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"Are Simultaneously Decided Referenda Substitutable? Evidence from Municipal Land Use Ballot Measures"
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Appendices

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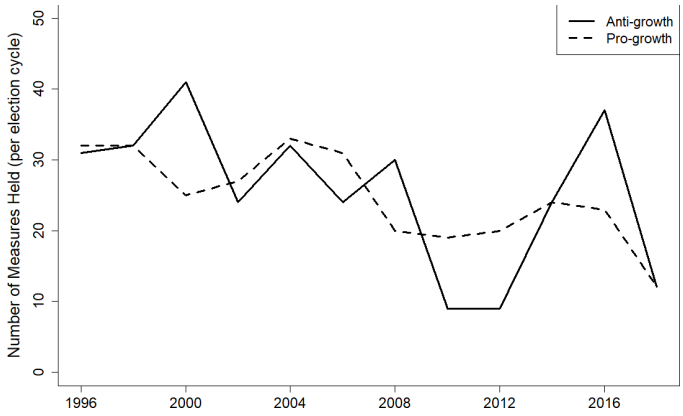
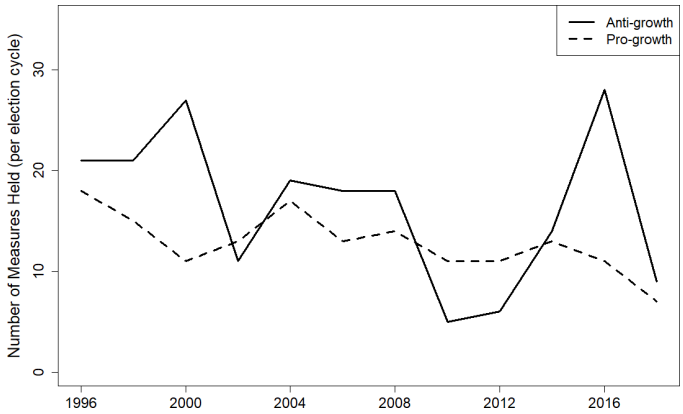
1

