Magontier, P., Solé-Ollé, A., & Viladecans-Marsal, E. (2024). The political economy of coastal development. *Journal of Public Economics*, *238*, 105178.

小组会分享

高涵 2024年10月28日

Introduction

Motivation

- The high demand for coastal access in Spain has led to extensive land development(for hotels and vacation homes and is particularly prominent in popular touristic hotspots), resulting in 36.5 percent of the first 500m from the shore being urbanized.
- Coastal development has advantages, such as job creation, and drawbacks, such as the loss of environmental amenities, for both residents and non-residents. Local governments may prioritize their constituents' interests, resulting in suboptimal coastal development.
- How intergovernmental cooperation in coastal development can be facilitated by political co-partisanship among neighboring municipalities?
- 阳光、冲浪、大沙滩，沿海地区旅游是西班牙的支柱产业，当地政府高强度开发土地建造海滨大别墅和度假村的动机十分强烈
- 开发土地获得经济增长、也会降低舒适度，存在trade off
- 以地谋发展的故事（西班牙版）

Introduction

Related Research and Contribution

Strategic policy interaction among local governments (Brueckner, 2003)

- Spillovers in policies such as taxes(Agrawal et al., 2022), spending(Sole-Olle, 2006) or place based policies.
- Researchers typically estimate the slope of the policy reaction function using spatial econometrics. This paper takes a distinct approach, utilizing an exogenous shock to local governments' incentives to internalize spillovers.（多个邻近政府互动与溢出，文献中常使用一些空间计量模型，但那些设定都依赖不一定成立的假设，本文相对来说识别和论证的场景更外生）

Land use regulations

- Previous studies have shown that cities designing land-use decisions in isolation do not account for the externalities they impose on one another (Fischel, 2008; Helsey and Strange, 1995; Brueckner, 1995, 1998).
- **This study expands on this literature by considering both positive and negative externalities that arise from land use and development.**

The impact of decentralization and government fragmentation on policy outcomes.

Introduction

Preview of Main Findings

- Municipalities with party-aligned mayors develop 46% less land than politically isolated ones, and politically homogeneous coastal areas develop less than fragmented ones. (市长的政治立场和周边市[所谓周边，是指位于一个county里，后面介绍]越相同，政权碎片化越少，土地开发面积越少)
- An increase of one standard deviation in the Herfindahl index (that points to less fragmentation) reduces development by approximately 13% in the entire coastal area.
- The effect is more salient for land closest to shore or previously occupied by forests, in municipalities with a large share of protected land, and for relevant environmental markers, such as air and bathing water pollution.
- Both results are indicative that political homogeneity is good for cooperation and the direction of these effects suggest that amenity spillovers dominate over spillovers related to economic development.

Theoretical Framework

Model Setting

- Describe cooperation in land development between neighboring local governments controlled by different political parties.
- $V(a_i, y_i)$
- N:number of municipalities

- voters' utility, as a function of the value of environmental amenities, a_i, and the level of economic development, y_i.
- $V_a \geq 0, V_y \geq 0, V_{aa} \leq 0$ and $V_{yy} \leq 0$./边际效用递减规律
- Amenities depend on the amount of land kept undeveloped in the municipality, u_i, and in the rest of the municipalities in the coastal area, u_{-i}.
- $a_i = u_i + \theta(N-1)u_{-i}$
- $d_i = 1 - u_i \;\&\; d_{-i} = 1 - u_{-i}$
- 也就是说，模型中假设海边城市的居民们生活的舒适与便利来自于本市和其他市（刻画外部性）尚未开发的土地

Theoretical Framework

Model Setting-continue

- $y_i = d_i + \gamma(N-1)d_{-i}$,经济发展（总收入水平）由本地和邻地开发土地决定，和居民享受生活舒适一样，同样有外部性
- For the sake of simplicity, there are only two political parties, which are labeled j and -j.
- Define N_j and $N_{-j} = N-N_j$ as the number of municipalities controlled by each party, where N_j is the number of municipalities controlled by the majoritarian party.
- In this framework, making the simplifying assumption that municipalities controlled by the same party jointly choose their policies.

- $d = N_j d_j + N_{-j} d_{-j}$
- $V(a_j, y_j) = a_j^{\alpha} y_j^{1-\alpha}$

  $V(a_j, y_j) =$

- $[1-d_j+\theta(N_j-1)(1-d_j)+\theta N_{-j}(1-d_{-j})]^{\alpha}[d_j+\gamma(N_j-1)d_j+\gamma N_{-j}d_{-j}]^{1-\alpha}$

Theoretical Framework

Proof（有兴趣硬算一下，是这个结果）

With both amenity spillovers θ and development spillovers γ, the objective function of municipality j reads:

$$V(a_j, y_j) \equiv A^{\alpha} Y^{1-\alpha} =$$

$$= \left[1 - d_j + \theta(N_j - 1)(1 - d_j) + \theta N_{-j}(1 - d_{-j})\right]^{\alpha} \left[d_j + \gamma(N_j - 1)d_j \; + \gamma N_{-j} d_{-j}\right]^{1-\alpha}$$

Setting the FOC to zero gives

$$-\alpha \frac{\partial A}{\partial d_j} Y = (1 - \alpha) \frac{\partial Y}{\partial d_j} A$$

The response function ${d_j}^*({d^*}_{-j})$ then reads:

$${d_j}^* = \frac{1}{s_1^j s_2^j}\left[(1 - \alpha) s_2^j \left(1 + \; \theta(N - 1)\right) - {d^*}_{-j} N_{-j} \left(\alpha s_1^j \gamma + (1 - \alpha) s_2^j \theta\right)\right]$$

with $s_1^j = 1 + \theta(N_j - 1)$ and $s_2^j = 1 + \gamma(N_j - 1)$

Solving the equation for ${d_j}^*$ yields:

$${d_j}^* = \frac{(1 - \alpha)\left(1 + \; \theta(N - 1)\right)}{\Lambda} s_2^{-j} \left[s_1^{-j} s_2^j - N_{-j}\left(\alpha s_1^j \gamma + (1 - \alpha) s_2^j \theta\right)\right]$$

where $\Lambda = s_1^{-j} s_2^{-j} s_1^j s_2^j - N_j N_{-j}\left(\alpha^2 \gamma^2 s_1^{-j} s_1^j + (1 - \alpha)^2 \theta^2 s_2^{-j} s_2^j + \alpha\gamma\theta(1 - \alpha)\left(s_1^j s_2^{-j} + s_1^{-j} s_2^j\right)\right)$ which is defined on $]0; 1[$ with $\lim_{\{\theta;\gamma\}\to 0} \Lambda = 1^-$ and $\lim_{\{\theta;\gamma\}\to 1} \Lambda = 0^+$.

