The Effect of New Jersey's Mt. Laurel Doctrine on Housing Production

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Abstract

I study a 1983 New Jersey Supreme Court Decision known as Mt. Laurel II which created "Builder's Remedy", allowing developers to sue municipalities that deny permits for residential construction as long as the proposed projects meet certain affordability requirements. This gives developers a legal threat to bypass local zoning codes to build more and different types of housing where they previously could not. I study this policy's effect on housing supply, measured by permits for residential buildings and units. To get a causal estimate, I use a difference-in-difference strategy comparing towns close to the border in New Jersey to towns in New York and Pennsylvania. I find that the Mt. Laurel II policy increased total buildings permitted by 13% and total units permitted by 14% on average for towns in New Jersey compared to the control group, using my preferred specification.

1 Introduction

Increases in the costs of housing related expenses have led to an urban housing affordability crisis (Wetzstein, 2017). This has affected not only homeowners, but also renters with the percentage of rent-burdened individuals increasing over 20 percentage points from 1986 to 2016 (Albouy et al., 2016). Albouy et al. observe that these rising rents have disproportionately impacted the poor, worsening wealth inequality. Due to the importance of housing as an investment and a fundamental need, researchers have been working to identify potential policy solutions to improve housing affordability.

One reason for the high housing prices is local governmental control over housing approval, which can lead to sub-optimal housing production. This issue arises from the how incentives for housing development align: the negative externalities, such as traffic congestion and noise from construction, are locally concentrated while the benefits are diffuse and serve a larger geographic area. As a result, local homeowners have limited incentives to build new housing that may be highly beneficial to those in the broader region. Since the approval of housing is conducted by town councils, local homeowners can use their influence to advocate for stricter zoning regulations to hinder new developments. This issue is commonly referred to as the NIMBY (not-in-my-backyard) problem which can restrict the supply of housing and increase housing prices.

Empirical evidence supports the notion that local control and NIMBYism are legitimate threats to housing production. Khan (2021) studies changes in local control in Chicago and finds that areas with more homeowners have higher zoning restrictions and that the negative externalities of development are more than twice as concentrated than the benefits. Mast

(2022) evaluates the effect of changes from "at-large" to "ward" elections for town councils, which reduce the area that the town councils represent from the entire town to a single ward within the town. Mast finds that decrease in local control of housing approval due to these changes the total number of housing units permitted by 20%. These findings are similar to Tricaud (2021), which studies a reform in France that created intermunicipality communities and evaluates that building permits increased by 12.5% due the decrease in local control over housing approval. In general, there is a large amount of evidence that land-use and zoning regulations, which are strengthened by local control, restrict housing supply leading to increased housing prices (Gyourko and Molloy, 2015; Parkhomenko et al., 2018).

To solve this problem, state or federal government can intervene with policies that reduce local control over housing approval (Glaeser et al., 2006). One potential policy solution, which has been in recent news in California[1], is "Builder's Remedy". Builder's Remedy allows developers to bypass local zoning codes by threatening legal action as long as the housing construction meets certain affordability requirements. This policy gives power to developers to put pressure on local towns and work around NIMBY restrictions, allowing for more housing to be developed.

In this paper, I study the the effects of New Jersey's Mt. Laurel Doctrine on housing supply, which introduced Builder's Remedy in 1983. The original Mt. Laurel Doctrine was created from a New Jersey Supreme Court case in 1975 which ruled that the town of Mt. Laurel, New Jersey had used its local zoning codes to restrict the construction of affordable housing for low-income individuals, an act known as exclusionary zoning. As part of the

[1] "The Builder's Remedy: What Every Developer Should Know", HansonBridgett 2023

ruling, the court banned all exclusionary zoning in New Jersey and required municipalities in New Jersey to build affordable housing. However, it wasn't until a follow up case in 1983, referred to as Mt. Laurel II, where Builder's Remedy was introduced as a mechanism to enforcement the Doctrine. In order to use Builder's Remedy, the development projects are required to allocate 20% of units to lower or middle income individuals, but even with these restrictions, developers were given an opportunity to build market rate housing in towns where they were unable to previously (McDougall, 1987). This policy provides an opportunity to examine the causal effects of Builder's Remedy and changes in land-use regulations on housing production, an area that requires additional empirical literature.

To study the effects of the Mt. Laurel Doctrine, I use a difference-in-difference strategy where I compare towns in New Jersey and towns in New York and Pennsylvania which are unaffected by the policy, before and after the implementation of Builder's Remedy. I restrict my sample to towns close to the New Jersey border and group the towns along segments of the border, in order for the control group to be used as a counterfactual housing market trend. My main outcome of interest is residential buildings and units permitted, with data constructed from the US Census Building Permit Surveys which contains data on almost all approved residential construction. This is combined with geo location data from the US Census Cartographic Boundary Files for state borders and the US Census Gazetteer Files to create my sample restrictions and to create the border segment groupings.

I find that the changes from Mt. Laurel II increased the total number of units permitted by 14% and the total number of buildings permitted by 13% on average for towns in New Jersey compared to towns in New York and Pennsylvania. These results are for my preferred specification covering years 1980 to 1989 with the sample restricted to towns within 10 miles from the New Jersey border, grouped by 20 mile border segments where the outcome variable is Inverse Hyperbolic Sine of units or buildings. However, when running specifications for towns up to 20 miles from the New Jersey border, the effects are null; thus, the causal interpretation of my positive effects rely on towns within 10 miles of the New Jersey border in New York and Pennsylvania to be the proper counterfactual.

Additionally, I study separately the effects of the Mt. Laurel Doctrine on single-family and multi-family housing, which I also refer to as single-unit and multi-unit housing. Single-family housing is a single housing unit in one building, which can be either attached[2] or detached from other buildings, while multi-family housing is many housing units in a singular building such as an apartment complex. Both the construction of single-family and multi-family housing can take advantage of reduced zoning from the Builder's Remedy. For example, zoning can create minimum lot sizes which forces developers to use more land for construction than otherwise wanted, limiting development for all building types. However, since this policy was designed to increase affordable housing, attached single-family housing and multi-family buildings building may be of particular interest to developers since these developments require less land and construction material per unit of housing compared to detached single-family housing, making them cheaper and increasing their comparative profitability when factoring in the requirement to allocate 20% of the units to lower income individuals.

[2]To be counted as attached single family housing under the Builder Permit Surveys, the attached housing must meet the following criteria: 1. Units are side-by-side with no other units above or below, 2. are separated from adjoining units by a wall that extends from ground to roof, 3. have separate heating systems, and 4. have separate utility meters. (US Census Building Permit Survey)

For my results by type of housing, I find that there are significant increases in single-family permits, for towns within 10 miles of the New Jersey border. Since the Building Permit Surveys do not distinguish between attached and detached housing when measuring single-family housing, I am unable to breakdown the effects for single-family housing any further; however, evidence from some early Builder's Remedy cases suggest that developers were interested in building townhouses, a form of attached housing, which aligns with theoretical predictions. However, I find no evidence of increases in multi-family permits. A possible explanation for these findings is that multi-family housing may not have been in demand for the generally suburban towns in my sample, with developers opting to use the Mt. Laurel Doctrine to build the more popular single-family housing.

For robustness, I run specifications using units and buildings per capita as an outcome variable and running a Poisson regression on units and buildings, both of which find positive effects of the policy on housing supply for towns within 10 miles of the New Jersey border. These robustness checks are based on suggestions from Chen and Roth (2023) for alternate specifications to using log-like transformations on outcomes with zeros. Results are also robust to specifications with different length of border segments and removal of the New York City Boroughs from the sample, which are outliers in the data.

Overall, my findings provide evidence that Builder's Remedy and other aspects of the Mt. Laurel Doctrine may be used as policy solutions to increase housing supply and increase housing affordability. Since Builder's Remedy allowed for developers to challenge local control over housing approval, these findings provide additional evidence that NIMBYism is a threat to housing production.

These findings also add to the existing literature on the Mt. Laurel Doctrine; however, the past research has focused mostly on the legal aspects of the Doctrine or on residents outcomes[3]. My findings are more closely related to current discussions on housing regulations and upzoning, which is the process of relaxing local land use regulations and zoning codes which act as barriers to developers, as the Mt. Laurel Doctrine can be seen as a type of upzoning due to bypassing zoning via Builder's Remedy.

Upzoning is believed to be a viable policy solution to increase housing affordability, with strong relationships between lower housing regulations, higher housing supply and lower housing prices. In particular, a review of the literature by Gyourko and Molloy (2015) found strong correlational evidence of this relationship[4] but noted the lack of studies with causal evidence. However, some of the existing studies of upzoning policies found that they failed to increase housing construction and instead increased housing prices, suggesting potential issues to upzoning as a policy solution (Murray and Limb, 2020; Freemark, 2020). These findings have led some to believe that alternative approaches such as demand side approaches or government construction of housing are more viable policy solutions (Rodríguez-Pose and Storper, 2020). Despite this, upzoning still has strong evidence, with some recent studies, such as Greenaway-McGrevy and Phillips (2022), finding positive effects of upzoning policies on housing supply. Moreover, this suggests that a careful analysis of a wide variety of upzoning policies may reveal when and how to use upzoning as an effective policy tool.

[3]Bush-Baskette et al. (2010) surveyed people who moved into affordable housing created under the Mt. Laurel Doctrine and found that those that moved went to areas with higher median income, less dense areas, and felt more safe on average. Massey et al. (2013) studied the Ethel R. Lawrence homes built by the Mt. Laurel Doctrine and found that the people living in them experienced reduced exposure to violence and had positive outcomes for mental health and general children's outcomes.

[4]Studies include Glaeser et al. (2006), Glaeser and Ward (2009), and Katz and Rosen (1987)

Overall, I add to the literature by evaluating the causal effect of the 1983 Mt. Laurel II policy on housing production. This adds further empirical evidence to studies of land-use regulations on housing supply, particularly through the Builder's Remedy policy, which to the best of my knowledge, has not been causally evaluated before.

The remainder of the paper will be organized as follows: Section 2 provides a background of the Mt. Laurel Doctrine, Section 3 describes the data used, Section 4 describes the estimation strategy, Section 5 describes the results, and Section 6 concludes.