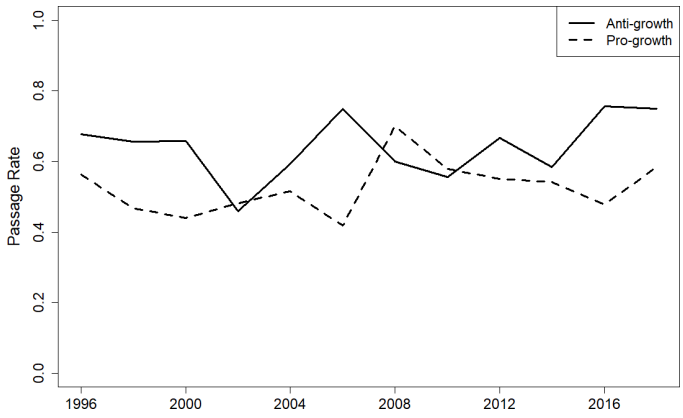
A Temporal and spatial trends



(a) Measures held

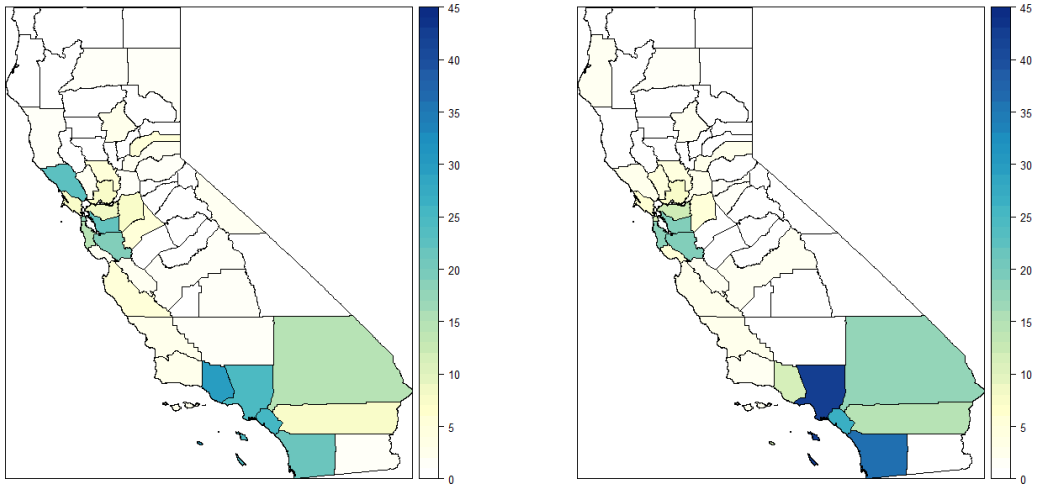


(b) Measures passed



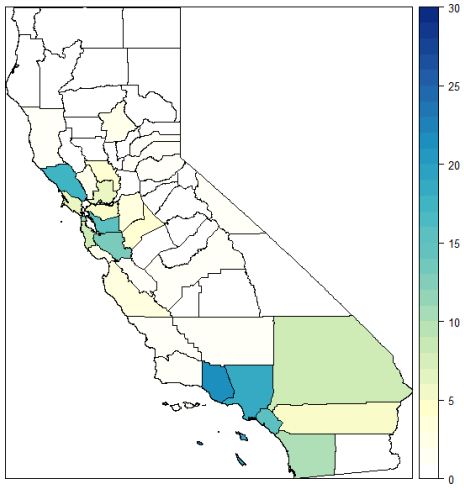
(c) Passage

Figure A.1: Trends

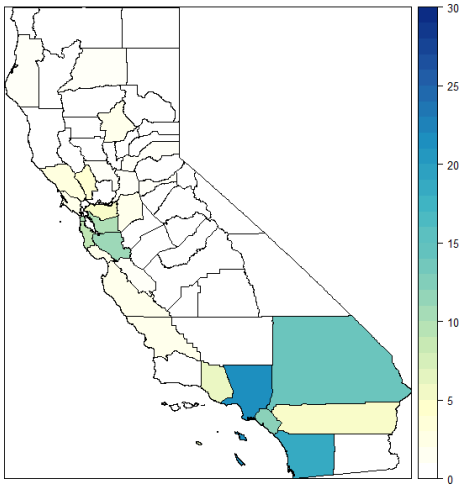


(a) Anti-growth held

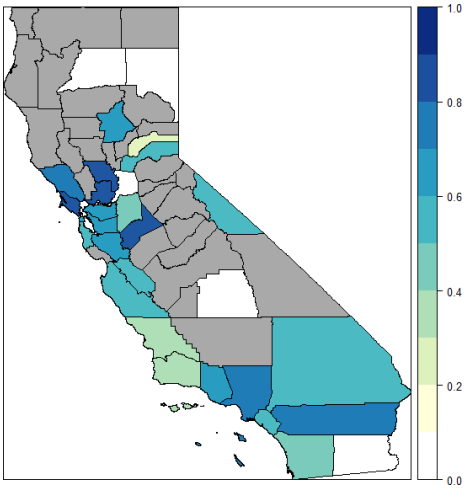
(b) Pro-growth held



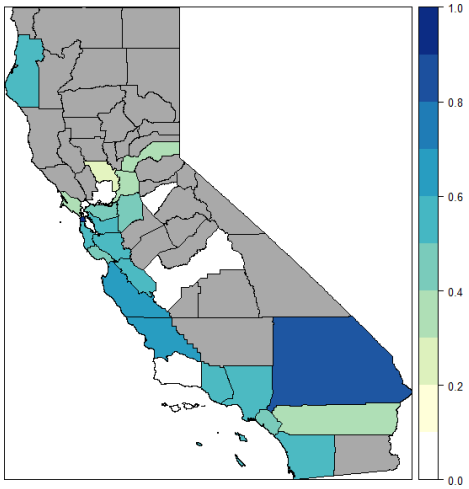
(c) Anti-growth passed



(d) Pro-growth passed



(e) Anti-growth passage rate



(f) Pro-growth passage rate

Figure A.2: Spatial variation in measures held/passed

B Text analysis: Most frequent ballot phrases

Table A.1: Most common phrases in anti- and pro-growth classifications

Phrase	**# of measures**
Anti-growth	305
open space	65
voter approval	57
land use	56
growth boundary	27
urban growth	27
Pro-growth	298
land use	54
specific plan	43
open space	30
development agreement	25
single family	21