Theoretical Framework

Prediction of the Model

- F.O.C -取对数之后再求一阶导

- $\alpha\left[1+\theta\left(N_j-1\right)\right]y_j=(1-\alpha)\left[1+\gamma\left(N_j-1\right)\right]a_j$

- $\frac{\partial d^*}{\partial N_j}=-\kappa\left(N_j-N_{-j}\right)(\theta-\gamma)\gtrless 0 \ \ if \ \ \theta\gtrless\gamma$

- $d_j^{\ *}-d_{-j}^{\ *}=-\lambda(\theta-\gamma)\lesseqgtr 0 \ \ if \ \ \theta\gtrless\gamma$

- $\frac{\partial\left(d_j^{\ *}-d_{-j}^{\ *}\right)}{\partial N_j}=-\lambda\mu(\theta-\gamma)\lesseqgtr 0 \ \ if \ \theta\gtrless\gamma$

- 求导后的符号正负不一定。海滨市政新增建设用地规模和政治联盟程度之间的关系并不确定，它取决于居民效用舒适度外部性（参数theta）和经济发展外部性（参数gamma）哪一个占主导。如果theta比较大，说明本地居民非常care邻近市政的舒适程度带来的外溢，此时政治联盟会促使土地开发减少以满足居民效用中对舒适度的需求。

- 从表达式来看，政治联盟对开发土地的影响和这些东西有关：N_j（联盟里的政府数量）、theta（amenity溢出）、gamma（经济发展溢出），这是后文做机制检验的依据。

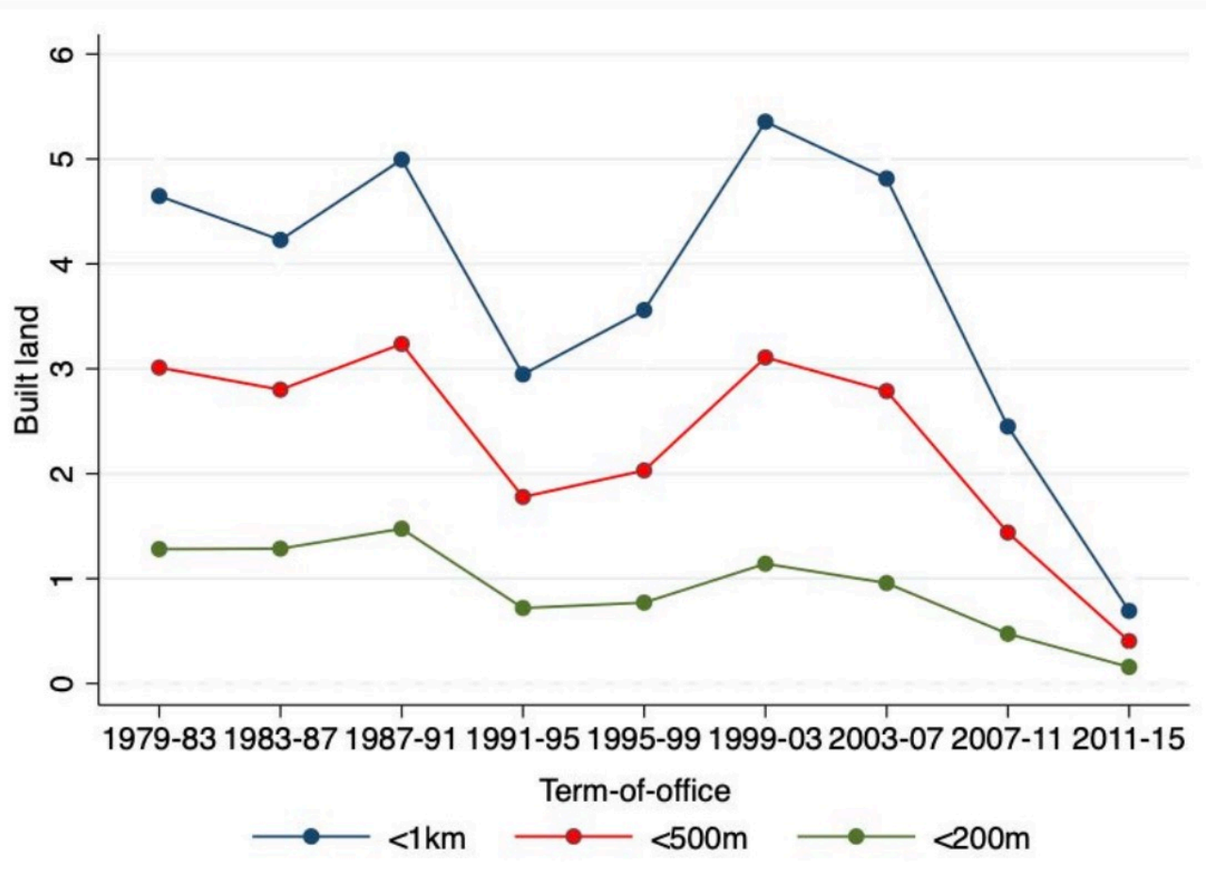
The Spanish Context

Costal Development and Land Use Policy

Figure A.1: *Intensity of Coastal development*, 1956 v. 2012 (Examples)

Sources: PNOA Americano Serie B for 1956. Google Earth for 2012.

Figure A.2:
Evolution of the amount Built land by term-of-office



Notes: (1) Average amount of newly *Built land* (Ha) per term in all Spanish coastal municipalities. (2) We report data for three overlapping fringes: less than 1km from shore, less than 500m and less than 200m. (3) Data from the Spanish cadaster (Dir. Gral. del Catastro).

The Spanish Context

Costal Development and Land Use Policy

- In Spain, coastal land-use policies are fragmented due to the country's extensive number of municipalities, exceeding 8,000, with 465 located along the coast.(地方的高度分权也导致了土地使用政策的碎片化)
- Local governments are primarily responsible for land-use planning. They are responsible for crafting and updating the master plan and zoning regulations, which are rare and complex tasks requiring significant time.(地方在土地开发和规划方面有较强的自主性)
- Consequently, local governments can impact land use development both in the short term and in the medium term (that is, beyond the current term of office).

The Spanish Context

Local Politics

- The electoral system employs proportional representation, allocating seats in the municipal council to party lists. In many municipalities, various left-wing and right-wing parties compete independently, with pre-election coalitions being rare.
- It is important to note that mayors have significant procedural powers, making them influential in the design and execution of land use planning.
- Local elections occur every four years across all municipalities, where voters choose from multiple closed party lists.
- 比例代表制选举
- d'Hondt method确定席位（有兴趣可以了解）

The Spanish Context

Local Politics

汉狄法（d'Hondt method），又译**抗特计算法**，是指在比例代表制下的最高均数方法选举形式之一。该方法由比利时人维克托·东特于1878年首次提出。

汉狄法基本规则为，把每一参选党派所取得票数除以一、二、三、直至议席数目，然后将得出的数字分配予该党派名单上的排第一位的候选人、第二位的候选人、如此类推，然后比较各党派候选人所获得的数字，高者为胜。[1]

政治主题的一部分

选举 / 投票制度

多数 / 复数制	[展开]
比例代表制	[展开]
单一选区两票制	[展开]
其他选制和相关理论	[展开]

