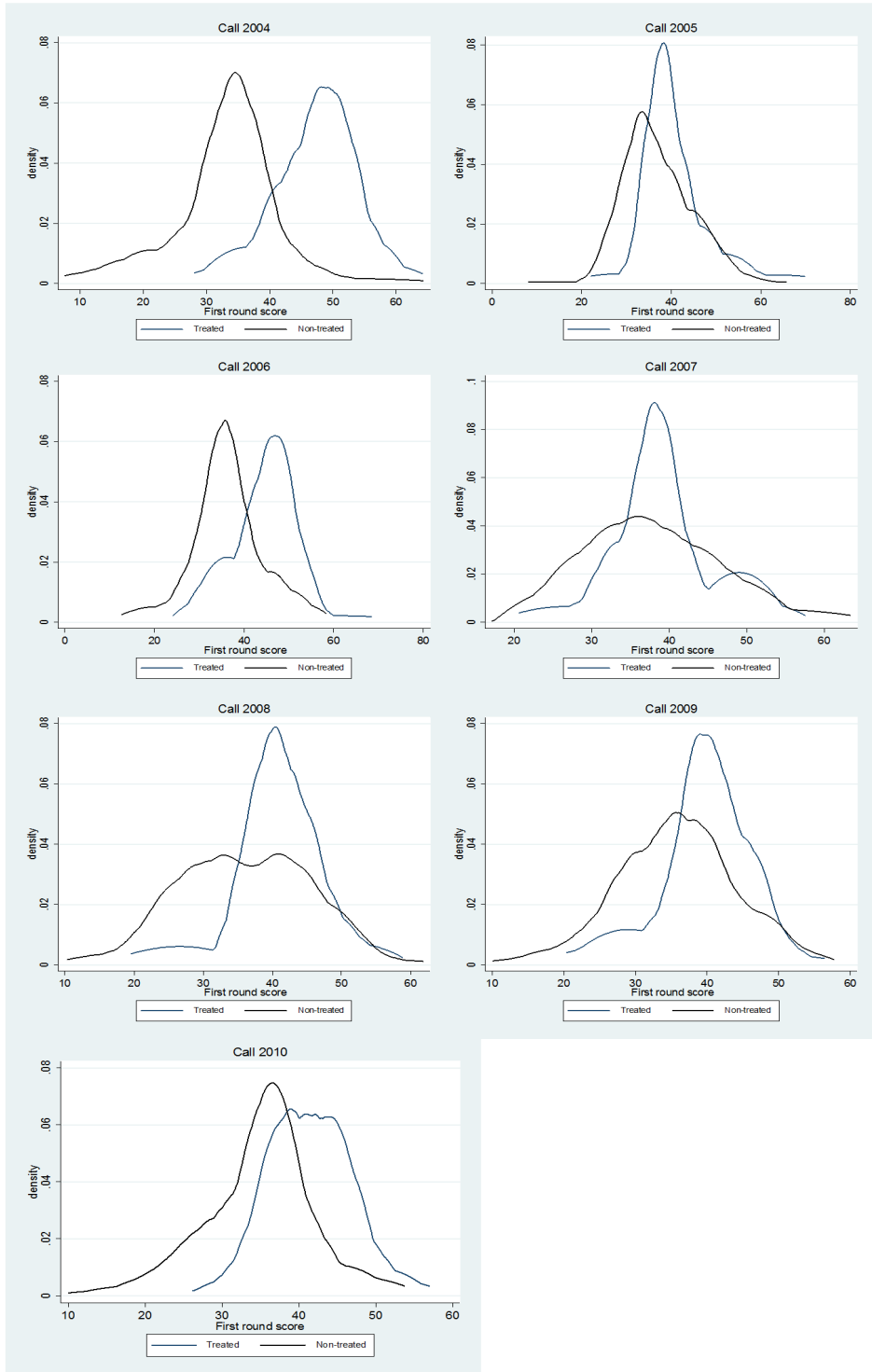




Figure 5: Distribution of socio-economic characteristics of projects by call & treatment status.

