

Online Appendices for

*The Local Residential Land Use Regulatory Environment Across U.S. Housing Markets:
Evidence from a New Wharton Index*

Part I: Survey Questions, Data Description and Summary Statistics

2018 Survey Instrument



Code Sheet

Coding indicated in **bold red**. "Check all applicable" questions are coded as (1) for each selected option.

Residential Land-Use Regulation Survey February, 2018

Dear Chief Administrative Officer:

The International City/County Management Association (ICMA), in partnership with the Zell/Lurie Real Estate Center of The Wharton School, University of Pennsylvania, is conducting the following survey to characterize and compare local governments' residential land-use regulations, practices, and procedures. A summary report of aggregated survey results will be published in various ICMA publications and on the ICMA website. Please ensure the success of this survey by completing and returning it by **March 16, 2018**. You may also complete this survey online at www.icma.org/landusesurvey. Consultation with your planning or other appropriate staff to provide the most accurate information is encouraged and appreciated.

Thank you in advance for your time,

A handwritten signature in black ink, appearing to read "Marc Ott".

Marc Ott
Executive Director, ICMA

General Information

1. What is the size of your jurisdiction in square miles? _____

2. How has the size of your jurisdiction in square miles changed since 2000?

- a. Increased 1 b. Decreased 2 c. Not changed 3

General Characteristics of Land Regulatory Process

3. In your community, how involved are the following in affecting residential building activities and/or growth management procedures?

Organization	No involvement	Less involvement	Moderate involvement	More involved	Very involved
a. Local Council, Managers, Commissioners	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
b. Community pressure	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
c. State legislature	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
d. Local courts	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
e. State courts	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
f. Other	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

3A. If you chose "Other" above, please specify:

4. Which of the following are required to approve residential land-use changes?

Required: Organization is used for any residential land-use changes.

Not Required: If it is not used for that purpose OR does not exist in your community.

Supermajority Required: Any circumstance exists where approval requires more than a simple majority.

For projects that do not require rezoning, i.e., allowed "by-right": (Check one per row)

	Required	Supermajority Required	Not Required
a. Local Planning Commission	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
b. Local Zoning Board	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
c. Local Council, Managers, Commissioners	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
d. County Board of Commissioners	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
e. County Zoning Board	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
f. Environmental Review Board	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
g. Town Meeting	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
h. Public Health Office	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
i. Design Review Board	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
j. Other	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3

4A: If you checked "Other" above, please specify:

For projects that do require rezoning (i.e., rezoning or a variance): (Check one per row)

	Required	Supermajority Required	Not Required
k. Local Planning Commission	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3

l. Local Zoning Board	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
m. Local Council, Managers, Commissioners	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
n. County Board of Commissioners	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
o. County Zoning Board	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
p. Environmental Review Board	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
q. Town Meeting	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
r. Public Health Office	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
s. Design Review Board	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
t. Other	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3

4B: If you checked "Other" above, please specify:

5. Do you currently have any of the following in your jurisdiction?

	Yes	No
a. Single-family subdivisions of 50 or more homes	<input type="checkbox"/> 1	<input type="checkbox"/> 2
b. Multi-family housing	<input type="checkbox"/> 1	<input type="checkbox"/> 2

Rules of Residential Land Use Regulation

6. Do you have any land currently available for development? a. Yes 1 b. No 2

7. Do you have a minimum lot size requirement? a. Yes 1 b. No 2 (If "No," skip to question 8.)

7A. If "Yes," do you have the same minimum lot size requirement across the entire jurisdiction?

a. Yes 1 b. No 2

7B. If you have any minimum size requirement, what is the largest minimum requirement?
(Check only one.)

Less than ½ acre 1 ½ to 1 acre 2 1 to under 2 acres 3 2 acres or more 4

8. Does your community place annual limits on the total allowable number of permits or dwellings

	Yes	No
a. Building permits for single-family homes	<input type="checkbox"/> 1	<input type="checkbox"/> 2
b. Building permits for multi-family homes	<input type="checkbox"/> 1	<input type="checkbox"/> 2
c. Number of single-family residential units authorized for construction	<input type="checkbox"/> 1	<input type="checkbox"/> 2
d. Number of multi-family residential units authorized for construction	<input type="checkbox"/> 1	<input type="checkbox"/> 2
e. Number of multi-family dwellings	<input type="checkbox"/> 1	<input type="checkbox"/> 2
f. Number of units in multi-family dwellings	<input type="checkbox"/> 1	<input type="checkbox"/> 2

9. Do developers have to comply with any of the following requirements to build in your jurisdiction?

	Yes	No
a. Include affordable housing, however defined, in their projects	<input type="checkbox"/> 1	<input type="checkbox"/> 2
b. Supply mandatory dedication of space or open space (or fee in lieu of dedication)	<input type="checkbox"/> 1	<input type="checkbox"/> 2
c. Pay impact fees (allocable share of costs of infrastructure improvement)	<input type="checkbox"/> 1	<input type="checkbox"/> 2

Specific Characteristics

10. Do you have any zoning laws? a. Yes 1 b. No 2

11. How do you perceive the supply of land zoned for each use listed below compared to the demand for it in your community? (If you checked that the land use does not exist in your jurisdiction in question 5, put a check in the first column and do not fill in that row.)

Unit Type	Land-use is not zoned	Far more than demanded	More than demanded	About right	Less than demanded	Far less than demanded
a. Single-family	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
b. Multi-family	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
c. Commercial	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
d. Industrial	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6

12. Please provide data regarding zoning applications over the past 12 months. (Enter a whole number.)

Application Type	Total Submitted	Total Approved
a. Applications for any zoning changes		
b. Applications for zoning changes regarding NEW development		

Lot Development

13. Have you had any lot development in the last 10 years? a. Yes 1 b. No 2

14. Given your best judgement, how much has the cost of the following types of development increased in the last 10 years? (Check one per row.)

	0% - 20%	21% - 40%	41% - 60%	61% - 80%	81%-100%	Over 100%
a. Lot development, including subdivisions	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
b. Single family lots	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6

Review Time

15. If no project has been approved in the last 10 years, please check below and proceed to question Error!

Reference source not found.:

No project approved in last 10 years **1**

16. What is the current length of time required to complete the review of a “by-right” (permitted under current rules) residential project? (For both rows, enter a number OR check the box on the right.)

	1 Length of time in months	2 We do not have this type of unit
a. Single-family units		<input type="checkbox"/> 1
b. Multi-family units		<input type="checkbox"/> 1

17. What is the current length of time required to complete the review of a “not by-right” (i.e., would require an exemption to current rules) residential project? (For both rows, enter a number OR check the box on the right.)

	1 Length of time in months	2 We do not have this type of unit
a. Single-family units		<input type="checkbox"/> 1
b. Multi-family units		<input type="checkbox"/> 1

18. Over the last 10 years, how did the length of time required to complete the review and approval of the residential projects in your community change? (Check only one per row.) If you indicated in **Error! Reference source not found.** that the land use does not exist in your jurisdiction, put a check in the first column and do not fill in that row.

Land Use	Land-use is not zoned	Less time	No change	Somewhat longer	Considerably longer
a. Single-family	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
b. Multi-family	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

19. Does your community allow rezoning? a. Yes **1** b. No **2**

20. What is the typical amount of time between application for rezoning and issuance of a building permit for development of:

Unit Type	We do NOT have this unit	Less than 3 months	3 to 6 months	7 to 12 months	1 to 2 years	2 to 3 years	Over 3 years
a. Less than 50 single-family units	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b. 50 or more single-family units	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c. Multi-family units	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

21. Does your community have any subdivisions? a. Yes **1** b. No **2**

22. What is the typical amount of time between application for subdivision approval and issuance of a building permit for development of:

Unit Type	We do NOT have this unit	Less than 3 months	3 to 6 months	7 to 12 months	1 to 2 years	2 to 3 years	Over 3 years
a. Less than 50 single-family units	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b. 50 or more single-family units	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c. Multi-family units	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

23. In case we need to contact you for follow-up, please provide the following information. (Optional)

Name _____ Phone number _____

Title _____ Email _____

Thank you for taking the time to complete this survey!

Please return the survey to:

ICMA Survey Research

777 North Capitol Street, NE, Suite 500, Washington DC 20002-4201

You may scan and email your survey to surveyresearch@icma.org

Zell/Lurie Real Estate Center
Wharton School, University of Pennsylvania

SURVEY ON RESIDENTIAL LAND-USE REGULATION

JURISDICTION

Name of Jurisdiction _____ Zip Code _____

Type of Jurisdiction _____
(City, County, Township, Town, Village, Borough)

Size of Jurisdiction _____ square

miles Population

Current population estimate _____

Population growth: Past 5 years _____% Projected next 5 years _____%

GENERAL CHARACTERISTICS OF LAND REGULATORY PROCESS

1. In your community, how involved are the following organizations in affecting residential building activities and/or growth management procedures? Please rate the importance of each on a scale of 1 to 5 by circling the appropriate number (1 = not at all involved; 5 = very involved).