政治主题

查 · 论 · 编

例子 [编辑]

假设甲、乙、丙、丁四党竞逐 8 个议席，并分别获得 100,000（43.5%）、80,000（34.8%）、30,000（13.0%）、20,000（8.7%）票。把每个党派的得票除以 1 至 8 后（见下表），数值最高的 8 位可获得议席（显示为粗体，议席获得次序显示为斜体）。

	÷1	÷2	÷3	÷4	÷5	÷6	÷7	÷8	赢得议席
甲党	**100,000** *第一*	**50,000** *第三*	**33,333** *第五*	**25,000** *第八*	20,000	16,666	14,286	12,500	4 (50%)
乙党	**80,000** *第二*	**40,000** *第四*	**26,666** *第七*	20,000	16,000	13,333	11,428	10,000	3 (37.5%)
丙党	**30,000** *第六*	15,000	10,000	7,500	6,000	5,000	4,286	3,750	1 (12.5%)
丁党	20,000	10,000	6,666	5,000	4,000	3,333	2,857	2,500	0 (0%)

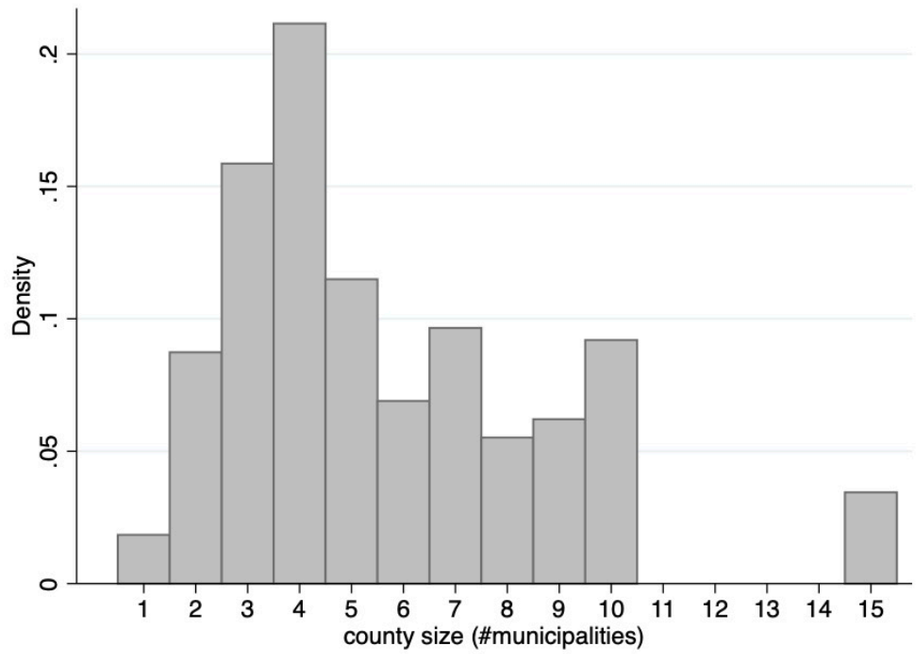
四党最终的议席比例和得票比例相仿。

Empirical Design

Sample and Data

- 1979-2015, 435 coastal municipalities(市政，镇).
- Assign municipalities to homogenous "comarcas"(like county，多个历史和地理条件相同的municipalities构成了county)
  - Not administrative unit, but geographical and historical traits.
  - No standardized administrative definition, use classification by geographers.
  - Accordingly, Spain is divided into 526 counties, with 109 along the coast. The median number of municipalities per county is 5.6, and the interquartile range falls between 4 and 7.

Figure A.5: *Histogram of County size*



Notes: (1) The figure shows the density of the number of coastal municipalities by county size, that runs from one municipality to fifteen. The county definition used corresponds to geographical counties or 'Comarcas'. (2) Source: www.Geosoc.udl.cat.

Empirical Design

Variable

- The primary dependent variable in our study is the amount of newly built land or developed land (新增建设用地)within a specific municipal term-of-office.
- Introduce secondary dependent variables, such as air and bathing water pollution, housing prices, or a tourism index, to illustrate spillover effects.
- Obtain electoral data to calculate the Herfindahl index and the binary alignment variable from the local electoral database maintained by the Spanish Ministry of Interior. The parties are classified based on information gathered from their respective party statutes or newspaper reports.