2 Background on the Mt. Laurel Doctrine

The Mt. Laurel Doctrine originated from the New Jersey Supreme Court case titled *Southern Burlington County NAACP v. Township of Mt. Laurel*, often referred to as Mount Laurel I. In this case, the group of plaintiffs were primarily a group of African Americans of lower economic status who believed that the Mt. Laurel Township was using its zoning codes unfairly by not allowing for construction of affordable housing (Dantzler, 2016). The court agreed, finding that the Mt. Laurel Township was using its zoning codes to restrict the building of affordable housing to exclude minorities and lower income individuals, a practice referred to as exclusionary zoning. As part of the ruling, the court not only banned all exclusionary zoning in New Jersey, but also required municipalities to provide affordable housing. However, this ruling did not lay out any specific guidelines for affordable housing standards, nor did it provide a way for enforcement (Buchsbaum, 2020).

These issues reappeared in 1983 as the original Mt. Laurel I case came back to the New Jersey Supreme Court in a case commonly referred to as Mt. Laurel II. Due to the resistance from many municipalities to follow the rulings presented in Mt. Laurel I, there was a class action lawsuit which merged six different cases (Dantzler, 2016). This time, the court took an even stronger stance which involved creating a process for determining the minimum affordable housing requirements for every New Jersey municipality as well as establishing a mechanism for enforcement. In order to make sure towns were following the rulings and to ensure housing was being built, the court instituted "Builder's Remedy" allowing housing developers to sue municipalities and bring them to special courts if their zoning regulations were not allowing for the building of affordable housing (Dantzler, 2016). This gave developers a legal threat to use against towns in order to bypass the zoning codes and build housing, as long as that housing met certain affordability standards. These housing standards required that 20% of units must be set aside as affordable to those at 50% and 80% of the median income level in order to ensure that housing was affordable to low and middle income individuals. Although there were affordability restrictions which would decrease profits of projects, developers now had a chance to build market rate housing where they previously could not (McDougall, 1987).

Developers saw changes from Mt. Laurel II as a great opportunity, resulting in a large amount of legal cases for towns that did not want to change zoning restrictions to meet developer's demands. As a response to the overwhelming litigation, in 1985 the New Jersey government passed legislation creating the Council on Affordable Housing (COAH) under the New Jersey Fair Housing Act. The COAH took control from the courts to oversee lawsuits and to set the requirements on the amount affordable housing to be built, referred to as the "fair share" of housing, with a plan to renew the requirements every 6 years. As part of the New Jersey Fair Housing act, municipalities were allowed to present their own plans for building affordable housing and which if approved by the COAH, would grant the towns protection from Builder's Remedy lawsuits. Towns now had to either bargain with developers to create affordable housing plans or they would leave themselves open to Builder's Remedy cases (Buchsbaum, 2020). In both cases, Builder's Remedy was the underlying threat that put pressure on towns to approve more housing.

Overall, my analysis looks at the effect on housing supply from Builder's Remedy introduced in Mt. Laurel II in 1983 and the subsequent changes to the policy in 1985 from the New Jersey Fair Housing Act.

3 Data

3.1 Data Sets

My main data source is the US Census Building Permit Surveys (US Census Bureau, 2022a). This data set contains over 98% of all approved construction permits for privately owned residential construction in the United States. From these surveys, I create a data set[5] at the county subdivision level data for New Jersey, New York and Pennsylvania for years 1980-1989. A county subdivision is a geographical unit of area recognized by the Bureau of the Census which are comprised primarily of towns, townships, boroughs and other incorporated areas, but throughout this paper I use the term "town" broadly to mean county subdivision (US Census Bureau, 1994). This data contains counts for number of

[5]Data cleaning of the Building Permit Surveys was based on code from Mast (2022)

permits for buildings approved by building type (i.e. single-family or multi-family) and the number of units from these approved permits.

For county subdivision level demographics, I use the IPUMS NHGIS dataset from the 1980 decennial US Census (Manson et al., 2022). Some of the demographics from this data set include population, race, employment, and median household income.

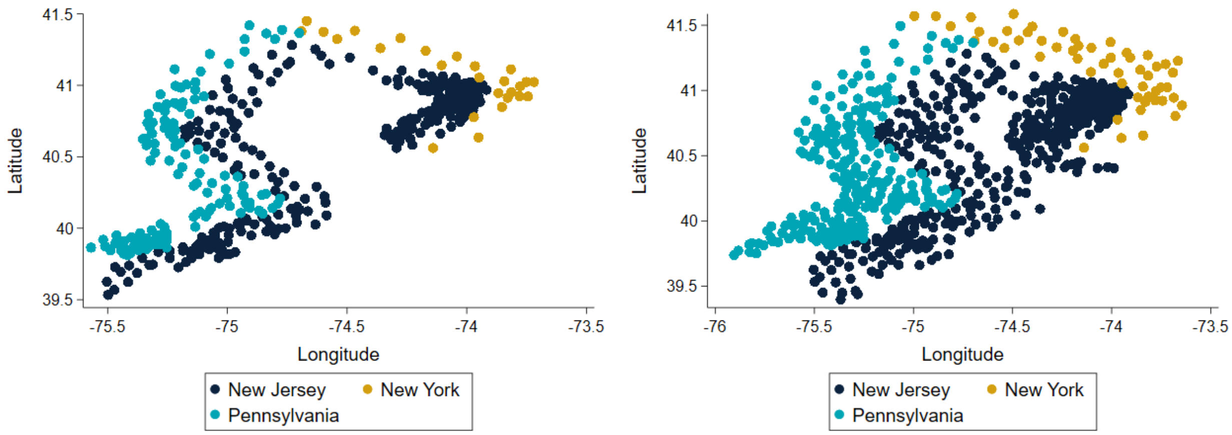
I also use the US Census Cartographic Boundary Files for state borders, which contains coordinate points of all US state borders[6] (US Census Bureau, 2018). From this data set, I find the coordinate points where the New Jersey Border intersects the Pennsylvania and New York state borders in order to construct a New Jersey-Pennsylvania and New Jersey-New York border. I combine this data with the US Census Gazetteer Files which contains data on the latitude and longitude of the centers of all county subdivisions in the United States (US Census Bureau, 2022b). From this, I create a measure of distance from the state border by finding the minimum distance between the town centers and the state border coordinates, which allows me to restrict my data to towns within 10 or 20 miles from the New Jersey-Pennsylvania border or the New Jersey-New York border. I also then create 10 and 20 mile segments along the border and group towns by their nearest border segment.

3.2 Summary of Data

My final data set contains 3,764 county subdivisions of which 565 are in New Jersey, 887 are in New York, and 2,312 are in Pennsylvania. This data set covers years 1980-1989, giving a total of 37,640 observations. When restricting the data to just towns within 10

[6] In particular, I use the 2018 file with 500k resolution, which is the highest available resolution.

miles, there are 416 total towns, with 252 in New Jersey and 164 in Pennsylvania and New York. When looking at towns within 20 miles, there are 710 towns in total with 405 towns in New Jersey and 305 in Pennsylvania and New York. The coordinate points of the towns within 10 and 20 miles are presented in Figure 1.



(a) Towns Within 10 Miles from Border

(b) Towns Within 20 Miles from Border

Figure 1: Coordinates of Towns Within 10 Miles and Within 20 Miles of the Border

One point to note is that New York City is broken into the 5 boroughs and only 4 have centers within 10 miles from the border (Queens Borough is just over 10 miles). The New York City boroughs are important because they are an outlier in terms of buildings and units permitted for a town, meaning they might not be good counterfactual towns. Therefore, I present my results with specifications including and excluding the New York City boroughs.

When looking at the baseline summary statistics for permitted buildings and units (Table 1) for towns within 10 miles of the border, the towns in New Jersey were on average permitting 21.4 less buildings and 51.3 less units compared to the control group. For demographics, the differences between treatment and control are small and only the difference in percentage of white individuals and median household income are statistically significant at

Table 1: Summary Statistics: Towns by Distance from the Border in 1980

	Treatment		Control		T-C	
	N	Mean	N	Mean	N	Diff.
10 Miles from the Border						
Permitted Buildings	252	16.09	164	37.50	416	-21.4**
						(9.78)
Buildings Per Captia (1000s)	245	1.591	162	3.640	407	-2.05***
						(0.72)
Permitted Units	252	26.77	164	78.05	416	-51.3**
						(24.9)
Units Per Capita (1000s)	245	1.910	162	4.365	407	-2.45***
						(0.80)
Distance from Border	252	4.770	164	4.780	416	-0.0098
						(0.28)
Log(Population)	245	8.906	162	8.804	407	0.10
						(0.15)
Fraction White	245	0.917	162	0.941	407	-0.024**
						(0.012)
Fraction Black	245	0.0603	162	0.0454	407	0.015
						(0.011)
Fraction Poverty	245	0.0642	162	0.0699	407	-0.0057
						(0.0048)
Unemployment	244	0.0594	162	0.0575	406	0.0018
						(0.0025)
Median Household Income	245	22115.1	162	20340.9	407	1774.2***
						(618.2)
20 Miles from the Border						
Permitted Buildings	405	22.56	305	33.85	710	-11.3*
						(6.01)
Buildings Per Captia (1000s)	388	2.032	299	3.771	687	-1.74***
						(0.46)
Permitted Units	405	31.64	305	59.73	710	-28.1**
						(14.3)
Units Per Capita (1000s)	388	2.400	299	4.275	687	-1.87***
						(0.51)
Distance from Border	405	8.446	305	9.439	710	-0.99**
						(0.43)
Log(Population)	388	8.913	299	8.754	687	0.16
						(0.10)
Fraction White	388	0.921	299	0.947	687	-0.026***
						(0.0082)
Fraction Black	388	0.0579	299	0.0393	687	0.019**
						(0.0074)
Fraction Poverty	388	0.0620	299	0.0635	687	-0.0016
						(0.0033)
Unemployment	386	0.0572	299	0.0554	685	0.0018
						(0.0019)
Median Household Income	388	22826.8	299	21157.0	687	1669.7***
						(483.2)

Note: ***,**,* represent 1%, 5%, 10% levels of significant respectively. Standard errors in parenthesis. Control group are towns in New York and Pennsylvania. Treatment group are towns in New Jersey. Data on permits from US Building Permit Surveys. Demographic data from 1980 decennial Census. Distance from the Border (measured in miles) was constructed from US Census Cartographic Border Files and US Census Gazetteer Files.

greater than the 10% level. When including towns up to 20 miles from the border, the difference in units and buildings permitted narrows between treatment and control, and the rest of the demographics stay about the same. When the New York City boroughs are removed (Table A.2) the size of the difference between units and buildings permitted also decreases, down to only a difference of 15.1 buildings and 22.3 units for towns within 10 miles and 6.62 and 9.08 for towns within 20 miles while demographics are similar between treatment and control. This suggests that in the pre-period, the treatment and control groups have similar town demographics, giving evidence that the towns have similar housing market trends, even if their baseline levels of permits are different.