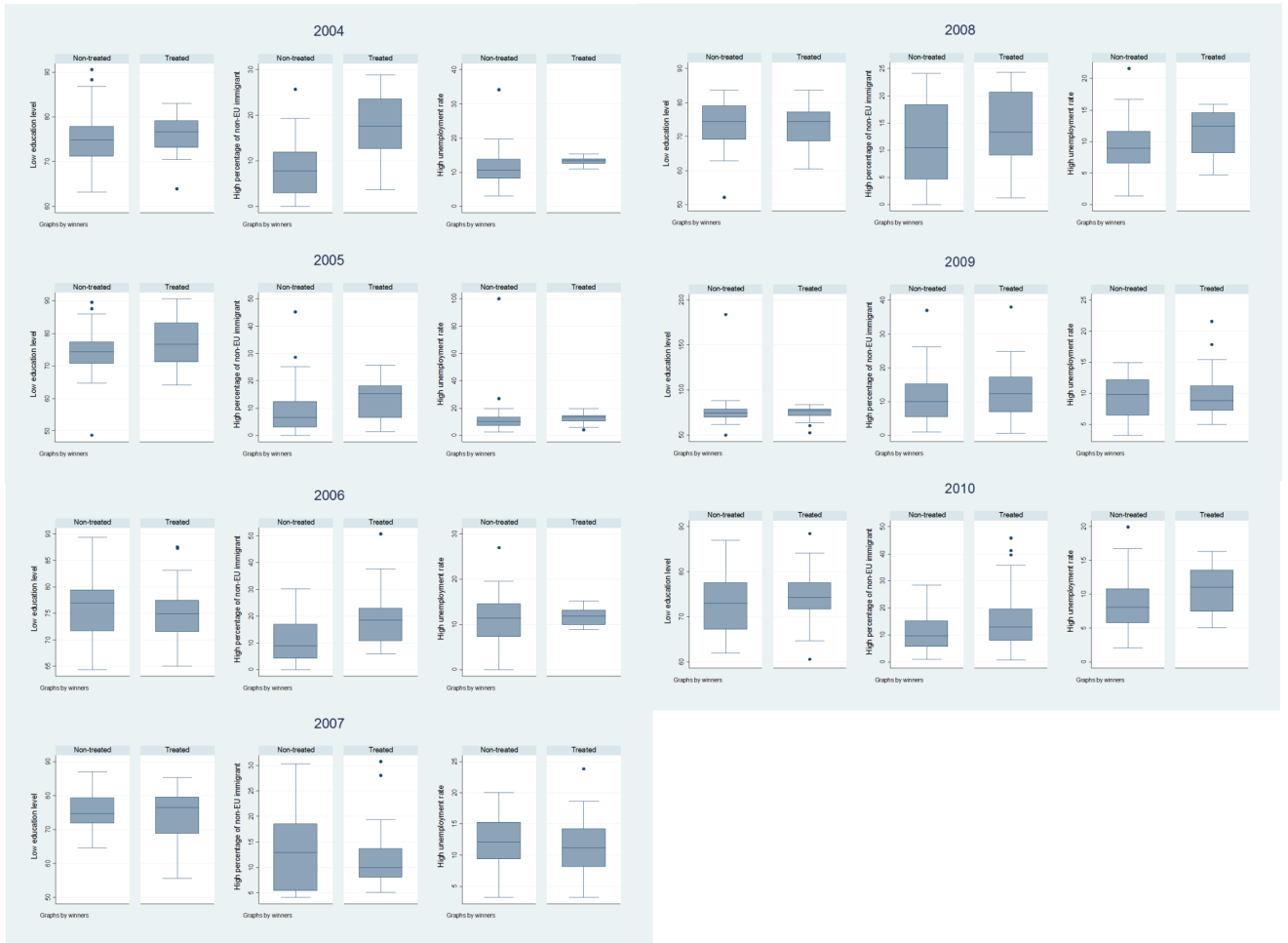
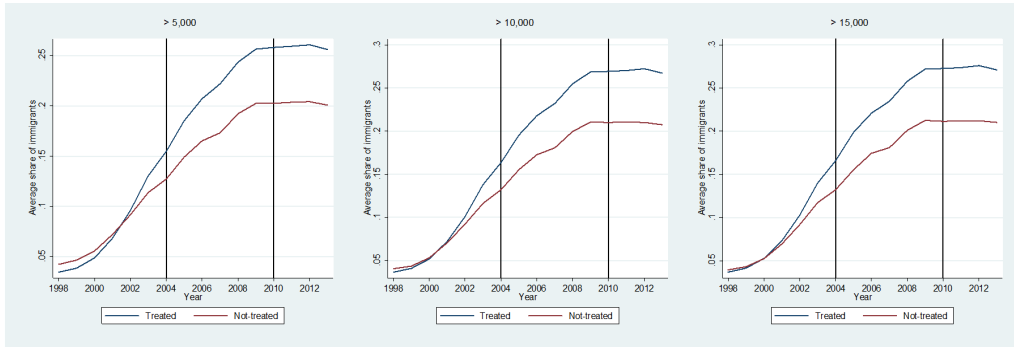
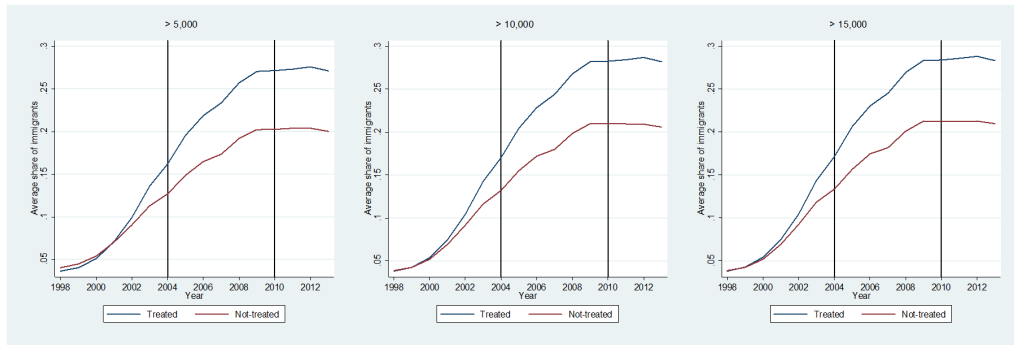