Table A.2: Most common phrases in CEDA description groups

Phrase	**# of measures**
Zoning	275
land use	52
specific plan	46
single family	25
open space	21
development agreement	19
Growth Cap/Boundary	72
growth boundary	24
urban growth boundary	23
ordinance amending	11
urban restriction boundary	8
open space	8
Voter Approval	79
voter approval	47
require voter approval	21
land use	20
open space	16
initiative ordinance	7
Open Space	61
open space	41
land use	12
urban restriction boundary	6
growth boundary	5
ordinance amending	5
Other Land Use	56
land use	15
use circulation	6
open space	5
specific plan	5
eminent domain	4

C Alternative specifications and controls

In this section, we test the robustness of our findings to changes in the specification used and the addition of further controls. In Table A.3 we provide results for log-odds models that test whether land-use measures that were classified as "neutral" affect the passage of anti-growth measures. Because we include county-election-cycle fixed effects and there are only 84 neutral measures in our sample (compared to 305 and 298 anti- and pro-growth measures respectively), there is very limited variation in the number of neutral measures. As a result, we are not able to produce an estimate for the pro-growth measures—there is no variation conditional on the fixed effects and thus the parameter is not identified. We find small and insignificant effects of neutral measures on anti-growth passage rates.

Table A.3: Log-odds Models, with neutral measures as controls

	Anti-growth regressions			
	(1)	(2)	(3)	(4)
anti	−0.310***	−0.299***	−0.337**	−0.336***
	(0.081)	(0.026)	(0.138)	(0.096)
pro	0.229	0.195	0.319	0.354
	(0.180)	(0.139)	(0.472)	(0.451)
non − landuse			−0.066	−0.118
			(0.268)	(0.270)
neutral	−0.075	−0.134	0.010	0.107
	(0.183)	(0.100)	(0.386)	(0.552)
Observations	305	305	305	305
Pop. weights	N	Y	N	Y
R^2	0.870	0.809	0.870	0.810

Note: *p<0.1; **p<0.05; ***p<0.01

Separating estimating models for anti-growth and pro-growth measures allows us to include a set of fixed effects that allow preferences for anti-growth and pro-growth policies to vary both spatially and temporally. In Tables A.4 and A.5 we provide results for models that relax this assumption and pool anti- and pro-growth measures into a single regression. In these models, our coefficients of interest are the effects of the appearance of a competing measure of the "same type" (anti-growth if the observation is anti-growth, and vice versa for pro-growth) and the effect of the appearance of a competing measure of the "opposite type". These models imply that having competing measures of the same type lowers the probability that a measure passes. However, this effect is both less negative

and less significant than the effect of competing anti-growth measures on anti-growth measures that we report in the main text. Essentially, these pooled "same type" estimates average the negative and significant estimate from our anti-growth regressions with the positive and insignificant estimate from our pro-growth regressions.

Table A.4: Pooled Log-odds Models

	Pooled (both anti and pro measures)			
	(1)	(2)	(3)	(4)
same type	−0.113	−0.137*	−0.118	−0.148**
	(0.075)	(0.077)	(0.079)	(0.074)
opposite type	0.098	0.105	0.088	0.093
	(0.196)	(0.237)	(0.191)	(0.234)
non − landuse			0.053	0.044
			(0.039)	(0.027)
Observations	603	603	603	603
Pop. weights	N	Y	N	Y
R^2	0.682	0.630	0.685	0.634

Note: *p<0.1; **p<0.05; ***p<0.01

Table A.5: Pooled Linear Probability Models

	Pooled (both anti and pro measures)			
	(1)	(2)	(3)	(4)
same type	−0.085	−0.117*	−0.086	−0.122*
	(0.057)	(0.065)	(0.057)	(0.063)
opposite type	0.102	0.014	0.101	0.009
	(0.131)	(0.159)	(0.132)	(0.158)
non − landuse			0.003	0.020
			(0.024)	(0.021)
Observations	603	603	603	603
Pop. weights	N	Y	N	Y
R^2	0.688	0.670	0.688	0.671

Note: *p<0.1; **p<0.05; ***p<0.01

In our main analysis: we construct our *anti* and *pro* variables by calculating a simple count of the number of competing ballot measures that are of this type. We have made slight alterations to the text to attempt to make this more clear. Still, the alternative modelling choice may serve valuable as a robustness check to provide confidence that our results are not solely driven by outlier ballots that include extremely high counts of land-related measures. For this reason, we now provide results that use the (0,1) indicator variables in Appendix Tables A.6 and A.7. We find similar results to our preferred specification.