Empirical Design

Variable

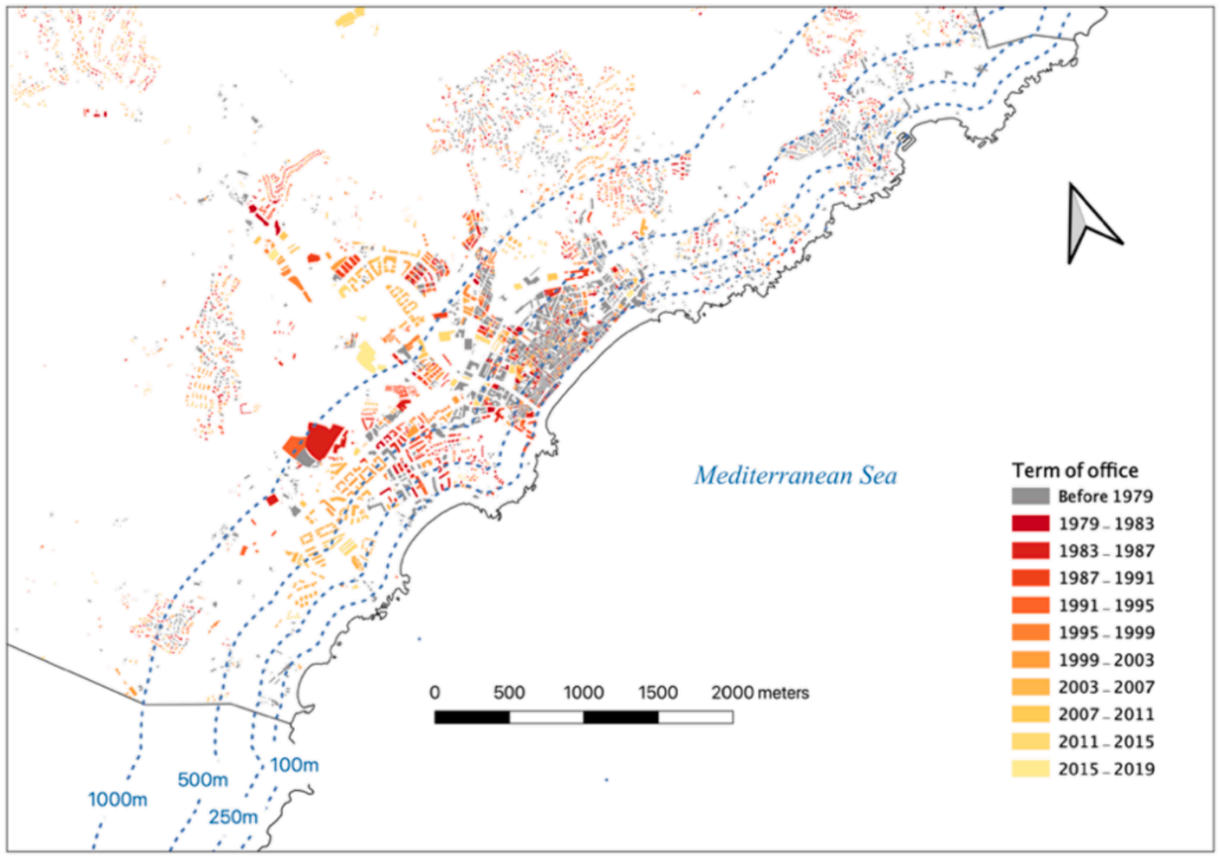


Table A.1 *Distribution of mayors by ideological party bloc*

	Sample	
	Full	*Close elections*
Left wing:	46.33 %	51.17%
Far left	4.64 %	3.51 %
PSOE	36.45 %	45.23 %
Center left	5.24 %	2.43 %
Right-wing:	53.62 %	48.73 %
Local party	5.98 %	2.16%
Center right	14.18 %	8.10 %
PP	33.46 %	38.47 %
Far- right	0.05 %	0.09 %
Total	100.00 %	100.00 %
PP+PSOE	69.91 %	83.70 %

Empirical Design

RDD

$$\log(Built_{it}) = \alpha.a_{it} + g(v_{it}^0) + X_{it}'\gamma + f_k + f_t + \varepsilon_{it} \qquad a_{it} = \delta.\mathbb{I}(v_{it}^0 > 0) + q(v_{it}^0) + X_{it}'\eta + f_k + f_t + \epsilon_{it}$$

- Where the variable log(Built$_{it}$) represents the logarithm of the land area that local government i has developed during its term of office t, located at a specified distance from the coast (e.g., 1km).
- The variable a_{it} equals 1 when there is Alignment, and 0 other-wise.

- 关键的处理变量：政治联盟，如果county中某个市政的市长所属的党派/加入的意识形态是这个county所有市长的主流党派，那么就说明存在政治联盟。（市长们所属的党派没有很分散，不然5个市长5个党派，那没有什么取1的了）
- 断点驱动变量/也可以理解成政治联盟的IV：票数差距。具体指如果想要扭转局面，目前的Winner可以够输掉的票数/目前的Loser必须要赢得的票数。
- 赢家和输家要么左派要么右派，但左右派内部有细分，自己人也会打自己人。