- Local Council, Managers, Commissioners	1	2	3	4	5
- Community pressure	1	2	3	4	5
- County legislature	1	2	3	4	5
- State legislature	1	2	3	4	5
- Local courts	1	2	3	4	5
- State courts	1	2	3	4	5

2. Which of the following are required to approve zoning changes, and by what vote?

	Yes	Yes, by simple majority	Yes, by more than simple majority	No
- Local Planning commission				
- Local Zoning Board				
- Local Council, Managers, Commissioners				
- County Board of Commissioners				
- County Zoning Board				
- Environmental Review Board				

3. Which of the following are required to approve a new project that does not need rezoning, and by what vote?

	Yes	Yes, by simple majority	Yes, by more than simple majority	No
- Planning Commission				
- Local Council, Managers, Commissioners				
- County Board				
- Environmental Review Board				
- Public Health Office				
- Design Review Board				

4. On a scale of 1 to 5, please rate the importance of each of the following factors in regulating the rate of residential development in your community (1 = not at all important; 5 = very important). Please circle the appropriate number.

	Single Family Units					Multi Family Units				
- Supply of land	1	2	3	4	5	1	2	3	4	5
- Cost of new infrastructure	1	2	3	4	5	1	2	3	4	5
- Density restrictions	1	2	3	4	5	1	2	3	4	5
- Impact fees/exactions	1	2	3	4	5	1	2	3	4	5
- City budget constraints	1	2	3	4	5	1	2	3	4	5
- City Council opposition to growth	1	2	3	4	5	1	2	3	4	5
- Citizen opposition to growth	1	2	3	4	5	1	2	3	4	5
- School crowding	1	2	3	4	5	1	2	3	4	5
- Length of review process for zoning	1	2	3	4	5	1	2	3	4	5
- Length of review process for building permits	1	2	3	4	5	1	2	3	4	5
- Length of review process for land development plan	1	2	3	4	5	1	2	3	4	5

RULES OF RESIDENTIAL LAND USE REGULATION

5. Does your community place annual limits on the total allowable:

	Yes	No
- No. of building permits – single family?		
- No. of building permits – multi-family?		
- No. of residential units authorized for construction – single family?		
- No. of residential units authorized for construction – multi-family?		
- No. of multi-family dwellings?		
- No. of units in multi-family dwellings?		

6. To build, do developers have to meet these requirements?

	Yes	No
- Meet the minimum lot size requirement? If yes: ½ acre or more _____ ½ acre or less _____ 1 acre or more _____ 2 acres or more _____		
- Include “affordable housing” (however defined)?		
- Supply mandatory dedication of space or open space (or fee in lieu of dedication)?		
- Pay allocable share of costs of infrastructure improvement?		

SPECIFIC CHARACTERISTICS

7. How does the acreage of land zoned for the following land uses compare to demand?

	Far more than demanded	More than demanded	About right	Less than demanded	Far less than demanded
- Single-family					
- Multi-family					
- Commercial					
- Industrial					

8. How much has the cost of lot development, including subdivisions, increased in the last 10 years?

Please circle the appropriate category.

0-20% 21-40% 41-60% 61-80% 81-100% >100%

9. How much has the cost of a single family lot increased in the last 10 years?

Please circle the appropriate category.

0-20% 21-40% 41-60% 61-80% 81-100% >100%

10. What is the current length of time required to complete the review of residential projects in your community?

For single-family units: _____ months

For multi-family units: _____ months

11. Over the last 10 years, how did the length of time required to complete the review and approval of residential projects in your community change?

	no change	somewhat longer	considerably longer
- Single-family units			
- Multi-family units			

12. What is the typical amount of time between application for rezoning and issuance of a building permit for development of:

	Less than 3 mos.	3 to 6 mos.	7 to 12 mos.	13 to 24 mos.	If above 24, How long?
- Less than 50 single family units					
- 50 or more single family units					
- Multi-family units					

13. What is the typical amount of time between application for subdivision approval and the issuance of a building permit (assume proper zoning is already in place) for the development of:

	Less than 3 mos.	3 to 6 mos.	7 to 12 mos.	13 to 24 mos.	If above 24, How long?
- Less than 50 single family units					
- 50 or more single family units					
- Multi-family units					

14. How many applications for zoning changes were submitted in your community in the last 12 months?

15. How many applications for zoning changes were approved in your community in the last 12 months?

In the event we might need to clarify any of the answers to the above questions, we would appreciate the following information, which will be held in total confidence.

Name _____

Title _____

Organization _____

Address _____

Phone _____

Fax _____ E-mail _____

Please check this box if you would like to receive the results of this survey.

Thank you very much for taking the time to complete this survey.

June 2004

The final part of this section reports summary statistics on each of the 2018 survey questions used in construction of any subindex or aggregate jurisdiction-level index. They are listed in the spreadsheet *SummaryStats_WRLURI2018.xlsx* which may be downloaded from this page. For the relatively few continuously measured variables, means and standard deviations are reported. For dichotomous and polychotomous variables, frequencies of responses are reported.

WRLURI18 Subindex Summary Tabulations / Statistics

	Question	# of Responses	Level of Political Involvement				
			None	Less	Moderate	More	Very
LPPI	q3a18	2,815	150	125	552	616	1,372
LPPI	q3b18	2,815	302	683	1,061	509	260
LPPI	q3f18	2,815	2,472	99	81	68	95
			0 Ballots	1 Ballot	2 Ballots		
LPPI	totinitiatives18	2,844	2,788	48	8		

	Question	# of Responses	Level of Political Involvement				
			None	Less	Moderate	More	Very
SPII	q3c18	2,815	893	1,016	586	214	106
CII	q3d18	2,815	1,527	978	243	45	22
CII	q3e18	2,815	1,517	963	261	53	21

	Question	# of Responses	Approval		
			Required	Supermajority Required	Not Required
LPAI	q4_1a18	2,803	1,834	55	914
LPAI	q4_1b18	2,803	1,004	63	1,736
LPAI	q4_1c18	2,803	1,532	64	1,207
LPAI	q4_1d18	2,803	193	19	2,591
LPAI	q4_1e18	2,803	209	18	2,576
LPAI	q4_1f18	2,803	249	27	2,527
LPAI	q4_1h18	2,803	283	22	2,498
LPAI	q4_1i18	2,803	413	20	2,370
LPAI	q4_1j18	2,803	305	5	2,493

Table cont'd.

	Question	# of Responses	Approval Required	Supermajority Required	Not Required
LZAI	q4_2k18	2,798	2,229	76	493
LZAI	q4_2l18	2,798	1,524	83	1,191
LZAI	q4_2m18	2,798	2,117	87	594
LZAI	q4_2n18	2,798	207	23	2,568
LZAI	q4_2o18	2,798	258	20	2,520
LZAI	q4_2p18	2,798	226	18	2,554
LZAI	q4_2r18	2,798	225	19	2,554
LZAI	q4_2s18	2,798	379	21	2,398
LZAI	q4_2t18	2,798	201	6	2,591
LAI	q4_1g18	2,803	760	54	1,989
LAI	q4_2q18	2,798	1,085	64	1,649

	Question	# of Responses	Limits on Permits	
			Yes	No
SRI	q8a18	2,800	65	2,735
SRI	q8b18	2,800	89	2,711
SRI	q8c18	2,800	57	2,743
SRI	q8d18	2,800	82	2,718
SRI	q8e18	2,800	77	2,723
SRI	q8f18	2,800	108	2,692

	Question	# of Responses	Minimum Lot Size Required			
			Yes	No		
DRI	q718	2,785	2,588	197		
			< 1/2 acre	1/2 - 1 acre	1 - 2 acres	2+ acres
DRI	q7b18	2,509	1,080	413	345	671

	Question	# of Responses	Open Space Required	
			Yes	No
OSI	q9b18	2,784	1,538	1,246

	Question	# of Responses	Impact Fee Required	
			Yes	No
EI	q9c18	2,784	1,353	1,431

	Question	# of Responses	Affordable Housing Required	
			Yes	No
AHI	q9a18	2,784	402	2,382

Table cont'd.