The overall data for buildings and units permitted is skewed to the right and has 32.89% of the data as zeroes (Figure A.1). This poses a problem because the common way of dealing with right-skewed data is using a log-transformation, however log is not defined at zero. One way to get around this is to use a log-like transformation of $\log(x+1)$ or to use $\operatorname{asinh}(x) = \log(x + \sqrt{x^2+1})$ known as Inverse Hyperbolic Sine which I refer to as IHS. I use IHS as a transformation for my main results, but I also discuss the problems of this type of approach and use some alternative specifications in Section 5.2.

4 Methods

To get at the causal effect of changes from Mt. Laurel II, I use a difference-in-difference approach comparing towns in New Jersey to towns in the bordering states Pennsylvania and New York, which I estimate using the following regression equation:

$$y_{i,t} = \alpha_i + \alpha_{j,t} + \beta MTLII_{i,t} + \varepsilon_{i,t}$$

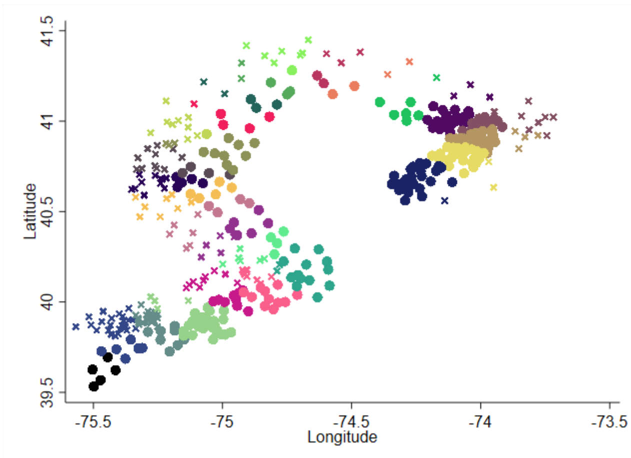
where i is a town within 10 or 20 miles from the New Jersey Border, t is a year and j is the nearest 10 mile or 20 mile border segment for a given town i. A visualization of the comparison groups for different distance from the border and different border segment lengths is presented in Figure 2. The outcome variable $y_{i,t}$ is a measure of approved residential buildings or units in town i in year t. The variable $MTLII_{i,t}$ is a dummy variable equal to 1 when town i is in New Jersey and year $t \geq 1984$ (starting the year after the creation of the policy) and 0 otherwise. To help control for town level characteristics, I include α_i which is a variable for town level fixed effects. I also include $\alpha_{j,t}$ which are border-year fixed effects to control for time trends within specific geographical border segments. Finally, $\varepsilon_{i,t}$ is the error term.

Additionally, I run an event study regression using the following equation:

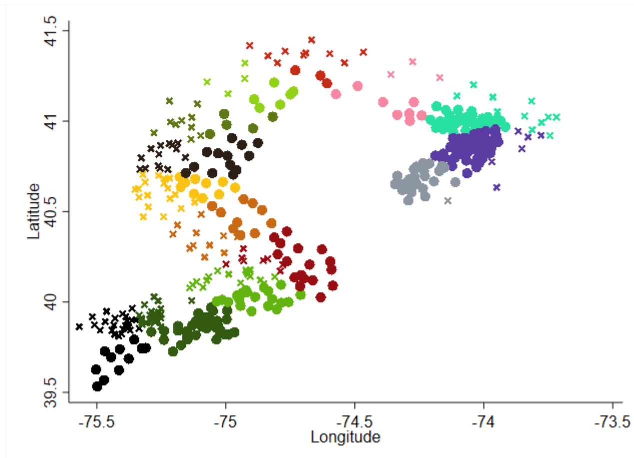
$$y_{i,t} = \alpha_i + \alpha_{j,t} + \sum_{k \neq 1983} \gamma_k (year_{k,t} \times NJ_i) + \eta_{i,t}$$

where $year_{k,t}$ is equal to 1 if year t is equal to k and 0 otherwise. NJ_i is an indicator for town i being in New Jersey and $\eta_{i,t}$ is the error term. Note that 1983 is the excluded year, so the remaining γ_k estimates are relative to 1983. By plotting these coefficients I am able to study the relative effects of the Mt. Laurel Doctrine in a given year, which can be used to study potential pre-trends that could violate the parallel trends assumption.

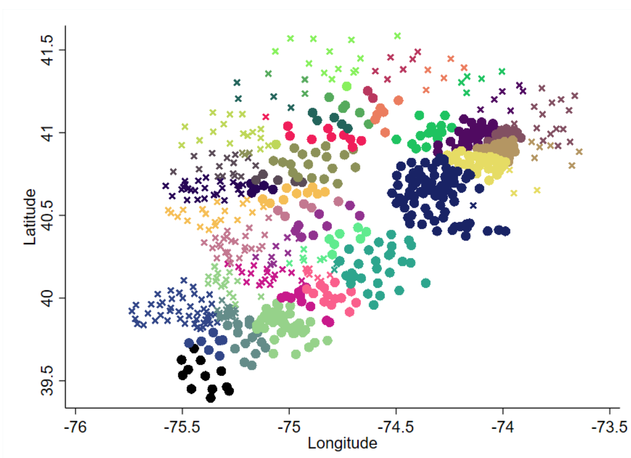
In order for the difference-in-difference strategy to measure the causal effects of the Mt.



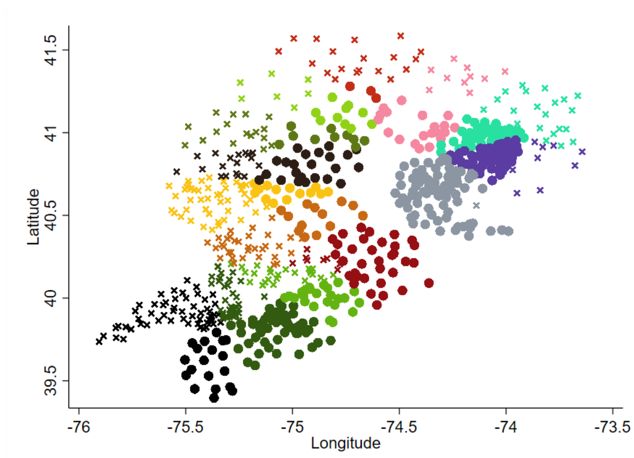
(a) 10 Mile Border Segments, 10 Mile Towns



(b) 20 Mile Border Segments, 10 Mile Towns



(c) 10 Mile Border Segments, 20 Mile Towns



(d) 20 Mile Border Segments, 20 Mile Towns

Figure 2: Groupings by Border Segments (Colors) for Treatment (Dots) and Control (Xs)

Note: 10 and 20 Mile Towns refer to distance of towns from the New Jersey Borer included in the sample. Each color represents a separate border segment.

Laurel II policy, it must be the case that the control group represents the counterfactual trend for the treatment group. Therefore, in the pre-period I must verify that the trends are parallel. There also cannot be any economic shocks that can affect housing production in the treatment and control groups differently after the policy is implemented. As shown in Figures A.3 and A.4 there is an increase in the housing production starting in 1983 and continuing throughout most of the 1980s and this housing cycle must affect treatment and control equally to my estimates to be causal.

Additionally, specifying the correct functional form for my outcome variable is important because trends can either be parallel in additive or multiplicative terms, but not both (Ciani and Fisher, 2018). If trends are additive, then the difference-in-difference should use a counterfactual trend of a change in levels, meaning that the log-transformation of the outcome variable is not a correct specification because it is a percent change interpretation. If the trends are multiplicative, then the correct functional form is a log-like transformation because it captures the change in percents. However, using a log-like transformation can introduce bias even in a difference-in-difference setting and using a Poisson Regression may be preferable, especially in a case such as for building permits where there are many zeros in the outcome variable (Ciani and Fisher, 2018). In order to explore all of these ideas, I first run my regressions using Inverse Hyperbolic Sine of the outcome variables, then explore alternate approaches such as normalizing the outcome variable by dividing by population and also using a Poisson regression.

5 Results

5.1 Main Results

For my first specification, I run regressions varying the maximum distance from the border and the size of the border segments for the border-year fixed effects with outcomes of Inverse Hyperbolic Sine (IHS) units and IHS buildings, with results presented in Table 2. For my primary regression for towns within 10 miles of the border and for 10 mile border segments, I find that the Mt. Laurel II policy increased the number of units permitted in New Jersey towns by 18% compared to the control group with results being significant at the 1% level. When keeping towns within 10 miles from the border, but looking at 20 mile border segments, the effect drops to 14% and but is still significant at 5% level. However, when looking at estimates for towns within 20 miles of the border, the point estimates become negative and very small in magnitude and are no longer statistically significant.

When looking at IHS buildings as an outcome, the results are very similar, with the primary regression of the effect of the Mt. Laurel Doctrine increasing total building permits by 16% for towns within 10 miles of the border with 10 mile border segments and an increase of 13% for towns within 10 miles with 20 mile border segments. These estimates are statistically significant at the 1% and 5% levels respectively. As with units as an outcome, when extending the sample to include towns up to 20 miles from the border, the results become negative, small in magnitude, and statistically insignificant for both 10 and 20 mile border segments.