Figure 6: Evolution of the share of non EU immigrants by treatment status & municipality size.

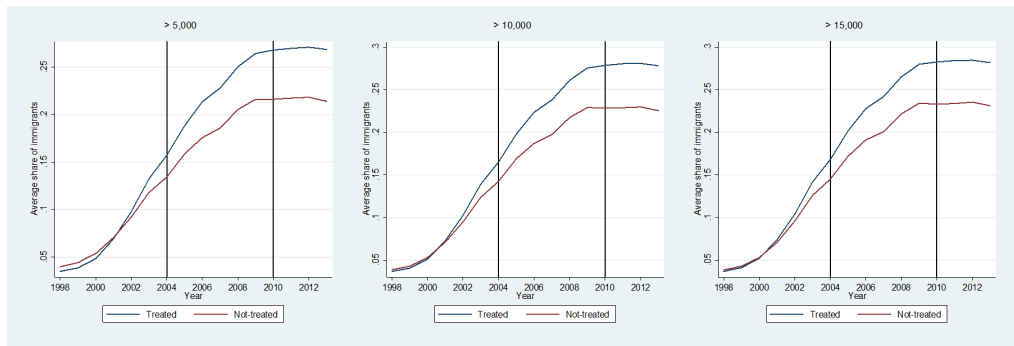
a. Treated if % execution > .5



b. Treated if % execution > .7



c. Treated if % execution > .95



# Tables

Year	Number of approved projects	Number of approved projects in villages	Follow-up projects	Total number of projects	Number of treated units	Budget (in millions of euros)	Funding (in millions of euros)	Total number of inhabitants in treated areas	Average investment per number of inhabitants (in euros)	Number of completed projects	Number of projects being executed	Follow-up projects completed	Follow-up projects being executed
2004	13			13	13	197,7	99,0	230598	2084.9	11	2		
2005	17			17	17	198,0	99,0	156924	2688.3	12	5		
2006	16			16	16	198,0	99,0	142030	3441.5	4	12		
2007	24			24	24	198,0	99,0	129575	3483.4	4	20		
2008	22			22	22	198,0	99,0	150611	3664.5		22		
2009	10	15	1	26	25	169,2	99,0	115711	4024.2		25	1	0
2010	12	14	3	29	26	171,6	99,0	167821	3957.8		26		3
<b>Total</b>	<b>114</b>	<b>29</b>	<b>4</b>	<b>147</b>	<b>143</b>	<b>1,330,6</b>	<b>693,0</b>	<b>1093270</b>	<b>3334.9</b>	<b>31</b>	<b>112</b>	<b>1</b>	<b>3</b>