	Question	# of Responses	# of Months	
			Mean	Std
ADI	q16a118	2,613	2.46	(4.27)
ADI	q16b118	2,584	3.06	(4.25)
ADI	q17a118	2,588	4.34	(5.94)
ADI	q17b118	2,578	4.87	(5.89)
ADI	q20a18	2,593	6.53	(6.33)
ADI	q20b18	2,524	7.64	(7.28)
ADI	q20c18	2,580	7.27	(6.98)
ADI	q22a18	2,618	6.32	(5.66)
ADI	q22b18	2,527	7.45	(6.94)
ADI	q22c18	2,575	6.95	(6.39)

**Part II: Mapping Survey Questions to Subindexes
Index Construction Details**

INDEX	COMPONENT	VARIABLE LONG NAME	DEFINITION	CODE	SOURCE
LPPI	LocalCouncil	Local Council, Managers, Commissioners Involvement	The degree of involvement of the local council, managers, and commissioners in affecting the residential building activities and/or growth management procedures of a jurisdiction.	1 = not at all involved; 5 = very involved	Question 3a of survey
LPPI	CommunityPressure	Community Pressure Involvement	The degree of involvement of community pressure in affecting the residential building activities and/or growth management procedures of a jurisdiction.	1 = not at all involved; 5 = very involved	Question 3b of survey
LPPI	Other	Other Entity	The degree of involvement of some other entity in affecting residential building activities and/or growth management procedures of a jurisdiction.	1 = not at all involved; 5 = very involved	Question 3f of survey
LPPI	BallotInitiatives	Total # of Conservation Initiatives Approved	Number of ballot initiatives passed by the jurisdiction from 2008 to 2018.	# of initiatives	Trust for the Public Land, Landvote database https://tpl.quickbase.com/db/bbqna2qct?a=dbpage&pageID=8
LPPI= LocalCouncil + Community Pressure + Other + BallotInitiatives					
SPII	StateLeg	State Legislature Involvement (STATE AVERAGE)	The degree of involvement of the state legislature in affecting the residential building activities and/or growth management procedures of a jurisdiction.	1 = not at all involved; 5 = very involved	Question 3c of survey
SPII=StateLeg					

Index Construction (cont'd.)					
CII	LocalCourt	Local Court Involvement	The degree of involvement of local court in affecting the residential building activities and/or growth management procedures of a jurisdiction.	1 = not at all involved; 5 = very involved	Question 3d of survey
CII	StateCourt	State Court Involvement	The degree of involvement of state court in affecting the residential building activities and/or growth management procedures of a jurisdiction.	1 = not at all involved; 5 = very involved	Question 3e of survey
CII= LocalCourt + StateCourt					
LPAI	LocalPlan	Local Planning Commission Required to Approve New Projects	The requirement that a local planning commission review and approve a new project that does not need rezoning.	Recoded as: 0= not required 1 = required, 2 = required & supermajority	Question 4a of survey
LPAI	LocalZone	Local Zoning Board Required to Approve Zoning Changes	The requirement that a local zoning board review and approve a new project that does not need rezoning.	Recoded as: 0= not required 1 = required, 2 = required & supermajority	Question 4b of survey
LPAI	LocCouncil	Local Council, Managers, Commissioners Required to Approve New Projects	The requirement that local council, managers, or commissioners review and approve a new project that does not need rezoning.	Recoded as: 0= not required 1 = required, 2 = required & supermajority	Question 4c of survey
LPAI	CountyComm	County Board of Commissioners Required to Approve New Projects	The requirement that the county board review and approve a new project that does not need rezoning.	Recoded as: 0= not required 1 = required, 2 = required & supermajority	Question 4d of survey
LPAI	CountyZone	County Zoning Board Required to Approve Zoning Changes	The requirement that the county zoning board review and approve a new project that does not need rezoning.	Recoded as: 0= not required 1 = required, 2 = required & supermajority	Question 4e of survey

Index Construction (cont'd.)					
LPAI	Environ	Environmental Review Board Required to Approve New Projects	The requirement that an environmental review board approve a new project that does not need rezoning.	Recorded as: 0= not required 1 = required, 2 = required & supermajority	Question 4f of survey
LPAI	PubHealth	Public Health Office Required to Approve New Projects	The requirement that the public health office review and approve a new project that does not need rezoning.	Recorded as: 0= not required 1 = required, 2 = required & supermajority	Question 4h of survey
LPAI	Design	Design Review Board Required to Approve New Projects	The requirement that a design review board approve a new project that does not need rezoning.	Recorded as: 0= not required 1 = required, 2 = required & supermajority	Question 4i of survey
LPAI	Other	Other Entity	The requirement that some other entity approve a new project that does not need rezoning.	Recorded as: 0= not required 1 = required, 2 = required & supermajority	Question 4j of survey
LPAI = <i>LocalPlan</i> + <i>LocZone</i> + <i>LocCouncil</i> + <i>CountyComm</i> + <i>CountyZone</i> + <i>Environ</i> + <i>PubHealth</i> + <i>Design</i> + <i>Other</i>					
LZAI	LocalPlan	Local Planning Commission Required to Approve New Projects	The requirement that a local planning commission review and approve a new project that entails rezoning.	Recorded as: 0= not required 1 = required, 2 = required & supermajority	Question 4k of survey
LZAI	LocalZone	Local Zoning Board Required to Approve Zoning Changes	The requirement that a local zoning board review and approve a new project that entails rezoning.	Recorded as: 0= not required 1 = required, 2 = required & supermajority	Question 4i of survey
LZAI	LocCouncil	Local Council, Managers, Commissioners Required to Approve Zoning Changes	The requirement that local council, managers, or commissioners review and approve a new project that entails rezoning.	Recorded as: 0= not required 1 = required, 2 = required & supermajority	Question 4m of survey

Index Construction (cont'd.)					
LZAI	CountyComm	County Board of Commissioners Required to Approve Zoning Changes	The requirement that the county board of commissioners review and approve a new project that entails rezoning.	Recorded as: 0= not required 1 = required, 2 = required & supermajority	Question 4n of survey
LZAI	CountyZone	County Zoning Board Required to Approve Zoning Changes	The requirement that the county zoning board review and approve a new project that entails rezoning.	Recorded as: 0= not required 1 = required, 2 = required & supermajority	Question 4o of survey
LZAI	Environ	Environmental Review Board Required to Approve Zoning Changes	The requirement that an environmental review board approve a new project that entails rezoning.	Recorded as: 0= not required 1 = required, 2 = required & supermajority	Question 4p of survey
LZAI	PubHealth	Public Health Office Required to Approve New Projects	The requirement that the public healthy review board approve a new project that entails rezoning.	Recorded as: 0= not required 1 = required, 2 = required & supermajority	Question 4r of survey
LZAI	Design	Design Review Board Required to Approve New Projects	The requirement that a design review board approve a new project that entails rezoning.	Recorded as: 0= not required 1 = required, 2 = required & supermajority	Question 4s of survey
LZAI	Other	Other Entity	The requirement that some other entity approve a new project that entails rezoning.	Recorded as: 0= not required 1 = required, 2 = required & supermajority	Question 4t of survey
LZAI = <i>LocalPlan</i> + <i>LocZone</i> + <i>LocCouncil</i> + <i>CountyComm</i> + <i>CountyZone</i> + <i>Environ</i> + <i>PubHealth</i> + <i>Design</i> + <i>Other</i>					

Index Construction (cont'd.)

LAI	TownMeet	Town Meeting Vote Required to Approve Zoning Changes	The requirement that all new projects that entail rezoning be voted on at a meeting of the jurisdiction's citizens	Recorded as: 0 = not required, 1 = required	Question 4q of survey
LAI = TownMeet					
SRI	SFPermits	Limits on Building Permits, Single Family	Annual limit on the total allowable number of building permits for single family homes.	Recorded as: 0 = no 1 = yes	Question 8a of survey
SRI	MFPermits	Limits on Building Permits, Multi Family	Annual limit on the total allowable number of building permits for multi family homes.	Recorded as: 0 = no 1 = yes	Question 8b of survey
SRI	SFConst	Limits on Residential Units for Construction, Single Family	Annual limit on the total allowable number of single family residential units authorized for construction.	Recorded as: 0 = no 1 = yes	Question 8c of survey
SRI	MFConst	Limits on Residential Units for Construction, Multi Family	Annual limit on the total allowable number of multi family residential units authorized for construction.	Recorded as: 0 = no 1 = yes	Question 8d of survey
SRI	MFBUILD	Limits on Number of Units in Multi Family Dwellings	Annual limit on the number of single family dwellings.	Recorded as: 0 = no 1 = yes	Question 8e of survey
SRI	MFUnitsDwell	Limits on Multi Family Dwellings	Annual limit on the number of multi family dwellings.	Recorded as: 0 = no 1 = yes	Question 8f of survey
SRI = SFPermits + MFPermits + SFConst + MFConst + MFBUILD + MFUnitsDwell					

Index Construction (cont'd.)

DRI	minlotsize	Minimum Lot Size Requirement	Whether the community has any minimum lot size requirement	Recorded as described below	Questions 7a & 7b of survey
<i>DRI=0 if there is no minimum lot size regulation anywhere in the jurisdiction</i>					
<i>DRI=1 if there is a minimum, but it is no larger than 0.5 acres</i>					
<i>DRI= 2 if there is a minimum, and the largest one is from 0.5-1.0 acre</i>					
<i>DRI= 3 if there is a minimum, and the largest one is from 1.0-2.0 acres</i>					
<i>DRI= 4, if there is a minimum, and the largest one is for more than 2 acres</i>					
OSI	OSI	Supply Open Space	Response indicating that developers are required to supply mandatory dedication of open space, or open space, or a fee in lieu of dedication in order to build.	Recorded as: 0= no, 1 = yes	Question 9b of survey
EI	EI	Pay Costs of Improvement	Response indicating that developers are required to pay allocable share of costs of infrastructure improvement in order to build.	Recorded as: 0= no, 1 = yes	Question 9c of survey
AHI	AHI	Affordable Housing	Response indicating that developers are required to include affordable housing, however defined, in their projects in order to build.	Recorded as: 0= no, 1 = yes	Question 9a of survey

Index Construction (cont'd.)