I also run these regressions excluding the New York City boroughs as they are an outlier

Table 2: IHS Units and IHS Buildings

With NYC

	IHS Units				IHS Buildings			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mt Laurel II	0.18***	0.14**	-0.020	-0.00086	0.16***	0.13**	-0.032	-0.017
	(0.068)	(0.064)	(0.055)	(0.052)	(0.060)	(0.056)	(0.051)	(0.047)
N	4160	4160	7100	7100	4160	4160	7100	7100
R-Squared	0.80	0.79	0.79	0.78	0.82	0.81	0.81	0.80
Miles from Border	10	10	20	20	10	10	20	20
Border Segment Length (Miles)	10	20	10	20	10	20	10	20

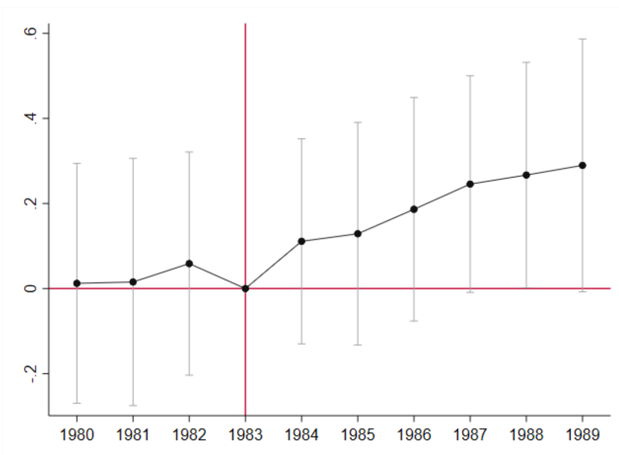
No NYC

	IHS Units				IHS Buildings			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mt Laurel II	0.16**	0.13*	-0.042	-0.013	0.16***	0.14**	-0.039	-0.018
	(0.071)	(0.067)	(0.057)	(0.053)	(0.062)	(0.058)	(0.052)	(0.048)
N	4120	4120	7050	7050	4120	4120	7050	7050
R-Squared	0.78	0.78	0.78	0.77	0.81	0.80	0.81	0.80
Miles from Border	10	10	20	20	10	10	20	20
Border Segment Length (Miles)	10	20	10	20	10	20	10	20

Note: ***,**,* represent 1%, 5%, 10% levels of significant respectively. Standard errors in parenthesis. Data from 1980-1989. No NYC indicates the removal of the 5 NYC boroughs from the sample.

in terms of units and buildings permitted, so they potentially could potentially be driving the results. However, even with the removal of boroughs the results are very similar, with the effect size ranging from 13-16% for total units permitted and 14-16% for total buildings permitted. It should be noted that for all of these results the standard errors are quite large, meaning the estimates for the effects of the Mt. Laurel Doctrine are not precisely measured, even if they are statistically significant from zero.

When looking at event studies for the specifications including towns only within 10 miles from the border (Figure 3), there does not seem to be any evidence of pretrends although there are not very many years in the pre-treatment period to study. In particular, the effect of the doctrine for years in the pre-period are almost entirely all zero for the specifications with 20 mile border segments, which is why I use the 20 mile border segment as my preferred specification. Moreover, there is evidence of a discrete jump in permits, both in terms of units and buildings permitted, following the enactment of Mt. Laurel II in 1983, which further supports that the effects are caused by the Mt. Laurel II. However, each individual year is very imprecisely measured and are not statistically significant at the 5% level, even when there is a large measured effect.



(a) IHS Units, 10 Mile Border Segments

(b) IHS Units, 20 Mile Border Segments

(c) IHS Buildings, 10 Mile Border Segments

(d) IHS Buildings, 20 Mile Border Segments

Figure 3: Event Studies of IHS Units and IHS Buildings, Towns 10 Miles From the Border

Note: Bars are 95% Confidence Intervals. Year 1983 is omitted. Line at 1983 represents the year of the Mt. Laurel II ruling.

While there is a large and significant effect for towns within 10 miles from the border, there is no effect for towns within 20 miles from the border. This might be the case if towns 20 miles from the border are not the proper counterfactual. If the control group for towns within 20 miles from the border were comprised of towns that did not closely match the actual housing markets of the treatment group, then the counterfactual trend would be misspecified. Although the observable characteristics from the summary statistics appeared to be similar between treatment and control for towns within 20 miles of the border, it might be the case that the further the towns are from the border, the housing markets trends are increasingly dissimilar and could be differentially impacted by any housing market shocks. However, this is something that could be explored further to give a more complete rationale for the null effects for this sample.

Overall, my preferred specification for towns within 10 miles of the border and for 20 mile border segments finds that Mt. Laurel II increased total units permitted by 14% and total buildings permitted by 13%. This is comparable to the effects found in Mast (2022) who found an effect size of 20% for total units permitted and Tricaud (2021) who found an effect size of 12.5% on total buildings permitted when looking at changes in local control of zoning. When comparing to correlations between upzoning and housing supply, it is hard to get a direct comparison because there are many aspects to zoning codes (unit density, minimum lot size, maximum height, etc.) and Builder's Remedy can be used to get around any part of the zoning regulations. However, Glaeser et al. (2006) found similar effect sizes on buildings permitted when looking at correlations from regulations imposed from wetland regulations and subdivision policies in the Greater Boston Area.

5.2 Alternate Specifications for Mt. Laurel II (1983)

One issue with the previous regressions is that using inverse hyperbolic sine or other-log like transformations on variables with zero-values have a degree of arbitrariness depending on the units of the variable, e.g. there can be different measured effects when using dollars vs. thousands of dollars (Chen and Roth, 2023). Following from Chen and Roth (2023), the first alternate specification I use is normalizing the outcome variables. I do this by taking units per capita and buildings per capita using NHGIS population data from 1980. Due to some outliers, I Winsorize the top 1% of the data in the right tail of the distribution. The results are found in tables A.3. Using this specification, I find statistically significant results, with the Mt. Laurel II policy increasing the number of units by 1.12 per thousand people and the number of buildings by 1.01 per thousand people in New Jersey compared to towns in the control group when looking at towns within 10 miles from the border and for 20 mile border segments. These results remain positive and statistically significant for all specifications that include towns within 10 miles from the border. However, as before when looking at IHS of outcome variables, when including towns 20 miles from the border, the results become small, negative and statistically significant.

When looking at the event studies (Figure A.5) there is some evidence of a pretrend. This may occur because the underlying trends are indeed multiplicative and not additive because this specification shows the changes in levels and not percent. However, there also appears to be a discrete jump in permits starting in 1984, which gives evidence of an actual effect from the policy.

A second alternate specification is using a Poisson regression. Since this data is nonnegative count data, a Poisson regression can be used Wooldridge (2010). In particular I use the STATA command `ppmlhdfe` created by Correia et al. (2020) which runs a psuedo-poisson regression allowing for high dimensional fixed effects. This type of regression measures the effect of the policy as a percent change in the means relative to the control mean which is a measure suggested by Chen and Roth (2023) to use instead of the log-like measures. The reasoning is that since the percentage is relative to the control group mean, the measurement is not dependent on the units of the outcome variable. The results for these regressions are found in Table A.4. When looking at units as the outcome variable, and when including NYC boroughs, the point estimates range from 0.15 to 0.22 and are all statistically significant at the 5% level. This can be interpreted as the Mt. Laurel Doctrine increasing the number of expected units by 15% to 22% for towns in New Jersey compared to the control. When removing the NYC boroughs, the point estimates increase significantly varying from 0.30 to 0.42 and are all statistically significant at the 1% level. The reason for this increase in the size of the point estimates from removing NYC boroughs is that the Poisson regressions can be sensitive to outliers and skewed data due to the fact it is measuring changes relative to the control mean. Therefore, by removing observations with a lot of units from the control group, it decreases the control group mean, thereby increasing the effect of the treatment relative to the control group.

When looking at permitted buildings as an outcome and including NYC Boroughs, the results are only statistically significant for towns within 10 miles from the border, with effect sizes of 19-21%; however, when NYC Boroughs are excluded, the results become statistically significant at the 1% level for all specifications with effect sizes ranging from 29-30% for towns within 10 miles and effect sizes of 15-18% for towns within 20 miles from the border.

The event studies for the Poisson regressions with the NYC boroughs are shown in Figure A.6. For units, the event study shows some noise present in the pretrends and some effect following the passage of the doctrine in 1983 and the evidence that the exact effect starts in 1984 is not compelling. When looking at buildings as an outcome, the event study shows a nice effect occurring in 1984 with no evidence of any pretrends. This difference between units and buildings is likely from the buildings being a less skewed measure by the nature of the variables.

It is also important to look at the event studies with the removal of the NYC boroughs (Figure A.7). The event study for units is very interesting with a large increase in the effect occurring in the year when the policy was created, with this effect persisting throughout the remainder of the 1980's. This is at odds with the event studies from previous specifications, which find initial effects occurring in 1984, a year after the policy was created. For buildings, there appears to be some increase in 1983 with another increase in 1984. The difference between the event studies with and without the New York City boroughs shows that the Poisson regression is very sensitive to skewed data and thus requires caution when interpreting their results.

Overall, these alternate specifications give further evidence of the robustness of the effects of the Mt. Laurel Doctrine on housing production for towns within 10 miles of the border.

5.3 Heterogeneity: Single-Unit and Multi-Unit Buildings

For heterogeneity, I look into the effects for single-family and multi-family housing permits separately, which I refer to as single-unit and multi-unit buildings. For my main specification, I use IHS of single-unit buildings and IHS of multi-unit buildings permitted as the outcome variables, with regression results presented in Table 3.