Items	Description	Total Budget	Financial Aid
1	Improving public spaces and provision of green spaces	43,87%	43,44%
2	Improving and equipping common areas of buildings	9,63%	9,55%
3	Provision of equipment for collective use	22,24%	22,46%
4	Incorporation of information technologies in buildings	1,32%	1,34%
5	Promotion of sustainable urban development especially with regard to efficient use of energy	4,57%	4,69%
6	Gender equality in the use urban space and equipment	1,98%	2,00%
7	Development of programs that promote social, urban, and economic improvement of the neighborhood	9,92%	10,01%
8	Improving accessibility	6,48%	6,51%
<b>Total</b>		<b>100,00%</b>	<b>100,00%</b>

Table 3. Mean comparison by call

Variables	Call 2004			Call 2005			Call 2006			Call 2007		
	Non-treated	Treated	Difference	Non-treated	Treated	Difference	Non-treated	Treated	Difference	Non-treated	Treated	Difference
Property value	60.472	75.109	-14.637	83.404	63.294	20.110	67.069	74.711	-7.642	84.444	68.458	15.986
% of poor building condition	3.532	6.567	-3.035**	3.867	5.465	-1.598	2.950	7.573	-4.623***	1.821	3.768	-1.947
% Building without piped water	0.600	0.420	0.179	0.791	0.484	0.306	0.552	1.299	-0.747*	0.642	0.975	-0.332
% Building without network evacuation	1.035	0.559	0.476	1.697	0.518	1.178*	1.767	1.326	0.441	4.125	1.343	2.782*
% Building of four or more plants without elevator	59.434	72.702	-13.268	59.204	64.150	-4.946	57.810	68.627	-10.817	52.416	71.472	-19.055*
<b>% of non-EU immigrants</b>	8.353	17.439	-9.086***	9.102	13.349	-4.248*	11.432	19.771	-8.338***	13.250	12.220	1.031
% persons receiving welfare and non-contributive pensions	1.244	2.454	-1.210***	1.960	1.947	0.013	1.608	1.644	-0.036	1.141	1.244	-0.103
<b>% unemployed</b>	11.073	13.123	-2.050	12.564	12.584	-0.020	11.298	11.852	-0.554	11.613	11.487	0.126
<b>% persons with low education level</b>	75.506	75.805	-0.299	74.442	77.378	-2.937	75.656	76.073	-0.418	75.220	74.338	0.882
% inactive establishments	29.398	28.756	0.642	29.917	28.476	1.442	24.960	28.101	-3.141	18.905	27.569	-8.663
% population at risk of social exclusion	9.144	13.729	-4.585	12.308	19.616	-7.308	15.267	35.275	-20.008**	19.367	21.218	-1.851
First round score	34.641	47.154	-12.513***	37.070	40.969	-3.899*	36.339	44.816	-8.477***	37.925	39.087	-1.162
Observations	40	13		49	17		36	17		9	24	
Variables	Call 2008			Call 2009			Call 2010					
	Non-treated	Treated	Difference	Non-treated	Treated	Difference	Non-treated	Treated	Difference	Non-treated	Treated	Difference
Property value	80.370	79.005	1.365	88.714	77.440	11.274	77.319	76.517	0.801			
% of poor building condition	3.240	4.676	-1.436	2.770	3.256	-0.486	2.141	4.513	-2.372***			
% Building without piped water	0.887	0.747	0.140	0.593	0.475	0.118	0.533	0.870	-0.337*			
% Building without network evacuation	1.796	0.848	0.948*	1.529	1.099	0.430	1.022	1.418	-0.397			
% Building of four or more plants without elevator	59.629	69.824	-10.195	66.196	70.373	-4.177	64.460	75.727	-11.267**			
<b>% of non-EU immigrants</b>	11.393	14.225	-2.832	11.601	13.639	-2.038	11.258	16.038	-4.780**			
% persons receiving welfare and non-contributive pensions	1.229	1.135	0.093	0.987	0.938	0.049	1.608	1.140	0.469			
<b>% unemployed</b>	9.435	11.469	-2.034*	9.416	9.818	-0.403	8.813	10.544	-1.731*			
<b>% persons with low education level</b>	73.303	74.126	-0.822	76.245	74.229	2.015	73.568	74.562	-0.994			
% inactive establishments	27.048	28.439	-1.390	28.743	23.182	5.561	28.659	31.572	-2.912			
% population at risk of social exclusion	15.043	25.773	-10.731	13.731	22.582	-8.851	18.098	25.212	-7.114			
First round score	36.289	40.841	-4.552*	36.070	39.681	-3.610*	34.871	41.435	-6.564***			
Observations	27	22		42	25		44	29				