ADI	sfprojrev	Length of Residential Review, Single Family	The average length of time required to complete the review of a “by-right” single family residential projects in a jurisdiction.	# of months reported in survey response	Question 16a of survey
ADI	mfprojrev	Length of Residential Review, Multi Family	The average length of time required to complete the review of “by-right” multi-family residential projects in a jurisdiction.	# of months reported in survey response	Question 16b of survey
ADI	nsfprojrev	Length of Residential Review, Single Family	The average length of time required to complete the review of a “not by-right” single family residential projects in a jurisdiction.	# of months reported in survey response	Question 17a of survey
ADI	nmfprojrev	Length of Residential Review, Multi Family	The average length of time required to complete the review of “not by-right” multi-family residential projects in a jurisdiction.	# of months reported in survey response	Question 17b of survey
ADI	sf150	Rezoning Application Time, Less Than 50 Single Family Units	The typical amount of time between application for rezoning and issuance of a building permit for a project with less than 50 single family units.	Recoded as: 1.5 = less than 3 months, 4.5 = 3 to 6 months, 9.5 = 7 to 12 months, 18.5 = 1 to 2 years, 24 = more than 2 years	Question 20a of survey
ADI	sfm50	Rezoning Application Time, More Than 50 Single Family Units	The typical amount of time between application for rezoning and issuance of a building permit for a project with more than 50 single family units.	Recoded as: 1.5 = less than 3 months, 4.5 = 3 to 6 months, 9.5 = 7 to 12 months, 18.5 = 1 to 2 years, 24 = more than 2 years	Question 20b of survey
ADI	mf	Rezoning Application Time, Multi Family Units	The typical amount of time between application for rezoning and issuance of a building permit for a project with multi family units.	Recoded as: 1.5 = less than 3 months, 4.5 = 3 to 6 months, 9.5 = 7 to 12 months, 18.5 = 1 to 2 years, 24 = more than 2 years	Question 20c of survey

Index Construction (cont'd.)

ADI	subsf150	Subdivision Approval Time, Less Than 50 Single Family Units	The typical amount of time between application for subdivision approval and the issuance of a building permit for a project with less than 50 single family units.	Recoded as: 1.5 = less than 3 months, 4.5 = 3 to 6 months, 9.5 = 7 to 12 months, 18.5 = 1 to 2 years, 24 = more than 2 years	Question 22a of survey
ADI	subsfm50	Subdivision Approval Time, More Than 50 Single Family Units	The typical amount of time between application for subdivision approval and the issuance of a building permit for a project with more than 50 single family units.	Recoded as: 1.5 = less than 3 months, 4.5 = 3 to 6 months, 9.5 = 7 to 12 months, 18.5 = 1 to 2 years, 24 = more than 2 years	Question 22b of survey
ADI	submf	Subdivision Approval Time, Multi Family Units	The typical amount of time between application for subdivision approval and the issuance of a building permit for a project with multi family units.	Recoded as: 1.5 = less than 3 months, 4.5 = 3 to 6 months, 9.5 = 7 to 12 months, 18.5 = 1 to 2 years, 24 = more than 2 years	Question 22c of survey
$\text{ADI} = \{((\text{sfprojrev} + \text{mfprojrev})/2) + ((\text{nsfprojrev} + \text{nmfprojrev})/2) + ((\text{sfl50} + \text{sfm50} + \text{mf})/3) + ((\text{subsf150} + \text{subsfm50} + \text{submf})/3)\}/4$					

Part III: How Much Does Weighting Matter?

In this part, we report all tables referenced in Section III.d's discussion of how weighting affected index values at different levels of geographic aggregation.

Weighting Analysis Table 1: Survey Response Summary Statistics
(Appendix Table 3 in the main text)

Population	Number Surveyed	Number Responding	Response Rate
All	10,949	2,825	25.8%
Over 1,000,000	9	1	11.1%
500,000 - 1,000,000	24	5	20.8%
250,000 - 499,999	44	17	38.6%
100,000 - 249,999	236	78	33.1%
50,000 - 99,999	546	183	33.5%
25,000 - 49,999	1027	311	30.3%
10,000 - 24,999	2327	655	28.1%
5,000 - 9,999	2750	670	24.4%
2,500 - 4,999	3983	905	22.7%
Under 2,500	3	-	0.0%

Weighting Analysis Table 2Logit Estimation Results: Probability of Selection for the
National and Metropolitan Area Samples

	(1) National Sample	(2) Metropolitan Sample
Population (in thousands)	0.00183*** (5.44)	0.00135*** (4.51)
Share owner-occupied	-1.969*** (-16.67)	-2.092*** (-14.96)
Share ages 65+	-1.970*** (-5.20)	-0.271 (-0.65)
Share ages <18	1.521*** (3.91)	2.317*** (5.03)
Share non-Hispanic white	-0.330*** (-3.50)	-0.192 (-1.86)
Median Household Income (in thousands, 2010 dollars)	0.00149 (1.26)	0.00187 (1.33)
Median House Value (in 100,000s, 2010 dollars)	0.00236 (0.15)	-0.0667*** (-3.65)
Share College Degree+	3.073*** (21.50)	3.295*** (19.51)
Constant	-2.133*** (-14.07)	-2.307*** (-13.40)
N	55269	36950

Weighting Analysis Table 3: WRLURI2018 WEIGHTED Summary Statistics for Communities Inside and Outside CBSAs (analogue to Table 2 in the main body of the text)

	Full Sample (weighted)	Metro (weighted)
Mean	-0.089	-0.027
Standard Deviation	1.008	0.987
10th percentile	-1.330	-1.250
25th percentile	-0.772	-0.690
50th percentile	-0.177	-0.094
75th percentile	0.531	0.581
90th percentile	1.213	1.253
<i>Local Traits</i>		
Median Family Income (2010)	56,983	60,338
Median House Value (2010)	178,268	196,372
Percent College Graduates (2010)	0.25	0.27
Percent Poverty (2010)	0.13	0.12
Percentage White (2010)	0.82	0.81
Population (2010)	15,447	18,481
Land Area in Square Miles (2010)	21	21
Population Density Per Square Mile (2010)	1,424	1,576
N	2,472	2,232

Weighting Analysis Table 4 : Variation Across the WRLURI2018 Distribution
 (analogue to Table 3 in the text) (metro weighted sample) (CBSA Sample; n = 2,232)

	Lightly-Regulated: Bottom Quartile of Distribution, WRLURI <-0.690 (n=508)	Average-Regulated: Interquartile Range of Distribution, -0.690<WRLURI< 0.581 (n=1128)	Highly-Regulated: Top Quartile of Distribution, WRLURI >0.581 (n=596)
<i>Subindex</i>			
Local Political Pressure Index(LPPI)	6.54	8.43	9.55
State Political Involvement Index(SPII)	1.39	2.15	3.01
Court Involvement Index(CII)	2.25	3.08	4.45
Local Project Approval Index(LPAI)	1.71	2.29	3.51
Local Zoning Approval Index(LZAI)	2.25	2.83	3.93
Local Assembly Index(LAI)	0.35	0.45	0.62
Supply Restrictions Index(SRI)	0.05	0.11	0.37
Density Restriction Index(DRI)	2.00	2.20	2.48
Open Space Index(OSI)	0.30	0.61	0.74
Exactions Index(EI)	0.18	0.53	0.72
Affordable House Index(AHI)	0.02	0.10	0.31
Approval Delay Index(ADI--months)	3.63	4.81	7.68
<i>Local Traits</i>			
Median Family Income (2010)	53,452	60,332	67,198
Median House Value (2010)	150,317	193,179	248,563
Percent College Graduates (2010)	0.24	0.27	0.30
Percent Poverty (2010)	0.14	0.12	0.11
Percentage White (2010)	0.84	0.80	0.78
Population (2010)	14,512	16,563	26,243
Land Area in Square Miles (2010)	23	19	23
Population Density Per Square Mile (2010)	1,365	1,589	1,763
N	508	1,128	596

**Weighting Analysis Table 5: WRLURI2018 Values for CBSAs with Ten or More Observations (With CBSA Sample Weights)
(analogue to Table 4 in the main text)**