Table 3: IHS Single-Unit and Multi-Unit Buildings

With NYC								
	IHS Single-Unit Buildings				IHS Multi-Unit Buildings			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mt Laurel II	0.14**	0.10*	-0.024	-0.023	-0.093*	-0.089*	-0.11**	-0.077*
	(0.063)	(0.057)	(0.051)	(0.047)	(0.053)	(0.050)	(0.043)	(0.041)
N	4160	4160	7100	7100	4160	4160	7100	7100
R-Squared	0.82	0.81	0.81	0.81	0.72	0.71	0.66	0.66
Miles from Border	10	10	20	20	10	10	20	20
Border Segment Length (Miles)	10	20	10	20	10	20	10	20

No NYC								
	IHS Single-Unit Buildings				IHS Multi-Unit Buildings			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mt Laurel II	0.15**	0.11*	-0.025	-0.022	-0.088	-0.081	-0.11**	-0.072*
	(0.062)	(0.057)	(0.052)	(0.047)	(0.054)	(0.051)	(0.045)	(0.042)
N	4120	4120	7050	7050	4120	4120	7050	7050
R-Squared	0.82	0.81	0.81	0.80	0.67	0.65	0.61	0.60
Miles from Border	10	10	20	20	10	10	20	20
Border Segment Length (Miles)	10	20	10	20	10	20	10	20

Note: ***,**,* represent 1%, 5%, 10% levels of significant respectively. Standard errors in parenthesis. Data from 1980-1989. No NYC indicates the removal of the 5 NYC boroughs from the sample.

For towns within 10 miles of the border, I find that single-unit buildings increased by 10-15% depending on the specification, and all of which statistically significant at the 10% level or higher. As before with overall permits, the results were small and statistically insignificant for the sample of towns within 20 miles from the border. Looking at the event study plot for single-unit buildings (Subfigures (a) and (b) in Figure 4) there is no pretrend and there is an increase in single-family buildings in 1984 and 1985, the first two years following Mt. Laurell

II, however, there is a sharp decline in 1986 which then bounces back up in the following years.

For multi-unit buildings, there was a large, negative measured effect, with a decrease of 8-9% in multi-unit permits permits for specifications including towns within 10 miles from the border. However, when looking at the the event study of the multi-unit buildings (Subfigures (c) and (d) in Figure 4) there is a clear downward pretrend, thus the regression results must be interpreted with caution. Moreover, there is no evidence increases in multi-unit buildings in 1984 or 1985, but in 1986 there is a discrete increase in permits and the following years remaining at that level.

A potential explanation for this phenomena happening in 1986 is the 1985 New Jersey Fair Housing Act, which created the Council on Affordable Housing and allowed for towns to instead create their own affordable housing plans and receive protection from Builder's Remedy, with the effect on housing supply happening in the permit data the following year. After Mt. Laurel II was first created, developers potentially saw this as an opportunity to use the pressure of builder's remedy to bypass local zoning codes to build single-family housing in areas where they were previous unable to. Then, with the creation of the COAH in 1985, this led to a pause in Builder's Remedy lawsuits for towns that created housing plans, which may have focused on multi-unit housing to meet the COAH's requirements, thus explaining the decrease in single-unit permits and the increase in multi-unit permits the following year. However, this would rely on developers to work with the towns to build more multi-unit housing, and this does not explain the increases in single-unit housing following 1986. Moreover, this theory is just speculation and is something that can be explored further

(a) IHS Single-Unit Buildings
10 Mile Border Segments

(b) IHS Single-Unit Buildings
20 Mile Border Segments

(c) IHS Multi-Unit Buildings
10 Mile Border Segments

(d) IHS Multi-Unit Buildings
20 Mile Border Segments

Figure 4: Event Study of IHS Single-Unit Buildings and IHS Multi-Unit Buildings, Towns Within 10 Miles of the Border

Note: Bars are 95% Confidence Intervals. Year 1983 is omitted. Line at 1983 represents the year of the Mt. Laurel II ruling.

for a more well justified explanation.

Looking at the overall effects, the estimates show that developers were using Builder's Remedy to build single-unit housing and not multi-unit housing. This aligns with anecdotal evidence from the early builder's remedy lawsuits that suggest that developers were interested in using the Mt. Laurel Doctrine to build townhouses[7] , which is a form of attached single-family housing. However, since the US Building Permit Survey does not distinguish between attached and detached single family housing, I cannot further investigate the effects.

A potential explanation for why there were no positive measured effects for multi-unit buildings is that they may not have been in high demand. In one particular Builder's Remedy case, filed in 1993, developers specifically requested zoning for single-family housing in an area where zoning was multi-family only, arguing that single-family housing was in much more demand[8]. This suggests that developers were looking to build the single-family housing which was more popular in these generally suburban areas in my data set (with exceptions of a few large cities like New York City and Philadelphia). This is supported in my data with only 11.6% of the total permits for towns within 10 miles of the border from 1980 to 1989 allocated to multi-unit building permits.

In addition to specifications using IHS, I run robustness checks using single-unit and multi-unit buildings per capita and using a poisson regression, with both alternate specifications giving similar results. Event studies for these specifications are shown in Figures A.8 and A.9. Overall, there is strong evidence of an effect on single-unit housing but not for

[7] "In the Region: New Jersey; 300 Princeton Units on Mostly Open Space", New York Times 1992; "Mount Laurel Reshapes Moore Estate Plan", New York Times 1985; "Ethel R. Lawrence Homes & Robinson Estates", Fair Share Housing Development 2023

[8] Toll Brothers, Inc. v. Township of West Windsor 2001

multi-unit housing.

6 Conclusion

I find that Mt. Laurel II increased total housing units permitted by 14% and total residential buildings permitted by 13% on average for towns in New Jersey compared to New York and Pennsylvania, using my preferred specification of towns within 10 miles from the New Jersey border and grouping by 20 mile border segments. These results rely on using towns in Pennsylvania and New York within 10 miles of the New Jersey border as a proper comparison group, with the effects becoming null when towns 20 miles from the border are included. These positive results on housing production for towns within 10 miles of the border are also robust to alternate specifications including removal of the New York City boroughs, looking at units and buildings per capita as an outcome, and running a poisson regression on units and buildings.

Additionally, when looking at the effects of the policy on single-unit and multi-unit housing, the effect is mainly driven by increases in single-unit housing and not in multi-unit housing. A plausible explanation for this is that developers were using the reduced zoning regulations to build more attached single-family housing such as townhouses, while multi-unit buildings were not a popular choice in the suburban towns in my data set.

Overall, these findings give evidence that Builder's Remedy is a viable way to increase housing supply and potentially can be used to address the rising cost of housing. This adds further empirical evidence to the literature of effectiveness of policies that relax land-use and zoning regulations and can be used as evidence by policy makers looking to increase housing supply.

However, further research needs to be done to study the effects of the policy. One aspect that needs further research is to see if this is a net increase in housing or if aggregate housing was the same due to developers from Pennsylvania and New York coming over to New Jersey to build housing. Additionally, there were later additions to the Mt. Laurel Doctrine created in the New Jersey Fair Housing Act in 1985 such as Regional Contribution Agreements which allowed towns to send money to build housing in other towns to count towards their minimum affordable housing requirements, and further changes to the Mt. Laurel Doctrine over time that potentially could be studied to understand how different implementations of Builder's Remedy affects housing supply.

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A Appendix

A.1 Data

Table A.1: Overall Summary Statistics

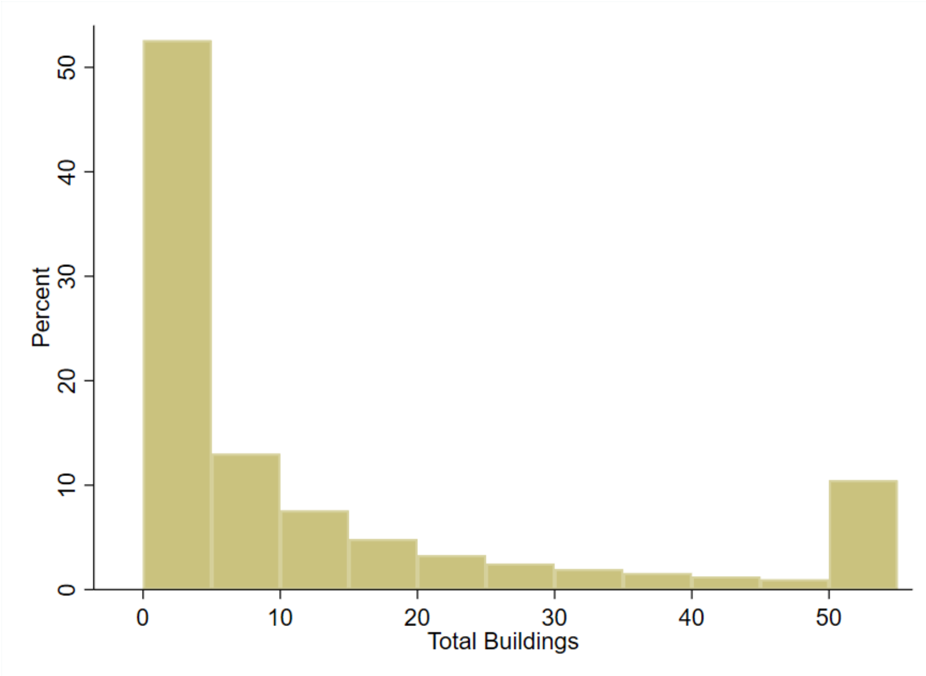
	Control			Treatment		
	N	Mean	SD	N	Mean	SD
Permit Data (1980-1989)						
Permitted Buildings	31990	19.00	75.84	5650	50.06	116.57
Buildings Per Captia (1000s)	31200	3.51	9.18	5440	5.53	12.21
Permitted Units	31990	25.66	137.96	5650	67.06	154.12
Units Per Capita (1000s)	31200	3.97	10.32	5440	6.79	15.27
Town Demographics (1980)						
Distance from Border	3199	133.17	83.54	565	15.39	13.46
Log(Population)	3120	7.74	1.29	544	8.79	1.21
Fraction White	3120	0.98	0.05	544	0.92	0.12
Fraction Black	3120	0.01	0.04	544	0.06	0.11
Fraction Poverty	3120	0.10	0.05	544	0.07	0.05
Unemployment	3117	0.08	0.04	542	0.06	0.03
Median Household Income	3120	16711.71	4202.23	544	22046.28	6958.56

Note: Statistics for all towns in the data set for New Jersey, New York and Pennsylvania. Control group are towns in New York and Pennsylvania. Treatment group are towns in New Jersey. Permits data from US Census Building Permit Surveys for years 1980-1989. Town Demographics from 1980 Census. "Distance from the Border" refers to distance in miles from NJ-NY and NJ-PA border and is calculated from US State Border Files and US Gazetteer Files.