Note: observations with missing value in one of this dimension were dropped

## Appendix A Neighborhoods Eligibility Rules

The objective criteria is established by the Decree 369/2004 of the 7<sup>th</sup> of September. The measure that summarizes the situation of the neighborhood, the deprivation index, is based on several indicators that are grouped into four categories: 1) indicators of urban deterioration; 2) indicators of demographic problems; 3) indicators of economic, social and environmental problems; 4) indicators of the lack of urban infrastructure. Depending on the level of these indicators the neighborhood receives points. The final score is the sum of points of each indicator. If one neighborhood has over 20 points then it is eligible.

*Indicators of urban deterioration:* a) property value: the neighborhood gets one point for each 5 points below the average value of the property in the municipality (which is standardized to be 100) and it is assessed by the “Dirección General de Catastro”; b) poor condition of buildings: 1 point for each percentage point higher than the average of building in bad and dilapidated condition in Catalonia; c) building without water and network evacuation: 1 point for every 2 percentage points higher than the average percentage of households in Catalonia without water, and 1 point for every 0.2 percentage points higher than the average percentage of households without sewage disposal in Catalonia ; d) building of four or more plants, mainly for housing, without elevator: 1 point for every 2 percentage points higher than the average percentage of residential buildings with four or more floors without elevator in Catalonia.

*Demographic problems:* a) population density: from above 100 households per hectare, 1 point for every 20 households per hectare; b) sharp population decline or population growth: 1 point for every 2 percentage points above or below the average evolution of the population in the last 5 years in the municipality; c) inactive population: 1 point for every 2 percentage points higher than average percentage of population under 15 and over 65 years old in Catalonia; d) high percentage of immigration: 1 point for each percentage point higher than the average percentage of non-EU immigrant population in Catalonia.

*Indicators of economic, social and environmental problems:* a) number of persons receiving welfare pensions and non-contributory pensions: 1 point for every 0.2 percentage points higher than the average percentage of beneficiaries of non-contributory pensions in Catalonia; b) High unemployment rate: 1 point for each percentage point higher than the average percentage of unemployed people in Catalonia; c) Deficit of parkland: up to 5 points, depending on the percentage of area of parkland under the general planning of the municipality for the area covered by the project which has not been executed; d) Low education level: 1 point for each percentage point higher than the average percentage of population with more than 10 years old without a high school diploma or without vocational training courses in Catalonia.

*Indicators of the lack of urban infrastructure:* a) lack of public transport: 5 points if the neighborhood does not have any means of public transport; 2.5 points if the average waiting time of the existing means of public transportation in working hours is greater than 30 minutes; b) Lack of parking spaces: 5 points if the neighborhood has no public parking; 2.5 points if less than 50% of

houses have private parking; c) low economic activity: 1 point for every 5 percentage points higher than the average percentage of inactive locals in the municipality; d) percentage of population at risk of social exclusion: 1 point for each percentage point higher than the average percentage in the municipality.

The maximum of points assigned to each of the category described above is 5.