CBSA Name	WRLURI	# Obs	CBSA Name	WRLURI	# Obs
1. San Francisco-Oakland-Hayward, CA	1.34	18	23. San Antonio-New Braunfels, TX	0.14	10
2. Providence-Warwick, RI-MA	1.02	14	24. Columbus, OH	0.14	17
3. New York-Newark-Jersey City, NY-NJ-PA	1.01	57	25. Scranton--Wilkes-Barre--Hazleton, PA	0.10	10
4. Seattle-Tacoma-Bellevue, WA	0.84	22	26. Nashville-Davidson--Murfreesboro--Franklin, TN	0.06	12
5. Riverside-San Bernardino-Ontario, CA	0.79	18	27. Dallas-Fort Worth-Arlington, TX	0.04	49
6. Youngstown-Warren-Boardman, OH-PA	0.74	10	28. Milwaukee-Waukesha-West Allis, WI	0.04	22
7. Los Angeles-Long Beach-Anaheim, CA	0.67	48	29. Portland-South Portland, ME	-0.05	16
8. Washington-Arlington-Alexandria, DC-VA-MD-WV	0.66	16	30. Kansas City, MO-KS	-0.08	17
9. Madison, WI	0.53	13	31. Minneapolis-St. Paul-Bloomington, MN-WI	-0.11	48
10. Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	0.48	49	32. Houston-The Woodlands-Sugar Land, TX	-0.13	16
11. Miami-Fort Lauderdale-West Palm Beach, FL	0.40	35	33. Chicago-Naperville-Elgin, IL-IN-WI	-0.15	94
12. Syracuse, NY	0.39	11	34. Pittsburgh, PA	-0.16	56
13. Denver-Aurora-Lakewood, CO	0.38	16	35. Worcester, MA-CT	-0.26	16
14. Portland-Vancouver-Hillsboro, OR-WA	0.35	18	36. Atlanta-Sandy Springs-Roswell, GA	-0.28	27
15. Boston-Cambridge-Newton, MA-NH	0.35	44	37. Grand Rapids-Wyoming, MI	-0.37	24
16. Albany-Schenectady-Troy, NY	0.32	10	38. Charlotte-Concord-Gastonia, NC-SC	-0.38	12
17. Phoenix-Mesa-Scottsdale, AZ	0.26	11	39. Rochester, NY	-0.40	26
18. Indianapolis-Carmel-Anderson, IN	0.23	14	40. Detroit-Warren-Dearborn, MI	-0.44	60
19. Allentown-Bethlehem-Easton, PA-NJ	0.21	14	41. St. Louis, MO-IL	-0.48	37
20. Buffalo-Cheektowaga-Niagara Falls, NY	0.21	12	42. Cincinnati, OH-KY-IN	-0.49	26
21. Hartford-West Hartford-East Hartford, CT	0.17	14	43. Lancaster, PA	-0.57	14
22. Cleveland-Elyria, OH	0.16	19	44. Harrisburg-Carlisle, PA	-0.57	15

Note: There are 1,107 communities within these 44 CBSAs.

Part IV: Detail on Changes Over Time

In the published paper, we focused on a handful of changes in survey responses and the aggregate indexes that we thought would be important in driving future research in this area. This final part of our online appendix provides much more detail on how different subindexes and aggregations of responses changed over time. We hope it is useful in summarizing the broader nature of change in land use regulation since the first Wharton survey.

Recall from the paper that most of the survey responses are from 12-14 years apart, as the first Wharton survey was sent out in late 2004, with the final set of responses received near the end of 2006. The second survey was conducted entirely within calendar year 2018.

We measure change in the local regulatory environment by comparing answers to a variety of questions that are identical (or close to identical) across the two survey waves. Moreover, we have the ability to see whether changes are due to selection effects from a different set of communities responding to each survey. In addition to the full sample of respondents who answered a given year's survey, we typically have from 750-900 communities that answered any given question in both surveys, with about 500 having answered all questions fully across both surveys.

We start by examining the responses to a series of questions that help us identify whether the strictness of different local regulations themselves changed over time. Our first case discussed below involves whether there was a change in the number of entities needed to approve a project that requires rezoning. In addition to reporting the full range of answers to this question based on the cross section of communities that responded in each respective year, we also report responses from the smaller panel of communities that answered the question in both surveys. We then compute whether the number of entities required for project approval changed across surveys by subtracting the number from the 2006 survey from that reported in the 2018 survey (for those who answered both surveys, obviously). Hence, positive (negative) values reflect increases (decreases) in the number of entities required for approval, with no change differencing out to zero. We then classified the full range of possible responses into declines, no change and increases. More specifically, if intensity of regulation increased by any amount over time, the change was coded as a +1 in Survey Comparison Tables 1-3 below; analogously, if intensity of regulation decreased by any amount over time, the change was coded as a -1; no change was coded as a zero.

Each of the panels in Survey Comparison Table 1 reports these three pieces of information on a particular feature of the regulatory process. Before delving into the individual regulations themselves, it is noteworthy that the distributions of responses reported in the first columns (based on all respondents to any survey and labelled All Communities), as well as those in the second set of columns (based only on the smaller number of communities that answered both surveys and labelled Panel Communities), always look quite similar. This is comforting because it suggests that there are not strong selection effects in who answered the underlying questions in both surveys that could bias our conclusions.

The data reported in the top panel of Survey Comparison Table 1 on the number of entities that must approve a project requiring rezoning are drawn from answers to the first part of Question 4 from the 2018 survey and the answers to Question 2 from the 2006 survey. This issue was discussed in the published paper, but we report added detail here. We also reiterate our word of caution for researchers to take care in making this comparison because the 2018 survey asked about more entities that might have approval rights (9 in 2018 versus 6 in 2006). Hence, we standardize on the six entities about which we asked in both surveys.¹ Regardless of the sample, the share of communities reporting that there was only one entity required to approve the project fell by about ten percentage points, with a similar fall for those claiming two entities were required. These 20 share points are shifted up the distribution, with the bulk of the change (from 16-19 points depending upon the sample) coming from a sharply increased share of places saying that by 2018 three entities were required to approve any project requiring rezoning. Among the group that answered both surveys, in 2006 slightly more communities reported only one entity required for approval than reported three were needed; just over a decade later, the share reporting three was about four times that reporting only one. This is further reflected in the third plot in the panel which shows that 45% of communities that responded to both surveys increased the number of entities required for project approval versus only 15% that lowered the number.

The next panel shows the same type of shift did not occur for “by right” projects (those not needing rezoning).² As was discussed in the published paper and can be gleaned from the summary statistics reported above, the modal number of entities required to approve this type of project is two, and the share of communities requiring three did not change much. The share of those who increased the number required is greater than those who decreased the number, but only by 3 percentage points (34% versus 31%; see the final columns in the second panel).

The following two panels show that the scope and scale of density controls in the form of minimum lot sizes increased materially since the first survey. As reported in the published paper, minimum lot size restrictions were widespread at the time of the first survey, with 84% of communities having them in at least one neighborhood. That share is now 94%, so they have become virtually omnipresent across America.³ Perhaps more striking is the increase in the size of the largest minimum lot size regulation within a given jurisdiction. The fourth panel shows that the share of communities experiencing an increase in their largest minimum lot size was double that which saw a decline (41% versus 20%, with the rest unchanged; see the final columns in the panel).⁴ The modal minimum still is under one-half acre, but the share with a larger minimum increased from 39% in the 2006 survey to 51% in the 2018 survey (for the smaller set of cities that answered both surveys; the increase is even greater using the changes reported by the two cross sections).

¹ These entities were the Local Planning Commission, Local Council, County Board, Environmental Review Board, Public Health Board, and Design Review Board.

² These results compare and contrast responses to the second part of Question 4 in 2018 and Question 3 from the 2006 survey.

³ These data are from Question 7a in 2018 and Question 6 in 2006.

⁴ These data are from Question 7b in 2018 and Question 6 in 2006.

The rest of the results reported in this table do not show widespread increases in adoption of other regulations or increases in the strictness with which a regulation is imposed. That said, with one exception (the use of impact fees which is discussed below), there is no evidence that the typical community is abandoning these other regulations or reducing their severity. One clear example of this pattern involves the use of open space requirements.⁵ Its panel (#8) shows almost no change in the percentage of communities that have such programs. It still is the case that the typical community has such a requirement, as from 57%-59% of communities report having it depending upon the underlying sample and survey year. However, over two thirds did not change their policy on this issue between the survey years; and of the 30% that did, one-half imposed a new open space program and one-half eliminated one that was in existence before 2018.

There is a similar pattern for affordable housing programs, although they never have been widespread (panel 7).⁶ The share of communities with such a program is never above 20% in any year or sample, and it has declined slightly over time. Over four-fifths of communities report no change over time on this policy issue. Of the 17% that did change, slightly more than one-half reported abandoning the policy. Overall, affordable housing initiatives remain relatively rare and tend to be confined to larger cities or smaller suburbs in very high cost housing markets.

The one case for which we see a clear drop in the use of a regulation involves imposing exactions on homebuilders (i.e., impact fees to pay for allocable shares of infrastructure-related costs). The results plotted in the sixth panel show nearly a 25-percentage point drop in the use of such fees, from just over three-quarters of communities in 2006 to barely one-half in the 2018 survey. The final column in this panel shows that more than four times as many communities dropped this type of program than implemented it between our surveys.

The fifth panel reports results for hard caps on permitting or development. These data are from Question 8 in 2018 and Question 5 in 2006. For this regulation, we created an aggregate variable that is coded as a 1 if a community had any one of the six possible supply caps in a given survey year. The change up or down is computed as the net change after summing across all categories. These types of regulation have been and remain extremely rare. No more than 4%-8% of communities have any one of the six types of restrictions posed in the survey questions. And, there is little change in whether they are in use over time.