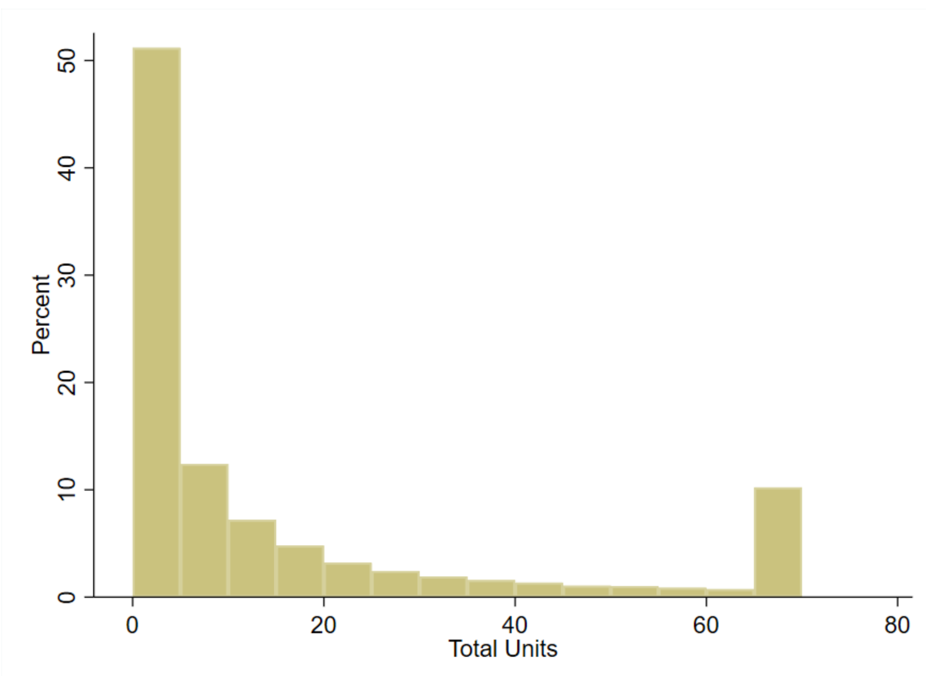
Table A.2: Summary Statistics: Towns by Distance from the Border in 1980 (No NYC Boroughs)

	Treatment		Control		T-C	
	N	Mean	N	Mean	N	Diff.
10 Miles from the Border - No NYC						
Permitted Buildings	252	16.09	160	31.18	412	-15.1*
						(7.96)
Buildings Per Captia (1000s)	245	1.591	158	3.714	403	-2.12***
						(0.74)
Permitted Units	252	26.77	160	49.11	412	-22.3
						(17.0)
Units Per Capita (1000s)	245	1.910	158	4.436	403	-2.53***
						(0.81)
Distance from Border	252	4.770	160	4.784	412	-0.014
						(0.28)
Log(Population)	245	8.906	158	8.675	403	0.23*
						(0.14)
Fraction White	245	0.917	158	0.949	403	-0.032***
						(0.011)
Fraction Black	245	0.0603	158	0.0406	403	0.020*
						(0.011)
Fraction Poverty	245	0.0642	158	0.0665	403	-0.0024
						(0.0044)
Unemployment	244	0.0594	158	0.0570	402	0.0023
						(0.0025)
Median Household Income	245	22115.1	158	20489.0	403	1626.2***
						(620.4)
20 Miles from the Border- No NYC						
Permitted Buildings	405	22.56	300	29.18	705	-6.62
						(5.00)
Buildings Per Captia (1000s)	388	2.032	294	3.824	682	-1.79***
						(0.47)
Permitted Units	405	31.64	300	40.72	705	-9.08
						(9.75)
Units Per Capita (1000s)	388	2.400	294	4.324	682	-1.92***
						(0.52)
Distance from Border	405	8.446	300	9.500	705	-1.05**
						(0.43)
Log(Population)	388	8.913	294	8.664	682	0.25***
						(0.096)
Fraction White	388	0.921	294	0.952	682	-0.031***
						(0.0079)
Fraction Black	388	0.0579	294	0.0362	682	0.022***
						(0.0073)
Fraction Poverty	388	0.0620	294	0.0615	682	0.00045
						(0.0032)
Unemployment	386	0.0572	294	0.0551	680	0.0021
						(0.0019)
Median Household Income	388	22826.8	294	21261.7	682	1565.0***
						(484.2)

Note: ***,**,* represent 1%, 5%, 10% levels of significant respectively. Standard errors in parenthesis. Control group are towns in New York and Pennsylvania. Treatment group are towns in New Jersey. Demographic data from 1980 decennial Census.



(a) Distribution of Buildings (50+ Grouped into single bin)



(b) Distribution of Units (65+ Grouped into single bin)

Figure A.1: Distribution of Buildings and Units Permitted for all towns in NJ, NY, and PA from 1980-1989 (Bin Width = 5)

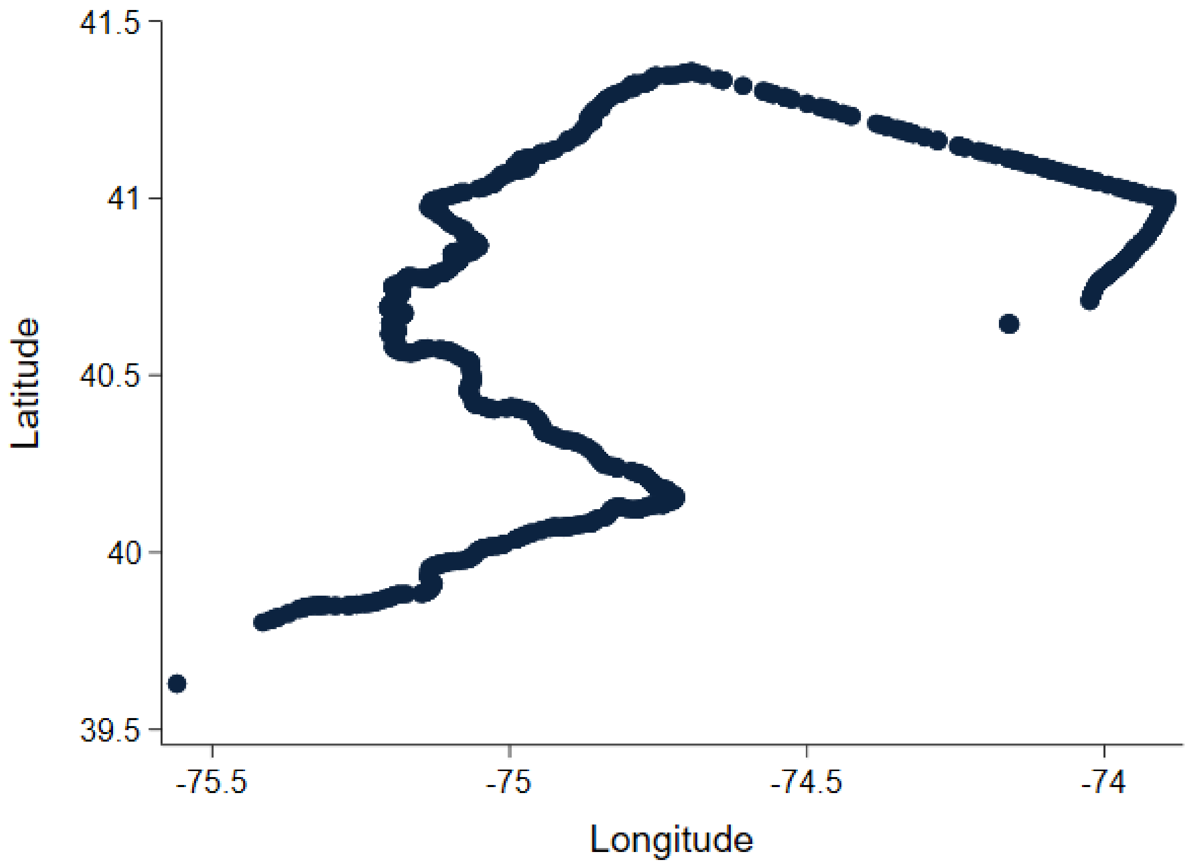
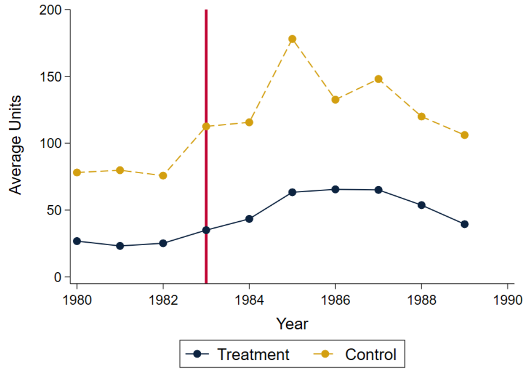
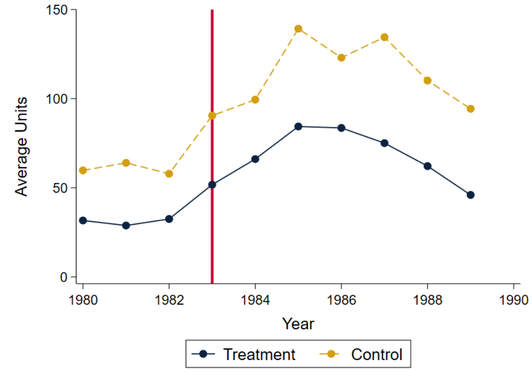


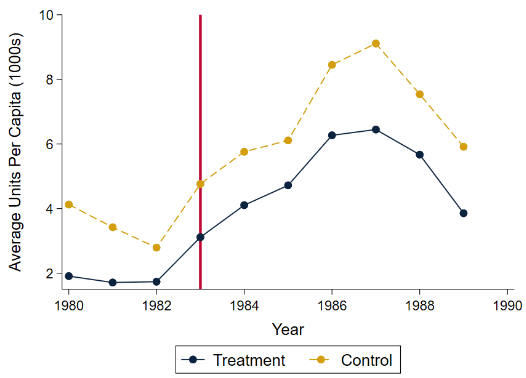
Figure A.2: NJ-PA and NJ-NY Border Coordinates