Table A.6: Anti-growth log-odds results with binary measures of competition (1 if >0 measures, 0 otherwise)

	Anti-growth regressions			
	(1)	(2)	(3)	(4)
anti(*binary*)	−0.616**	−0.658***	−0.591**	−0.605***
	(0.272)	(0.201)	(0.289)	(0.185)
pro(*binary*)	0.584*	0.520	0.554	0.483
	(0.347)	(0.325)	(0.357)	(0.305)
non − land − use(*binary*)			0.048	0.065
			(0.145)	(0.087)
Observations	305	305	305	305
Pop. weights	N	Y	N	Y
R^2	0.860	0.814	0.860	0.822

Note: Errors clustered at the election-day level
*p<0.1; **p<0.05; ***p<0.01

Table A.7: Pro-growth log-odds results with binary measures of competition (1 if >0 measures, 0 otherwise)

	Pro-growth regressions			
	(1)	(2)	(3)	(4)
anti(*binary*)	0.036	0.004	0.036	0.007
	(0.421)	(0.500)	(0.423)	(0.502)
pro(*binary*)	−0.156	−0.225	−0.155	−0.228
	(0.709)	(0.815)	(0.717)	(0.825)
non − land − use(*binary*)			0.001	−0.005
			(0.024)	(0.015)
Observations	298	298	298	298
Pop. weights	N	Y	N	Y
R^2	0.911	0.878	0.912	0.878

Note: Errors clustered at the election-day level
*p<0.1; **p<0.05; ***p<0.01

D Comparison of content and wording of measures that appear alone versus with other land-related measures

Our approach requires the assumption that the quality of land-related ballot measures is uncorrelated with the number of land-related measures on the ballot conditional on jurisdiction and temporal fixed effects. Although we cannot directly observe quality, we can test whether other observables characteristics differ between measures that appear alongside other land-use measures and those that do not. We split the full set of anti- and pro-growth measures into those that appeared alone, and those that appeared with other land-use measures. Then we compare these two sets of measures across several dimensions: (1) the share of anti- and pro-growth measures in each set; (2) the share of measures falling into various CEDA topic description categories; (3) the share of measures containing each of the 5 most common phrases that appear in ballot questions. Reassuringly, we find similar patterns for both groups.

Table A.8: Anti-growth versus pro-growth share

Measure Type	Share	
	Alone	w/ Others
anti-growth	0.51	0.49
pro-growth	0.49	0.51

Table A.9: CEDA categories

Category	Share	
	Alone	w/ Others
Open Space	0.11	0.09
Zoning	0.46	0.44
Growth Cap/Boundary	0.13	0.10
Voter Approval	0.13	0.14
Open Space	0.11	0.09
Other	0.09	0.11

Table A.10: Most common phrases across all measures

Phrase	Share containing phrase	
	Alone	w/ Others
land use	0.16	0.23
open space	0.17	0.12
voter approval	0.11	0.10
specific plan	0.11	0.07
initiative ordinance	0.06	0.06

E Zoning measures

To ensure our null results for pro-growth ballot measures are not driven solely by the fact that most pro-growth are zoning measures, we report results for a model that estimates the effect of a zoning measure on other zoning measures that appear on the same ballot.

Table A.11: Zoning Measures as a Referenda Type

	logodds		linear probability	
	(1)	(2)	(3)	(4)
zoning	−0.015	−0.024	−0.011	−0.009
	(0.088)	(0.090)	(0.050)	(0.042)
Observations	331	331	331	331
Pop. weights	N	Y	N	Y
R^2	0.820	0.779	0.804	0.769

Note: *p<0.1; **p<0.05; ***p<0.01