The final six panels report results for changes in review times. The underlying data are from two different pairs of questions: (a) Question 20 in 2018 and Question 12 in 2006, which ask about the typical review times for different types of single- and multifamily projects that need rezoning, but are not part of a subdivision development; and (b) Question 22 in 2018 and Question 13 in 2006, which ask for the same information about projects that are part of a subdivision development. For consistency, we report findings for all six different types of projects: (a) <50 unit single family developments requiring rezoning, but not in a subdivision development; (b) >50 unit single family developments requiring rezoning, but not in a subdivision development; (c) multifamily development requiring rezoning, but not a subdivision

⁵ These results compare responses to Question 9b from the 2018 survey and Question 6 from the 2006 survey.

⁶ These results compare responses to Question 9a in the 2018 survey and Question 6 in the 2006 survey.

development; and (d)-(f) which are the analogous versions of (a)-(c), each involving a subdivision.

These results indicate that there is relatively little change in the reported delays for different types of projects. This is the case for the typical single- or multi-family project that is not part of a subdivision development, where average review times of 4-5 months hold in both surveys.⁷ The share of communities reporting increases in review times are slightly greater than those reporting declines, but only by 2-3 percentage points. Those gaps are a bit larger (5-6 points) if a project is part of a subdivision, so the evidence for a modest increase in review times is stronger there. Average review times across the different types of subdivision projects increased by 10%-15% across the two surveys. The final plot in this panel, which reports the net change in whether review times fell, stayed the same, or increased across all six options shows that a slightly greater share of communities experienced some increase in review times than did those who reported shorter time (45% versus 39%). As suggested above, this difference is driven by rising review times for subdivisions.

A handful of other questions allow us to see whether the intensity of involvement by local and state actors changed over time. The very different points in the business and housing cycle at which the surveys were conducted might lead one to suspect a sharp drop in interest over time on the part of the public, public officials and the courts. The 2006-7 responses come just before the peak of what we now know to be the greatest housing boom in the post-World War II era, so it is not unreasonable to believe that local officials and populaces were especially concerned then about a variety of issues ranging from affordability to geographic spillovers from high rates of new construction in many markets. While some of the results reported below in Survey Comparison Table 2 are consistent with this story, even the decline in community pressure depicted in that figure's second panel is modest. Overall, the findings on this part of the regulatory environment are one of continuity.

There are two identical questions in each survey's LPPI subindex. One asks about the extent of involvement by a local council or managers; the other is about the degree of community involvement. There is only one common question across surveys in the SPII index—regarding the degree of involvement of the state legislature. The CII subindexes are the same across surveys, with two questions asked about the level of the local and state courts's involvement in the regulatory process.⁸

The top panel of this table indicates that it was, and remains, typical for some type of local council to be fairly intensely involved in the regulatory process. However, the share

⁷ These questions are not identical across surveys, so some caution in interpreting the results is in order. In the first survey, we just asked about each product type. In the 2018 survey, we asked about 'by right' and 'not by right' projects within each product type. Our conclusion is based on averaging the results for 'by right' and 'not by right' responses for single-family and multi-family, respectively, and then comparing those results to the 2006 numbers. Essentially, we are presuming the 2006 results are an average of review times for 'by right' and 'not by right' projects within each product type.

⁸ The underlying data are from Question 3 in the 2018 survey and from Question 1 in the 2006 survey. The specific question is "In your community, how involved are the following in affecting residential building activities and/or growth management procedures?" Respondents were then asked to evaluate the role of each of the five actors noted above.

reporting the highest level of involvement has declined over time: the share of communities answering that involvement was heavier than average fell from 85% to 72% across the full samples of the two surveys, and from 87% to 74% in the subset of 814 communities for which we have answers to this particular query in both surveys. This pattern also is consistent with the final column in that panel showing one-third of communities reporting declines in the intensity of involvement versus one-fifth reporting increases; the modal response was for no change (44%).

The second panel shows that heavy involvement by local pressure groups still is not a truly widespread phenomenon, and its perceived importance has declined modestly over time. In the first survey, just over 40% of communities responded that local pressure groups exhibited higher than moderate degrees of involvement. In the 2018 survey, this share falls by 10-12 percentage points to just under 30%, regardless of the sample considered. As noted above, this could be due to the very different points in the cycle at which the two surveys were conducted. The share of decliners also modestly exceeds increasers for this variable, too, as indicated by the third plot in this panel.

There is very little change over time in the distribution of intensity of involvement by the state legislature or either of the state or local court systems (see the next three panels of Survey Comparison Table 2). There is virtually no change in the typical response or in the interquartile range of responses over time for these variables. In the typical community, the state legislature is not viewed as intensely involved; the 75th percentile response reports only a moderate level of involvement. This has not changed over time and holds for the subset of places that responded to both surveys. The state and local court systems are considered even less involved on average, and there is no change over time in the distribution of responses for either court system. It also is common for communities to respond that there was no change in the typically low level of court involvement over time.⁹ In sum, much of the evidence suggests relatively little change in the nature of local or state political and legal involvement in the regulatory process, with some communities indicating a modest decrease in participation by the public and its elected officials.

To develop additional metrics of how the two parts of the regulatory environment changed, we aggregate across the different items reported in Survey Comparison Tables 1 and 2. The first panel in Survey Comparison Table 3 below shows the distribution of what we term the Regulation Change Index. This captures the net change over time in the nine facets of regulation investigated above.¹⁰ This starts as the simple sum of the change in the response values for each of the nine underlying questions to arrive at a net change. Thus, if five of the questions indicated an increase in strictness of regulation, while three indicated a decrease in strictness, and one was unchanged, the Regulation Change Index would have a net value of +2 (5-3+0=2). For the purposes of this table, we considered all net negative (positive) values as indicative of a decline (increase) in regulatory strictness, with a zero indicating no change. The shares of communities in each category are reported in the bar charts in the table.

⁹ While this is true in aggregate, there is some interesting regional variation, with California communities in particular noting a marked increase in involvement by the state legislature, as well as the courts.

¹⁰ The last index reported in the final panel of Online Appendix Figure 1, which sums across the six different review time variables, is used in the creation of this index.

The top panel shows that 49% of communities reported a net increase in regulatory strictness versus 33% that reported a decline (with 18% being unchanged in net terms). Of the nearly one-half of communities with positive net changes in their Regulation Change Index, 34% (or 13% of all communities in the sample) increased by one regulation on net; the other 66% (25% of the total) increased by two or more. The most likely regulations to be newly-implemented or strengthened are increases in the number of entities required to approve a project needing rezoning (63% of those with net positive changes reported such an increase), increases in project review times (also 63%), and more entities required to approve ‘by right’ projects not needing rezoning (54%). Note that these are all related to the regulatory process, rather than formal policy requirements. With regard to the latter, roughly one-quarter of this group adopted minimum lot sizes anew or imposed a larger minimum since the first survey. The other regulations were more rarely increased. If one of these communities decreased a regulation, it was likely to be in the form of reduced project review times (25%) or eliminating impact fees (20%). By definition among this group, such a change was more than counterbalanced by increases in other regulations.

Of the one-third of all communities whose Regulation Change Index declined on net, the most likely reasons were falls in review times (73% of that subsample) or a decline in the number of entities required to approve a ‘by right’ project. No other policy was eliminated or loosened by more than one-half of these communities, although impact fees were eliminated by 44% of this group.¹¹

The bottom panel in Survey Comparison Table 3 reports what we call the Political/Legal Change Index. This captures the net change in intensity of involvement across the five underlying questions described in Survey Comparison Table 2. It is calculated in the same way as the Regulation Change Index, so that if two of the questions indicated increases in intensity, two indicated decreases, and one was unchanged, the net change reflected in the Political Change Index is zero (2-2+0=0). As above, we then consider all net negative (positive) values to be indicative of a decline (increase) in the intensity of involvement by political/legal actors, with a value of zero indicating no change.

The pattern here is almost opposite of that for the Regulation Change Index. Half of the communities in the panel that answered both surveys reported a net decline in intensity of involvement according to our Political/Legal Change Index. Of this group, 29% (14% of all communities) decline by one on net. The likelihood of decline was similar across all five potential factors (from 49% to 60% of any given factor showed a drop in intensity of involvement among this group of communities). Of the roughly one-third that did experience a net increase in their Political/Legal Change Index, the most likely reason was to have reported an increase in community pressure (62% of this subsample).

All this reporting on changes in aggregate begs the question of where are the jurisdictions that experienced a change in their regulatory environment. Are the ‘decreasers’ concentrated in the slow-growing parts of the country in the so-called Rust Belt? No, they are not; they are everywhere as the plots in Survey Comparison Figure 1 below show. The top chart identifies (in

¹¹ Of this group with net declines in their Regulation Change Index, 29% fell by one on net; naturally, the other 71% declined by more.

orange) every CBSA in our sample that contains at least one community that experienced a net increase of +1 or more in its Regulation Change Index. These areas certainly include virtually everywhere along the so-called Acela Corridor running from Boston to Washington, D.C. on the east coast and each of the big metropolitan areas along the west coast. However, they encompass many areas in between (as well as north and south), including many CBSAs located in the Rust Belt. The bottom chart then plots CBSAs with at least one respondent community that had a net decrease of -1 (or more) in its Regulation Change Index. ‘Decreasers’ are everywhere, too. The plots are not identical, but they look quite similar. Even in the most highly (lightly) regulated housing markets in the country, a small number of its communities become less (more) strictly regulated over time.