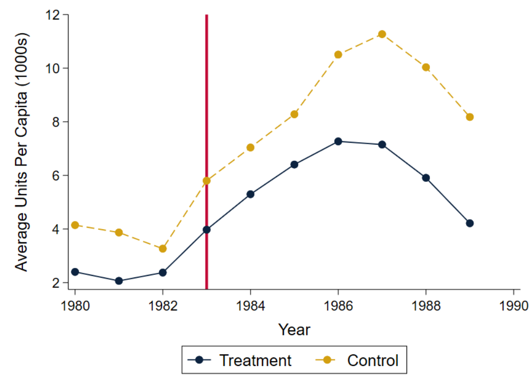
(a) Units, within 10 Miles



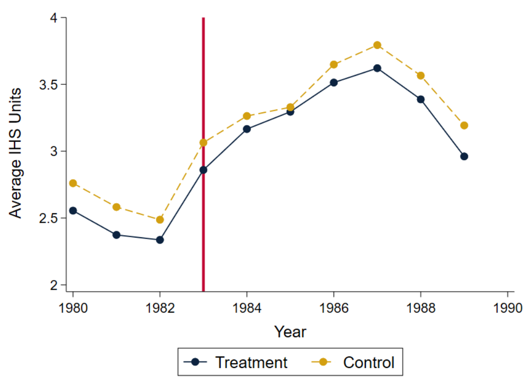
(b) Units, within 20 Miles



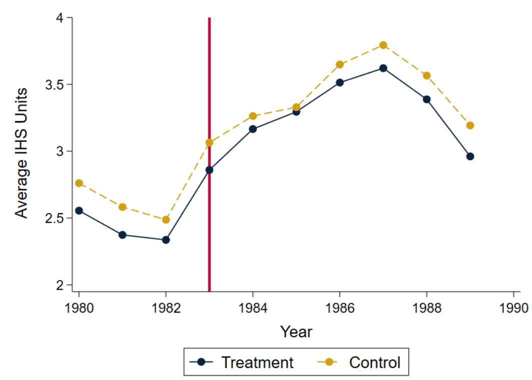
(c) Units Per Capita (1000s), within 10 Miles



(d) Units Per Capita (1000s), within 20 Miles



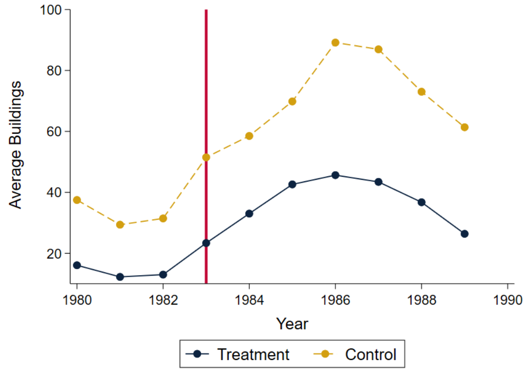
(e) IHS Units, within 10 Miles



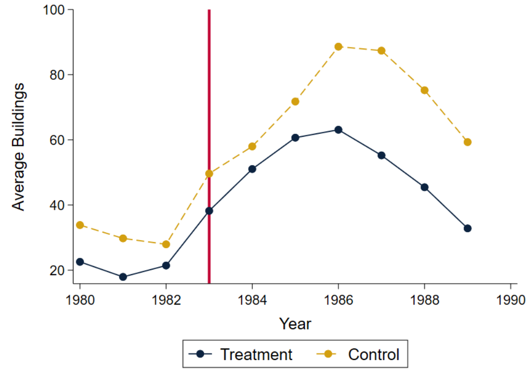
(f) IHS Units, within 20 Miles

Figure A.3: Different Functional Forms of Units Over Time

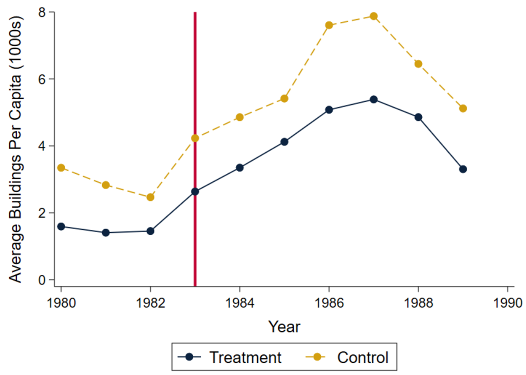
Note: Data for total units from all building types. 10 Miles and 20 Miles referring to distance of towns from the New Jersey Borer included in the sample. Line at 1983 marks year of Mt. Laurel II.



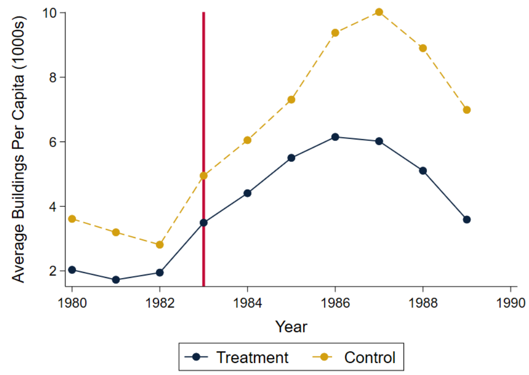
(a) Buildings, within 10 Miles



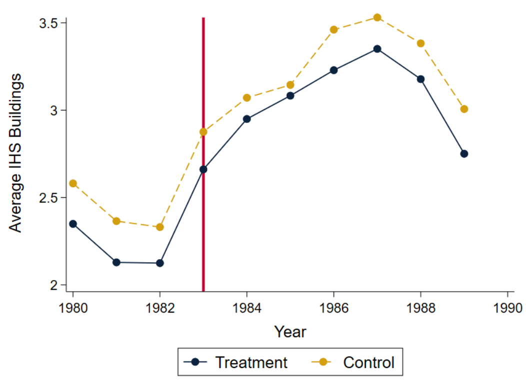
(b) Buildings, within 20 Miles



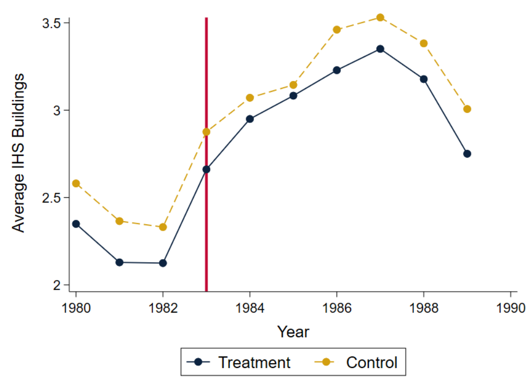
(c) Buildings Per Capita (1000s), within 10 Miles



(d) Buildings Per Capita (1000s), within 20 Miles



(e) IHS Buildings, within 10 Miles



(f) IHS Buildings, within 20 Miles

Figure A.4: Different Functional Forms of Buildings Over Time

Note: Data for all building types. 10 Miles and 20 Miles referring to distance of towns from the New Jersey Borer included in the sample

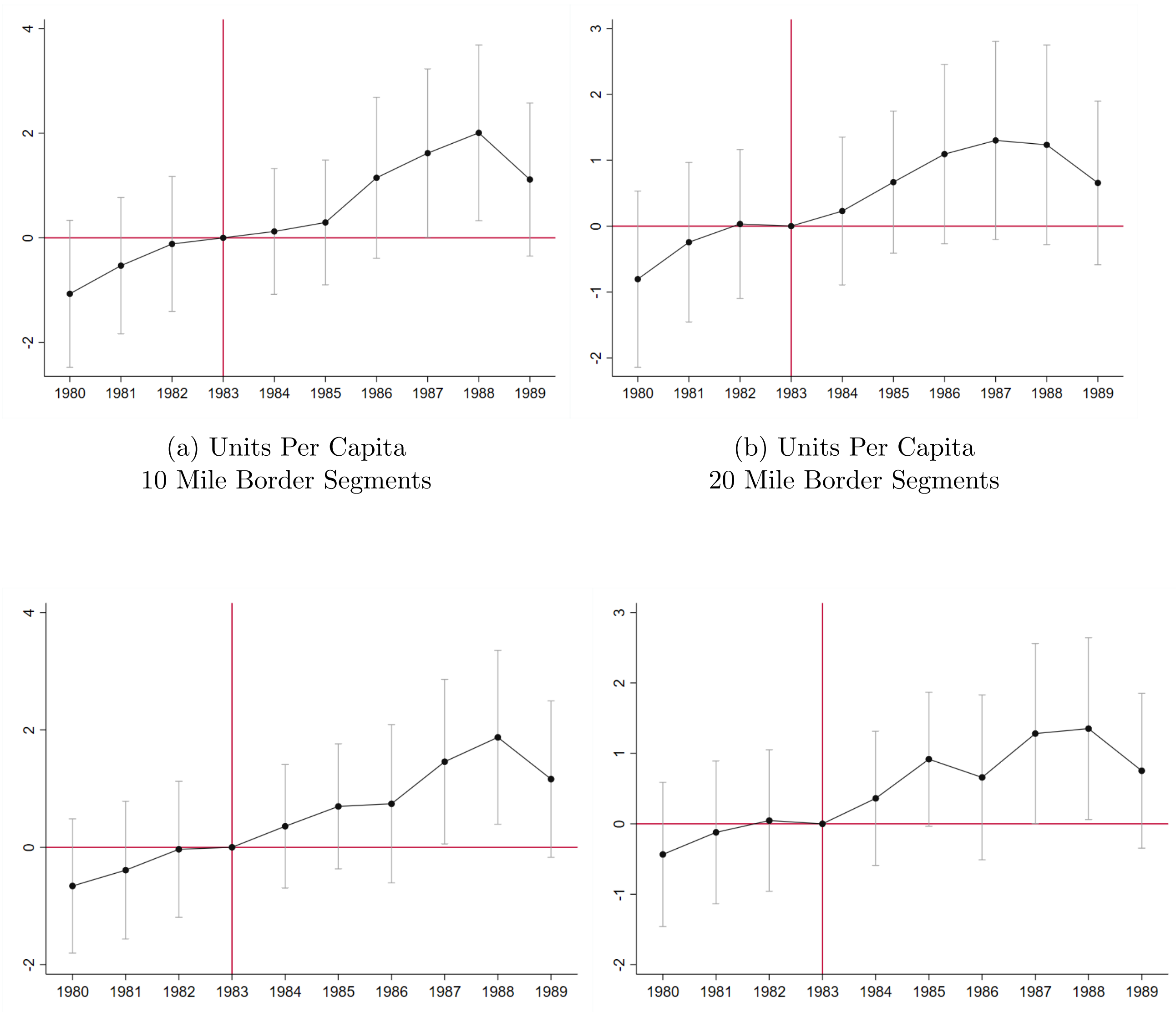
A.2 Mt. Laurel 1983 Alternate Specification Results