Empirical Design

RDD

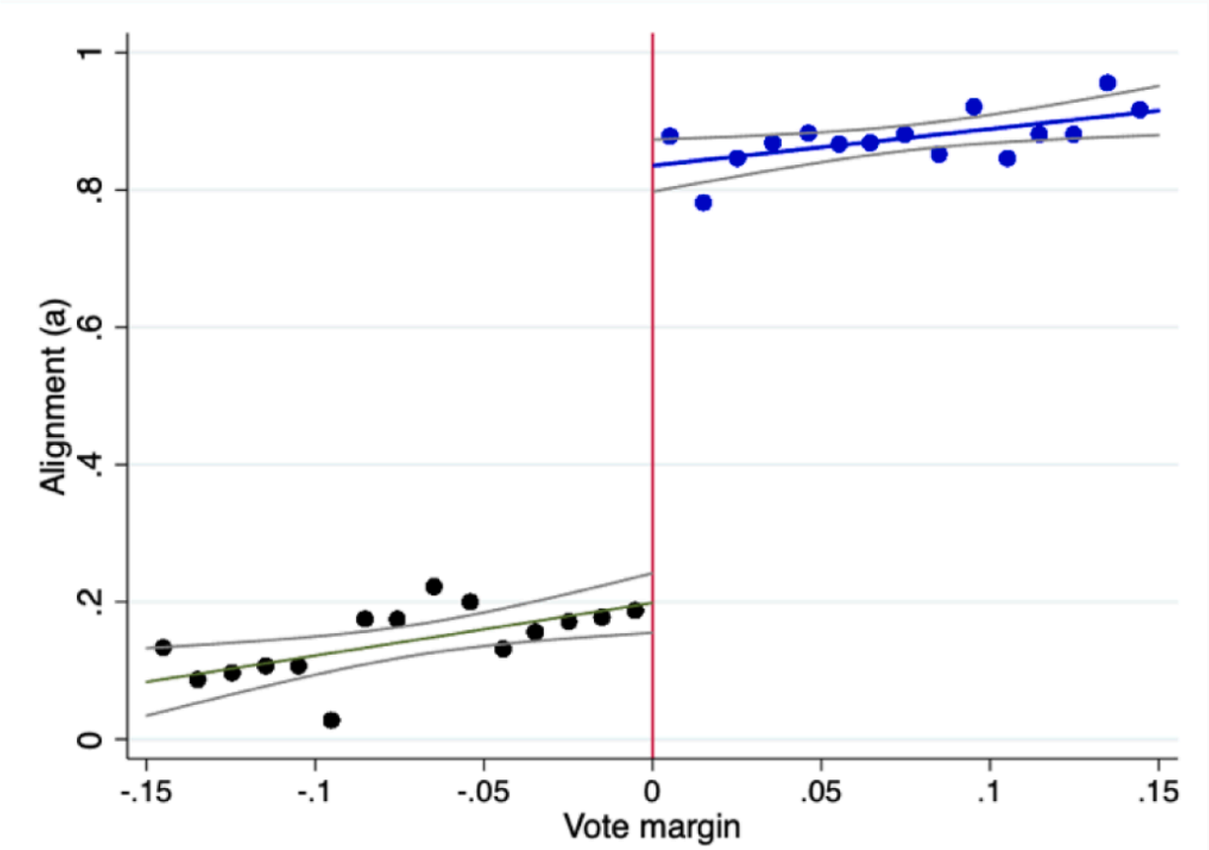


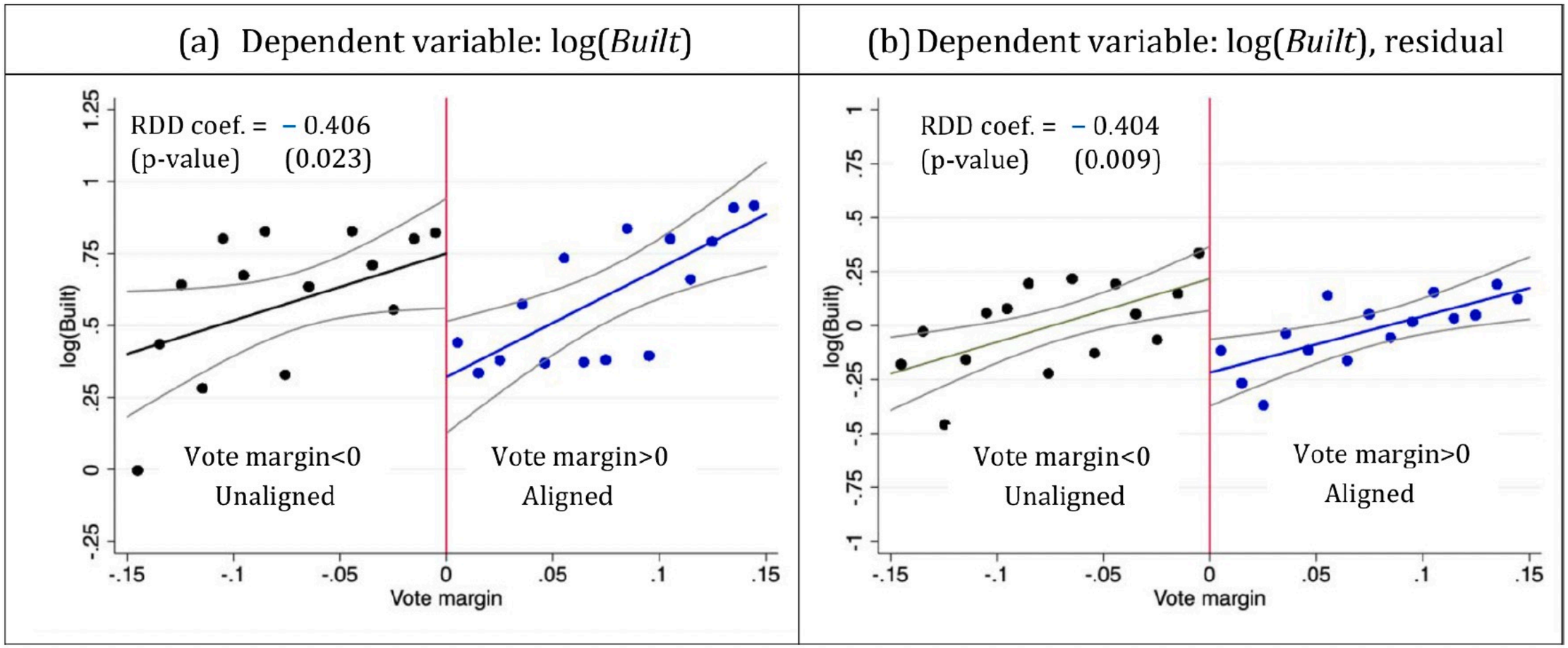
Table 1
Regression discontinuity design. placebo tests.

Variable:	Coef.	p-value	# Obs. (close)	# Obs. (total)
(A) Lagged dependent variable				
log*Built* $_{t-1}$, Municipality	−0.069	0.854	1,058	3,252
log*Built* $_{t-1}$, County	−0.048	0.815	1,058	3,252
(B) Lagged treatment				
Alignment $_{t-1}$	−0.018	0.746	1,058	3,252
Herfindahl index $_{t-1}$	0.008	0.778	1,058	3,252

Notes: (1) Coef. = RDD coefficient. Estimation method = Local Linear Regression, on the optimal bandwidth of the main analysis, which is 0.15 (computed as per Calonico et al., 2014)). (2) Variables measured as z-scores, except those that are expressed in logs.

Empirical Design

Main Results



Empirical Design

Main Results

Table 2
Municipal alignment RDD. Main results.

	(1)	(2)	(3)	(4)	(5)	(6)
	(a) *Reduced form, Dep. Variable:*log(*Built*)					
$\mathbb{I}(v^0 > 0)$	−0.406**	−0.393**	−0.405**	−0.385***	−0.393***	−0.339***
	(−2.24)	(−2.24)	(−2.56)	(−3.14)	(−3.07)	(−2.77)
	(b) 2SLS, *Dep. Variable:*log(*Built*)					
Alignment (*a*)	−0.620**	−0.595***	−0.615***	−0.614***	−0.649***	−0.564***
	(−2.31)	(−2.30)	(−2.61)	(−3.31)	(−3.26)	(−2.92)
	(c) *First stage: Dep. variable: Alignment* (*a*)					
$\mathbb{I}(v^0 > 0)$	0.676***	0.661***	0.658***	0.628***	0.602***	0.602***
	(14.90)	(14.38)	(14.38)	(12.34)	(11.65)	(11.11)
First stage F-stat.	221.88	206.76	205.84	152.26	135.78	123.51
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Bandwidth	0.158	0.150	0.146	0.133	0.133	0.133
Controls:						
Region f.e.	NO	YES	YES	YES	YES	NO
Year f.e.	NO	YES	YES	YES	YES	YES
log(*Land*)	NO	NO	YES	YES	YES	YES
Pre-determined controls	NO	NO	NO	YES	YES	YES
Political controls	NO	NO	NO	NO	YES	YES
Municipality f.e.	NO	NO	NO	NO	NO	YES
# Effective observations	1,089	1,058	1,058	848	848	848
# Observations	3,252	3,252	3,252	3,252	3,252	3,252

Empirical Design

Main Result-robust

- 计算了党派赫芬达尔指数来衡量政治的碎片化程度
- $\mathrm{H}_{kt} = \sum_j \left(\frac{N_{jkt}}{N_{kt}}\right)^2$，脚标k是county，j是所属的ideological bloc（党派）