Our final reporting on changes in regulatory environments focuses on regional patterns. Because changes in the degree of regulation can only be measured within the set of communities that answered both surveys, we are left with a very small number of places per market to measure the degree of change at the CBSA level. Among the largest metropolitan areas, Chicago had the largest number of communities that responded to both surveys—45, but not all of them answered each question fully. Dallas was next at 29, with Los Angeles at 21 and Detroit at 20. Other than the New York CBSA, no other market had more than 14 respondents to both surveys. Given such small numbers, one community changing implies large percentage impacts in most housing markets.

Because this could be due to simple measurement error or noise with respect to one or two communities, we choose to combine CBSAs that themselves are similar and report aggregate results for those regions. We create our own regional groupings because the Census definitions end up combining markets that are quite different from one other for the purposes of this paper (e.g., the Modesto and San Francisco CBSAs are in the same state, but their metropolitan areas could not be more different from a land use regulation perspective). Our eight synthetic regions are as follows¹²:

- (a) West Coast: includes every CBSA that physically touches the Pacific coast, plus Portland, OR; there are 11 CBSAs in our sample in this region;
- (b) East Coast: includes six CBSAs that touch the Atlantic Ocean, ranging from Washington, D.C. to Portland, ME;
- (c) Sunbelt: includes 75 CBSAs from the 11 states of the old Confederacy plus, Arizona, Kentucky, New Mexico and Oklahoma;
- (d) Midwest: includes 37 CBSAs in Iowa, Illinois, Kansas, Minnesota, Missouri, Nebraska, North Dakota or South Dakota;
- (e) Rustbelt: includes 28 CBSAs in Indiana, Michigan, Ohio or Wisconsin;
- (e) Northeast-Not Coastal: includes 30 CBSAs in Connecticut, Delaware, Maryland, Massachusetts, Maine, New York (other than the New York City CBSA which is in

¹² Lists of CBSA’s in each synthetic region are available upon request.

East Coast), and Pennsylvania;

(g) Mountain: includes 14 CBSAs in Colorado, Idaho, Montana, Utah or Wyoming;

(h) West Coast-Not Coastal: includes 17 CBSAs in the states of California, Oregon and Washington that do not physically touch the Pacific Ocean.

Survey Comparison Table 4 below reports the share of communities in each region by whether their Regulation Change Index had a net increase, decrease or stayed the same. Column 1's figures illustrate that the increasing degree of regulation documented above is fairly widespread geographically. Five of our eight regional areas, including the geographically broad-based and heavily populated Sunbelt region, report more than half their communities saw net increases in our Regulation Change Index. No more than one-third experienced net declines, and the share is closer to or less than one-fifth in the West Coast and East Coast regions specifically. Only in the lightly-populated Mountain region did the share of communities whose Regulation Change Indexes declined on net exceed those that increased. Responses were quite balanced among places within Midwest and Rustbelt region CBSAs, so there is no evidence of any meaningful reduction on average in regulatory strictness even in those areas with lower economic growth in recent years.

The analogous data in Survey Comparison Table 5 show that the aggregate decline in the Political/Legal Change Index is also widespread geographically. Only in the West Coast and West Coast-Not Coastal regional areas is the share of communities with negative net changes in this subindex *not* greater than the share with positive net changes. The share with negative net changes is above 50% in the East Coast, Midwest, Rustbelt and Mountain areas, and it is at 49% in the Northeast-Not Coastal and Sunbelt regions. Lower political and legal pressure points did not translate into materially less strict regulation in most parts of the country.

There is no evidence that markets (or regional groupings of markets with our limited data) that formerly were highly regulated have become less so over time. In fact, the coastal regions have tended to become even more regulated over time. And, it is arguable that the overall degree of regulation has increased on average even in Sunbelt markets. The only region where regulation appears to have declined on net is in the Mountain region, but its markets were not highly regulated according to our previous survey.

Survey Comparison Table 1: Changes in Regulatory Restrictions, 2006-2018

	All Communities		Panel Communities			Change
	2006	2018	2006	2018		
# of Approvals for Project Requiring Rezoning						
	0	0.04	0.04	0.04	0.02	Decrease 0.15
	1	0.22	0.10	0.19	0.09	Same 0.40
	2	0.53	0.41	0.56	0.46	Increase 0.45
	3	0.19	0.35	0.18	0.37	
	4	0.01	0.06	0.01	0.04	
	5	0.01	0.02	0.01	0.01	
	6	0.01	0.02	0.01	0.01	
# of Obs	2,450	2,517	815	815		815
# of Approvals for Project not Requiring Rezoning (By-Right)						
	0	0.12	0.20	0.12	0.23	Decrease 0.31
	1	0.41	0.21	0.41	0.18	Same 0.35
	2	0.35	0.42	0.34	0.46	Increase 0.34
	3	0.10	0.12	0.10	0.10	
	4	0.02	0.04	0.02	0.01	
	5	0.01	0.01	0.00	0.00	
# of Obs	2,440	2,521	812	812		812
Adoption of Minimum Lot Size						
	0	0.16	0.06	0.17	0.04	Decrease 0.03
	1	0.84	0.94	0.83	0.96	Same 0.81
						Increase 0.16
# of Obs	2,379	2,505	794	794		794

Survey Comparison Table 1, cont'd

		All Communities		Panel Communities			Change
		2006	2018	2006	2018		
Increase in Minimum Lot Size							
	0	0.20	0.07	0.22	0.05	Decrease	0.20
	1	0.36	0.39	0.38	0.45	Same	0.39
	2	0.15	0.16	0.14	0.16	Increase	0.41
	3	0.07	0.13	0.06	0.13		
	4	0.21	0.26	0.19	0.22		
# of Obs		1,881	2,436	598	598		598
Hard Caps on Permitting of Building							
	0	0.92	0.94	0.93	0.95	Decrease	0.05
	1	0.02	0.01	0.02	0.01	Same	0.91
	2	0.02	0.02	0.02	0.02	Increase	0.04
	3	0.01	0.00	0.01	0.00		
	4	0.02	0.01	0.01	0.02		
	5	0.00	0.00	0.00	0.00		
	6	0.01	0.01	0.01	0.00		
# of Obs		2,440	2,520	810	810		819
Exaction / Impact Fee Requirement							
	0	0.25	0.49	0.23	0.45	Decrease	0.30
	1	0.75	0.51	0.77	0.55	Same	0.63
						Increase	0.07
# of Obs		2,390	2,505	800	800		800

Survey Comparison Table 1, cont'd

	All Communities		Panel Communities		Change		
	2006	2018	2006	2018			
Affordable Housing Requirement							
	0	0.81	0.85	0.84	0.86	Decrease	0.10
	1	0.19	0.15	0.16	0.14	Same	0.83
						Increase	0.07
# of Obs	2,382	2,505	799	799			799
Open Space Requirement							
	0	0.44	0.43	0.41	0.41	Decrease	0.15
	1	0.56	0.57	0.59	0.59	Same	0.70
						Increase	0.15
# of Obs	2,391	2,505	800	800			800
Single Family less than 50 Units, Rezoning							
	1.5	0.26	0.25	0.23	0.21	Decrease	0.28
	4.5	0.39	0.42	0.42	0.44	Same	0.41
	9.5	0.23	0.21	0.24	0.22	Increase	0.31
	18.5	0.11	0.10	0.11	0.11		
	24	0.01	0.02	0.00	0.02		
# of Obs	2,395	2,344	775	775			775
Single Family greater than 50 Units, Rezoning							
	1.5	0.18	0.20	0.16	0.16	Decrease	0.30
	4.5	0.38	0.39	0.40	0.41	Same	0.38
	9.5	0.26	0.24	0.27	0.26	Increase	0.32
	18.5	0.16	0.12	0.16	0.13		
	24	0.02	0.04	0.02	0.04		
# of Obs	2,395	2,286	752	752			752