Table A.3: Units and Buildings Per Capita (1000s)

With NYC	Units Per Capita (1000s)				Buildings Per Capita (1000s)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mt Laurel II	1.48***	1.12***	-0.043	-0.090	1.32***	1.01***	-0.021	-0.14
	(0.35)	(0.33)	(0.33)	(0.31)	(0.31)	(0.27)	(0.28)	(0.26)
N	4070	4070	6870	6870	4070	4070	6870	6870
R-Squared	0.72	0.71	0.68	0.67	0.77	0.75	0.71	0.70
Miles from Border	10	10	20	20	10	10	20	20
Border Segment Length (Miles)	10	20	10	20	10	20	10	20

No NYC	Units Per Capita (1000s)				Buildings Per Capita (1000s)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mt Laurel II	1.57***	1.18***	-0.053	-0.094	1.42***	1.08***	-0.014	-0.13
	(0.37)	(0.34)	(0.34)	(0.32)	(0.32)	(0.28)	(0.30)	(0.27)
N	4030	4030	6820	6820	4030	4030	6820	6820
R-Squared	0.72	0.71	0.68	0.67	0.77	0.75	0.71	0.70
Miles from Border	10	10	20	20	10	10	20	20
Border Segment Length (Miles)	10	20	10	20	10	20	10	20

Note: ***,**,* represent 1%, 5%, 10% levels of significant respectively. Standard errors in parenthesis. Data from 1980-1989. Observations are less than in regression for IHS Units due to not every town having population data from NHGIS. No NYC indicates the removal of the 5 NYC boroughs from the sample.



(a) Units Per Capita
10 Mile Border Segments

(b) Units Per Capita
20 Mile Border Segments

(c) Buildings Per Capita
10 Mile Border Segments

(d) Buildings Per Capita
20 Mile Border Segments

Figure A.5: Event Study of Units Per Capita and Buildings Per Capita (1000s), Towns Within 10 Miles From the Border

Note: Bars are 95% Confidence Intervals. Year 1983 is omitted. Line at 1983 represents the year of the Mt. Laurel II ruling.

Table A.4: Poisson Regression: Units and Buildings

With NYC

	Units				Buildings			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mt Laurel II	0.18**	0.22**	0.15**	0.15**	0.19***	0.21***	0.037	0.031
	(0.088)	(0.088)	(0.073)	(0.070)	(0.058)	(0.059)	(0.064)	(0.060)
N	4060	4060	6960	6960	4060	4060	6960	6960
Log-Likelihood	-51660.1	-55318.1	-98917.7	-102742.7	-28296.5	-29645.9	-63611.9	-65749.6
Miles from Border	10	10	20	20	10	10	20	20
Border Segment Length (Miles)	10	20	10	20	10	20	10	20

No NYC

	Units				Buildings			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mt Laurel II	0.42***	0.42***	0.34***	0.30***	0.29***	0.30***	0.18***	0.15***
	(0.074)	(0.071)	(0.077)	(0.071)	(0.060)	(0.062)	(0.061)	(0.057)
N	4020	4020	6910	6910	4020	4020	6910	6910
Log-Likelihood	-46459.6	-49032.1	-92146.8	-95489.3	-27468.8	-28800.9	-61539.4	-63745.9
Miles from Border	10	10	20	20	10	10	20	20
Border Segment Length (Miles)	10	20	10	20	10	20	10	20

Note: ***,**,* represent 1%, 5%, 10% levels of significant respectively. Standard errors in parenthesis. Data from 1980-1989. There are fewer observations than IHS regressions because the `ppmlhdfe` regression drops observations that are singletons or are separated by fixed effects. No NYC indicates the removal of the 5 NYC boroughs from the sample.

(a) Units, 10 Mile Border Segments

(b) Units, 20 Mile Border Segments

(c) Buildings, 10 Mile Border Segments

(d) Buildings, 20 Mile Border Segments

Figure A.6: Event Study of Poisson Regression on Units and Buildings, Towns Within 10 Miles From the Border

Note: Bars are 95% Confidence Intervals. Year 1983 is omitted. Line at 1983 represents the year of the Mt. Laurel II ruling.

(a) Units, 10 Mile Border Segments

(b) Units, 20 Mile Border Segments

(c) Buildings, 10 Mile Border Segments

(d) Buildings, 20 Mile Border Segments

Figure A.7: Event Study of Poisson Regression on Units and Buildings, Towns Within 10 Miles From the Border (No NYC Boroughs)

Note: Bars are 95% Confidence Intervals. Year 1983 is omitted. Line at 1983 represents the year of the Mt. Laurel II ruling.

A.3 Heterogeneity Alternate Specification Results

Table A.5: Single-Unit and Multi-Unit Buildings Per 1000 People

With NYC

	Single Unit Buildings Per Capita (1000s)				Multi Unit Buildings Per Capita (1000s)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mt Laurel II	1.26***	0.95***	-0.042	-0.15	0.0079	0.0017	0.00062	-0.0028
	(0.30)	(0.26)	(0.27)	(0.25)	(0.021)	(0.022)	(0.019)	(0.019)
N	4070	4070	6870	6870	4070	4070	6870	6870
R-Squared	0.77	0.76	0.71	0.70	0.46	0.43	0.43	0.41
Miles from Border	10	10	20	20	10	10	20	20
Border Segment Length (Miles)	10	20	10	20	10	20	10	20

No NYC

	Single Unit Buildings Per Capita (1000s)				Multi Unit Buildings Per Capita (1000s)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mt Laurel II	1.35***	1.02***	-0.038	-0.15	0.014	0.0067	0.0036	0.00017
	(0.31)	(0.27)	(0.29)	(0.26)	(0.022)	(0.022)	(0.019)	(0.019)
N	4030	4030	6820	6820	4030	4030	6820	6820
R-Squared	0.77	0.76	0.71	0.70	0.44	0.42	0.42	0.40
Miles from Border	10	10	20	20	10	10	20	20
Border Segment Length (Miles)	10	20	10	20	10	20	10	20

Note: ***,**,* represent 1%, 5%, 10% levels of significant respectively. Standard errors in parenthesis. Data from 1980-1989. Observations are less than in regression for IHS Units due to not every town having population data from NHGIS. No NYC indicates the removal of the 5 NYC boroughs from the sample.

(a) Single-Unit Buildings Per Capita
10 Mile Border Segments

(b) Single-Unit Buildings Per Capita
20 Mile Border Segments

(c) Multi-Unit Buildings Per Capita
10 Mile Border Segments

(d) Multi-Unit Buildings Per Capita
20 Mile Border Segments

Figure A.8: Event Study of Single-Unit and Multi-Unit Buildings Per Capita (1000s), Towns Within 10 Miles of the Border

Note: Bars are 95% Confidence Intervals. Year 1983 is omitted. Line at 1983 represents the year of the Mt. Laurel II ruling.

Table A.6: Poisson Regressions: Single and Multi-Unit Buildings

With NYC

	Single Unit Buildings				Multi Unit Buildings			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mt Laurel II	0.19***	0.21***	0.0099	0.0029	-0.10	-0.092	0.041	0.086
	(0.063)	(0.065)	(0.075)	(0.069)	(0.11)	(0.12)	(0.092)	(0.093)
N	4030	4030	6920	6920	2465	2598	4605	4700
Log-Likelihood	-27508.9	-28982.0	-63070.1	-65322.0	-6197.5	-6663.7	-11766.3	-12422.3
Miles from Border	10	10	20	20	10	10	20	20
Border Segment Length (Miles)	10	20	10	20	10	20	10	20

No NYC

	Single Unit Buildings				Multi Unit Buildings			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mt Laurel II	0.24***	0.26***	0.14**	0.11**	0.094	0.19	0.13	0.21
	(0.063)	(0.066)	(0.062)	(0.058)	(0.17)	(0.16)	(0.16)	(0.14)
N	3990	3990	6870	6870	2425	2558	4555	4650
Log-Likelihood	-26603.2	-27966.2	-60576.7	-62834.8	-5695.2	-6067.3	-11085.5	-11645.9
Miles from Border	10	10	20	20	10	10	20	20
Border Segment Length (Miles)	10	20	10	20	10	20	10	20

Note: ***,**,* represent 1%, 5%, 10% levels of significant respectively. Standard errors in parenthesis. Data from 1980-1989. There are fewer observations than IHS regressions because the `ppmlhdfe` regression drops observations that are singletons or are separated by fixed effects. No NYC indicates the removal of the 5 NYC boroughs from the sample.

(a) Single-Unit Buildings
10 Mile Border Segments

(b) Single-Unit Buildings
20 Mile Border Segments

(c) Multi-Unit Buildings
10 Mile Border Segments

(d) Multi-Unit Buildings
20 Mile Border Segments

Figure A.9: Event Study of Poisson Regressions: Single-Unit and Multi-Unit Buildings

Note: Bars are 95% Confidence Intervals. Year 1983 is omitted. Line at 1983 represents the year of the Mt. Laurel II ruling.

(a) Single-Unit Buildings
10 Mile Border Segments

(b) Single-Unit Buildings
20 Mile Border Segments

(c) Multi-Unit Buildings
10 Mile Border Segments

(d) Multi-Unit Buildings
20 Mile Border Segments

Figure A.10: Event Study of Poisson Regressions: Single-Unit and Multi-Unit Buildings (No NYC Boroughs)

Note: Bars are 95% Confidence Intervals. Year 1983 is omitted. Line at 1983 represents the year of the Mt. Laurel II ruling.