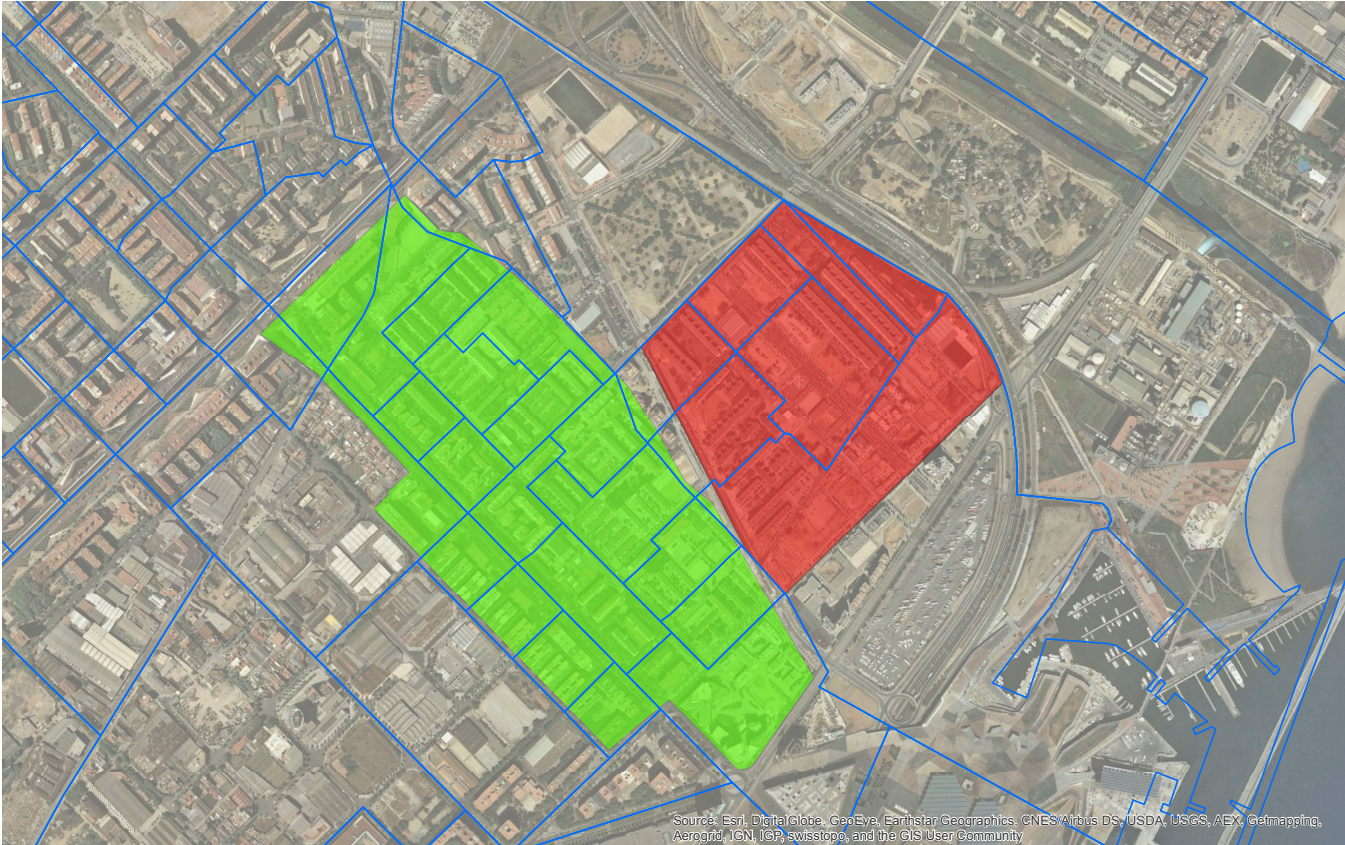
The neighborhood with the highest number of points is normalized to 40 points. Then, projects received points for its content according to the following criteria:

- 3 points for each of the following interventions, which are considered in article 7 of the Law: improving public spaces and provision of green spaces; improving and equipping common areas of buildings; provision of equipment for collective use; incorporation of information technologies in buildings; promotion of sustainable urban development especially with regard to efficient use of energy; savings in water consumption and waste recycling; gender equity in the use urban space and equipment; the development of programs that involving social, urban, and economic improvement of the neighborhood; and accessibility.
- For proposals which are not eligible according to the Law but which require special attention in terms of housing, social services, labor, health, education, trade, public security and others. In this case, 2 points for each of the previous fields until a maximum of 10 points.
- Up to 10 points for: the general characteristics of the project in relation to the degree of identification of existing problems, consistency and adequacy of the strategies in place to correct these problems, the realization of the objectives, the justification for the viability of the project, the degree of citizen participation and impact assessment of the project scope.
- Up to 2.5 points for the resulting beneficiaries from the intervention and up to 2.5 points depending on the proposed expenditure per capita.
- Up to 5 points for the percentage of the project financed with fund provided by the local government and up to 5 points more for the effort it assumed in terms of resources per inhabitant of the budget of the municipality.
- Up to 10 points for proposed interventions in old areas and old centers, housing estates and residential areas, and marginal areas that have a high incidence of housing units that do not meet the minimum standards required for habitability.
- 5 points for interventions areas that cover more than one municipality and which were jointly submitted by the concerned municipalities.

# Appendix B Construction of the dataset at the treated and rejected area level

Since the treated and rejected areas do not match exactly with the information at the census tract level, we....

Figure 7: Example



Treated areas in green; Rejected areas in red; Census tracts represented by the blue line