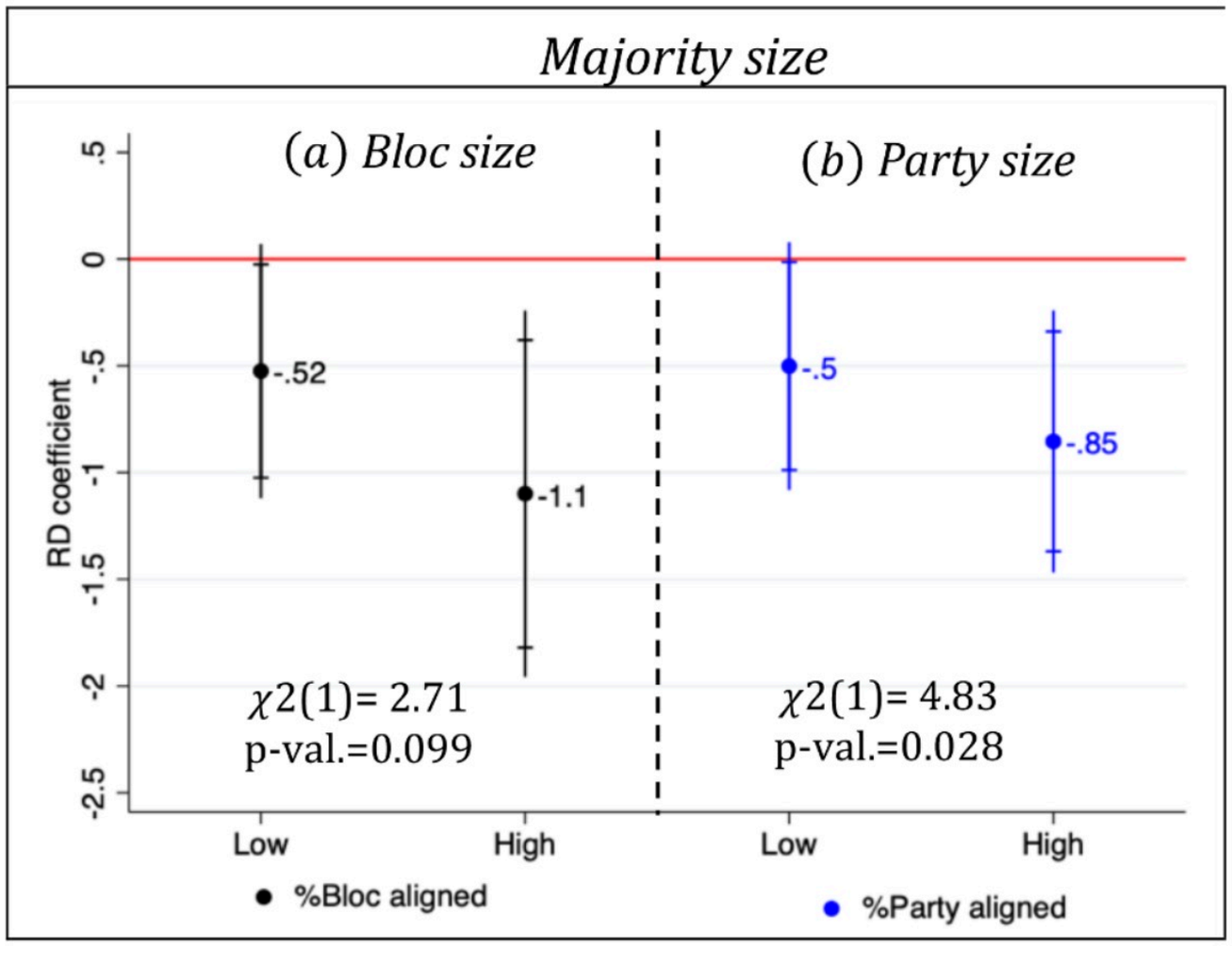
Table 3
Coastal area RDD.

	(1)	(2)	(3)	(4)	(5)	(6)
	(a) *Reduced form: Dep. Variable:* log(*Built*), *County*					
$\mathbb{I}(v^0 > 0)$	−0.173**	−0.189***	−0.153**	−0.157*	−0.186**	−0.164*
	(−2.24)	(−2.82)	(−2.40)	(−1.80)	(−2.23)	(−1.62)
	(b) *2SLS: Dep. Variable:* log(*Built*), *County*					
Herfindahl index	−0.624**	−0.669***	−0.531**	−0.685*	−0.640*	−0.487*
	(−2.23)	(−2.89)	(−2.40)	(−1.73)	(−1.85)	(−1.87)
	(c) *First stage: Dep. Variable:* Herfindahl index					
$\mathbb{I}(v^0 > 0)$	0.277***	0.282***	0.289***	0.341***	0.350***	0.330***
	(7.54)	(7.54)	(7.77)	(7.80)	(8.03)	(6.16)
First stage F-stat.	56.85	56.80	60.43	60.81	64.43	38.00
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bandwidth	0.150	0.150	0.165	0.150	0.150	0.165
Year f.e.	YES	YES	YES	YES	YES	YES
Region f.e.	YES	YES	NO	YES	YES	NO
log(*Land*)	YES	YES	YES	YES	YES	YES
Pre-determined controls	NO	YES	YES	NO	YES	YES
County f.e.	NO	NO	YES	NO	NO	YES
Weights	NO	NO	NO	YES	YES	YES
#Effective observations	1,058	1,058	1,058	1,058	1,058	1,058
# Observations	3,252	3,252	3,252	3,252	3,252	3,252

Empirical Design

Mechanisms

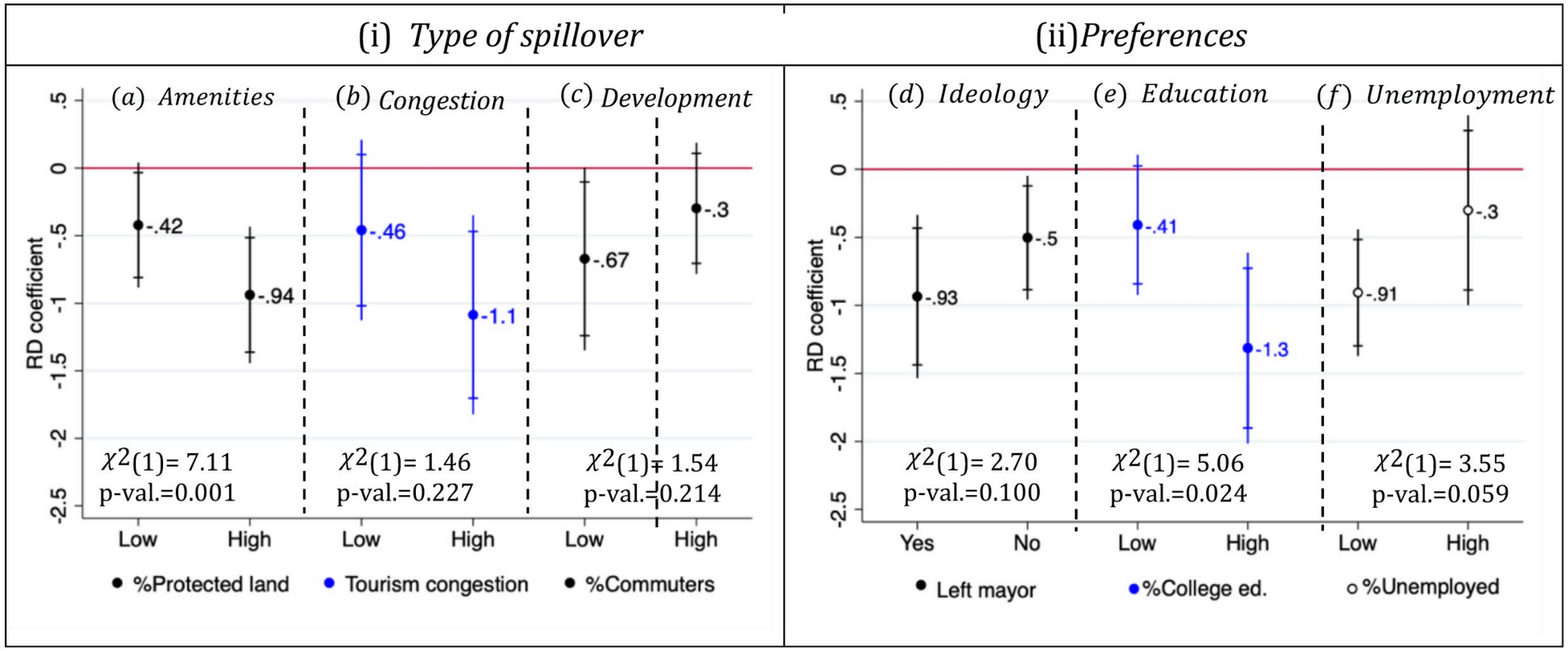
- 基准回归是市长政治联盟的0/1变量，现在再具体计算每个county中属于“大多数”的政治联盟型市长比例。按中位数分组，把样本分成政治联盟程度高和政治联盟程度低的子样本。
- 下图的bloc size 和party size是指在county中某个特定的意识形态或党派立场阵营里拥有的市长数量，它反映了county内市政之间合作联盟的激励强度大小。在高政治联盟子样本中，合作激励强度对土地开发的抑制效应更大。