Survey Comparison Table 1, cont'd

	All Communities		Panel Communities			Change
	2006	2018	2006	2018		
Multi Family, Rezoning						
	1.5	0.20	0.22	0.17	0.18	Decrease 0.29
	4.5	0.38	0.40	0.40	0.41	Same 0.39
	9.5	0.27	0.22	0.27	0.25	Increase 0.32
	18.5	0.14	0.12	0.14	0.14	
	24	0.02	0.04	0.01	0.03	
# of Obs	2,389	2,331	766	766		766
Single Family less than 50 Units, Subdivision						
	1.5	0.33	0.25	0.31	0.24	Decrease 0.25
	4.5	0.38	0.41	0.41	0.43	Same 0.39
	9.5	0.21	0.24	0.22	0.23	Increase 0.35
	18.5	0.07	0.08	0.06	0.09	
	24	0.01	0.02			
# of Obs	2,403	2,367	780	763		780
Single Family greater than 50 Units, Subdivision						
	1.5	0.27	0.21	0.24	0.19	Decrease 0.28
	4.5	0.36	0.39	0.38	0.39	Same 0.35
	9.5	0.25	0.26	0.28	0.25	Increase 0.36
	18.5	0.11	0.11	0.10	0.12	
	24	0.01	0.04	0.01	0.04	
# of Obs	2,409	2,288	751	751		751

Survey Comparison Table 1, cont'd

	All Communities		Panel Communities		Change		
	2006	2018	2006	2018			
Multi Family, Subdivision							
	1.5	0.29	0.23	0.26	0.21	Decrease	0.26
	4.5	0.38	0.40	0.40	0.41	Same	0.38
	9.5	0.22	0.24	0.24	0.24	Increase	0.37
	18.5	0.10	0.10	0.09	0.12		
	24	0.01	0.03	0.01	0.03		
# of Obs	2,409	2,326	770	770			770

Net Change across Review Times

Decrease	0.39
Same	0.16
Increase	0.45

# of Obs	722
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Survey Comparison Table 2: Changes in Political or Legal Involvement, 2006-2018

		All Communities		Panel Communities		Change	
		2006	2018	2006	2018		
Local Council, Managers, Commissioners							
	1	0.02	0.05	0.01	0.02	Decrease	0.35
	2	0.04	0.04	0.04	0.03	Same	0.44
	3	0.09	0.19	0.08	0.18	Increase	0.21
	4	0.22	0.22	0.23	0.24		
	5	0.63	0.50	0.64	0.53		
# of Obs		2,451	2,529	814	814		814
Community Pressure							
	1	0.06	0.10	0.07	0.06	Decrease	0.38
	2	0.17	0.24	0.16	0.21	Same	0.29
	3	0.36	0.38	0.34	0.40	Increase	0.33
	4	0.30	0.18	0.31	0.23		
	5	0.11	0.10	0.12	0.11		
# of Obs		2,451	2,529	814	814		814
State Legislature							
	1	0.33	0.31	0.32	0.27	Decrease	0.32
	2	0.32	0.36	0.35	0.38	Same	0.32
	3	0.23	0.21	0.23	0.22	Increase	0.36
	4	0.10	0.08	0.08	0.09		
	5	0.03	0.04	0.02	0.04		
# of Obs		2,389	2,529	800	800		800

Survey Comparison Table 2, cont'd

	All Communities		Panel Communities			Change
	2006	2018	2006	2018		
Local Courts						
1	0.55	0.54	0.55	0.54	Decrease	0.28
2	0.30	0.35	0.31	0.37	Same	0.45
3	0.11	0.09	0.10	0.08	Increase	0.27
4	0.03	0.02	0.03	0.01		
5	0.01	0.01	0.01	0.00		
# of Obs	2,387	2,529	799	799		799
State Courts						
1	0.50	0.53	0.49	0.51	Decrease	0.32
2	0.30	0.35	0.33	0.37	Same	0.43
3	0.14	0.10	0.13	0.10	Increase	0.25
4	0.04	0.02	0.04	0.01		
5	0.02	0.01	0.01	0.00		
# of Obs	2,389	2,529	800	800		800

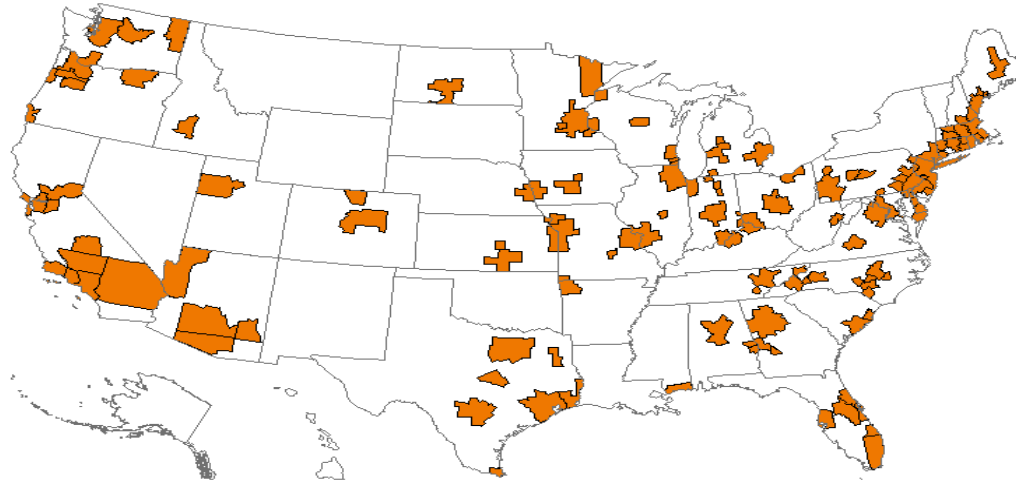
Survey Comparison Table 3: Aggregate Change in Regulation Strictness and in the Underlying Political/Legal Environment

	Regulation Change Index	
	% of Obs	# of Obs
Decrease	0.33	164
Same	0.18	90
Increase	0.49	246

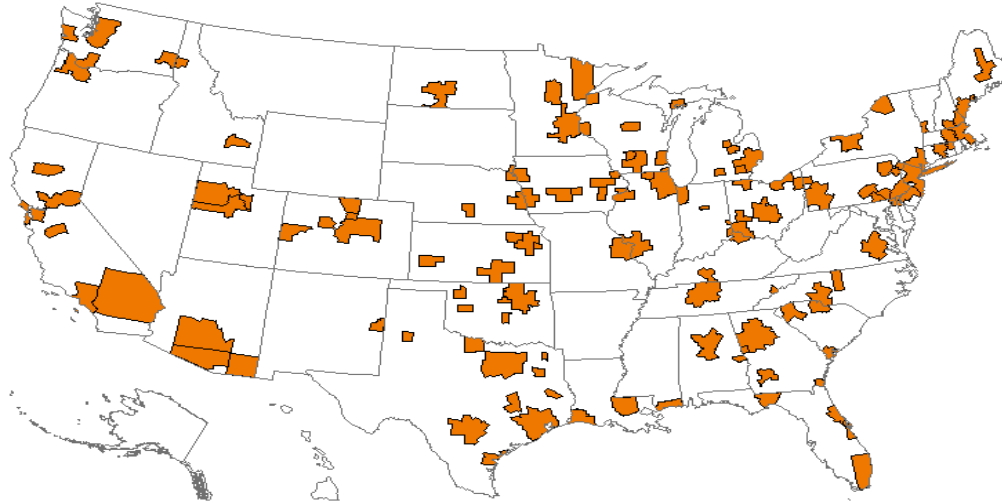
	Political / Legal Change Index	
	% of Obs	# of Obs
Decrease	0.50	249
Same	0.14	71
Increase	0.36	180

Survey Comparison Figure 1: Where Are the Communities that Increased or Decreased Their Degree of Regulation?

CBSAs With at Least One Community Whose Regulation Change Index Rose



CBSAs With at Least One Community Whose Regulation Change Index Declined



Survey Comparison Table 4: Regulatory Change Index Net Change—Community Share, by Region

	Increasing Regulation Over Time (Net Change >= +1)	No Change Over Time (Net Change = 0)	Decreasing Regulation Over Time (Net Change <= -1)
1. West Coast	63%	22%	15%
2. West Coast, Not Coastal	61%	11%	28%
3. East Coast	59%	21%	21%
4. Northeast, Not Coastal	53%	14%	34%
5. Sunbelt	52%	15%	33%
6. Midwest	41%	21%	38%
7. Rustbelt	39%	23%	38%
8. Mountain	33%	21%	46%

Notes: The number of community-level observations in each regional grouping are as follows: West Coast (46), West Coast-Not Coastal (18), East Coast (29), Northeast-Not Coastal (80), Sunbelt (142), Midwest (95), Rustbelt (66), and Mountain (24).

Survey Comparison Table 5: Political/Legal Index Net Change—Community Share, By Region

	Increasing Political/Legal Involvement Over Time (Net Change >= +1)	No Change Over Time (Net Change = 0)	Decreasing Political/Legal Involvement Over Time (Net Change <= -1)
1. West Coast	41%	17%	41%
2. West Coast-Not Coastal	50%	6%	44%
3. East Coast	28%	21%	52%
4. Northeast-Not Coastal	40%	11%	49%
5. Sunbelt	38%	13%	49%
6. Midwest	29%	17%	54%
7. Rustbelt	30%	12%	58%
8. Mountain	42%	17%	42%

Notes: The number of community-level observations in each regional grouping are as follows: West Coast (46), West Coast-Not Coastal (18), East Coast (29), Northeast-Not Coastal (80), Sunbelt (142), Midwest (95), Rustbelt (66), and Mountain (24).