Empirical Design

Mechanisms

- 回忆前面理论模型的一阶条件：当amenity的外部性比经济发展的外部性在居民效用中更重要的时候，土地开发对政治联盟求导才是小于0的。
- 政治联盟程度高的地方会开发更少的protected land（间接说明重视自然资源保护，这是amenity的衡量）、有更少的旅游拥堵问题、但在通勤打工人数（就业，这是经济外部性的衡量）方面不存在显著效应。
- 经验上，重视居民生活舒适（不会牺牲环境发展经济）的市往往：有更“左”的市长、整体受教育程度高、整体失业率低。结果表明，基准中得到的政治联盟程度高抑制海滨土地开发的效应确实当市长更左、本地大学生更多、失业率更低时得到了强化。

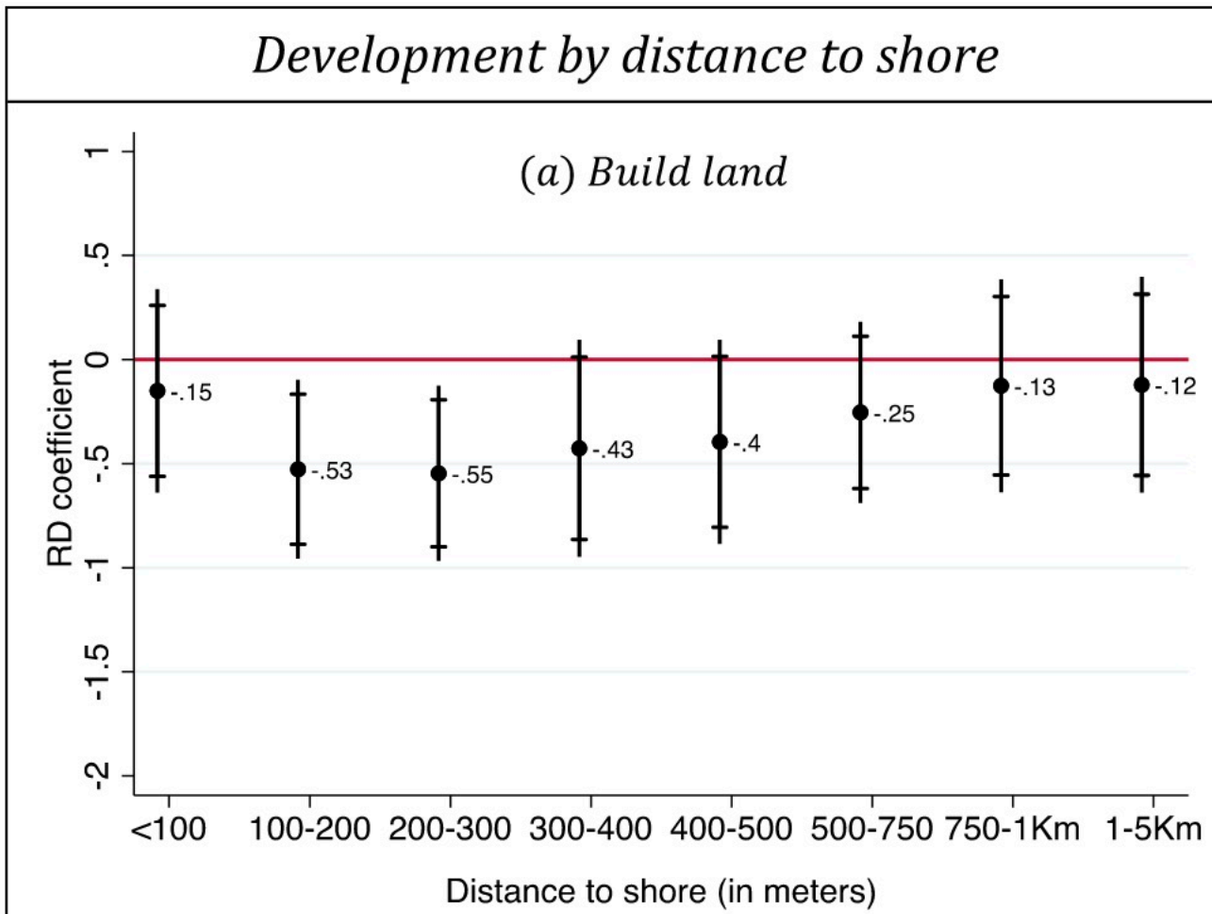


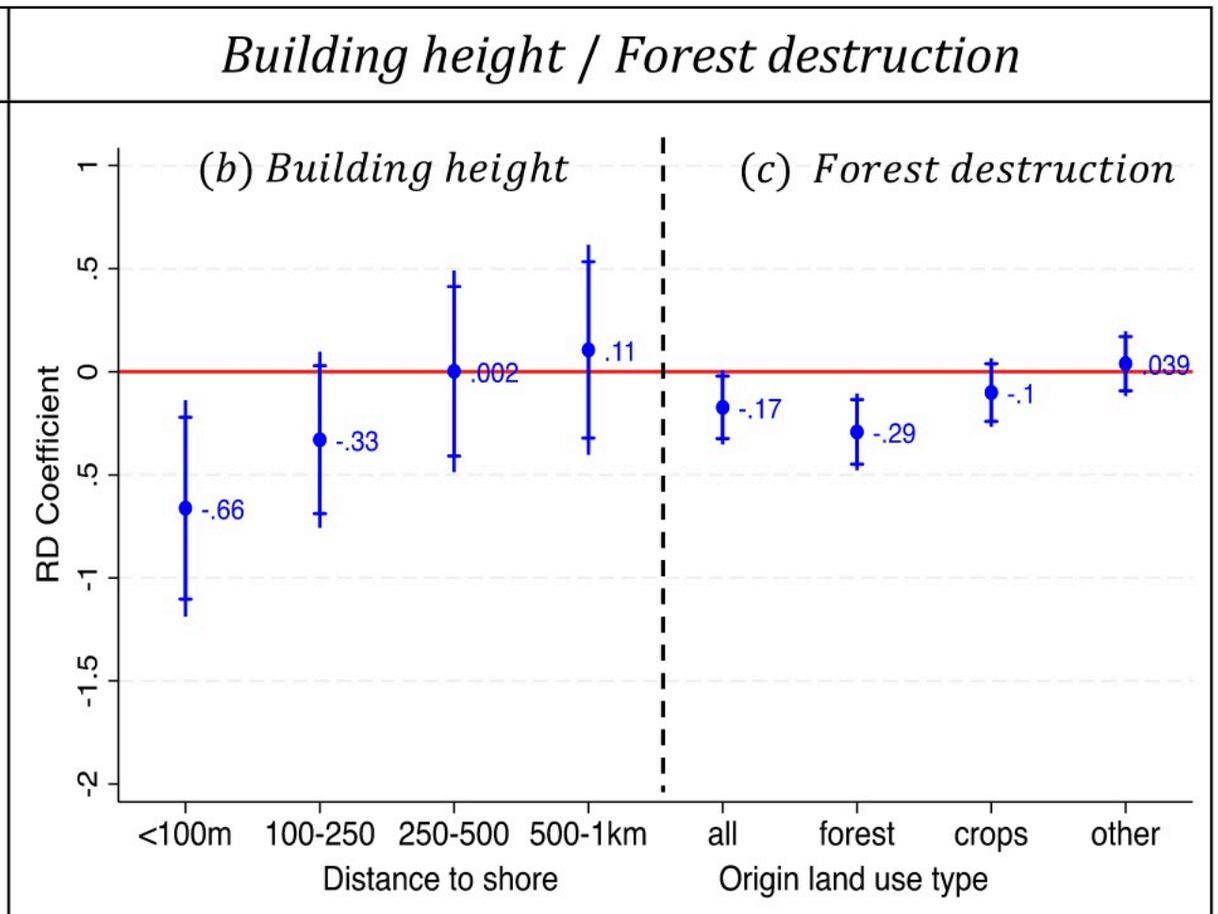
Empirical Design

Mechanisms

- 地理距离更靠近海岸线的地方，政治联盟对土地开发的抑制作用越强
- 曾经是森林覆盖的地方，政治联盟对土地开发的抑制作用越强

Development by distance to shore	*Building height / Forest destruction*



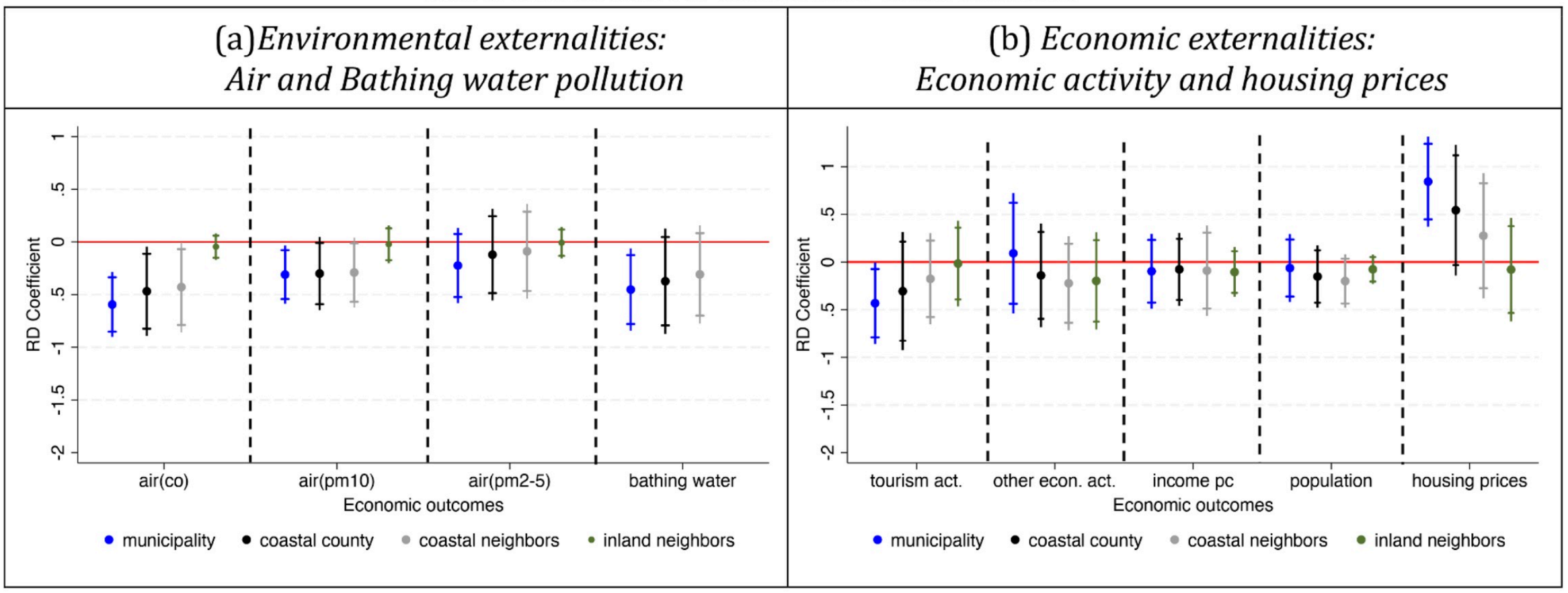


Empirical Design

Mechanisms/详细看看—别的文献有否讨论/吸收意见

- 更直接去考察了环境有关和经济发展有关的outcome
- 政治联盟减少了空气污染和水污染，但在多数经济指标（旅游人数、收入、人口、房价）等都不显著
- 这些实证结果验证了理论模型的推论，政治联盟在改善环境和生活舒适方面起到的作用大于发展经济，因此最终土地开发减少

Environmental vs. Economic externalities



Conclusion and Implication

- This paper shows that neighboring policymakers from the same political party or ideology are more likely to collaborate on coastal development policies, considering the welfare of non-residents.
- The results indicate that cooperative efforts among neighboring municipalities within the same coastal area enhance the welfare of residents therein, without detriment to those residing in nearby inland municipalities.
- Can these findings be extrapolated to other contexts? We believe they can, provided similar conditions to those observed in the Spanish case are present, including fragmentation in decision-making concerning land use policies, party polarization, and significant development pressure along the coast.
- Notably, the issue of fragmented decision-making in land use is prevalent in other European countries like France or Italy, as well as in the United States, and likely in many developing countries such as Mexico and Brazil.

Conclusion and Implication

- Are there some Chinese stories？Maybe…赞助人与被赞助的关系/圈子
- 文中的county：突破了行政限制、但囊括了有竞争关系的多个行政区的“圈”。比如城市群（开发方向出现变化，比如长株潭）、都市圈、方言片区（潮汕和闽南；赣南和粤西）
- 政治联盟：我们不存在地方选举与得票这个变量，但我们有中央-省-市-县-乡镇五个层级的政府，也有分权，地方之间有竞争或协同，地方政府在土地开发、出让、规划等方面都有一定的自主性
- Y：建设用地面积和一些环境舒适度方面的变量，应有尽有😔
- 经济发展和舒适生活的外部性的trade off 决定了一些区域导向型政策可能的效应方向
- 边界开发增强到底是效率的改善还是损失?
- 中国的边界开发都比较差；官员的跨地、调任、彼此之间的交流
- 上下级；地区之间竞争与合作（在边界上的反映）—经济增长，具体到地块