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# The Use of Eminent Domain for Economic Development in the Era of *Kelo*

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## Abstract

The Supreme Court decision in *Kelo v. New London* (2005) authorized the use of eminent domain for economic redevelopment provided that there are sufficient spillover benefits to the public. This article examines the economic basis for this decision and tests the conclusions using cross-state data on “development takings” over the period 1998 to 2002. It also examines the political responses by states to limit such takings in the aftermath of *Kelo*. The results are consistent with the economic justification for eminent domain as a means of overcoming the holdout problem.

## Keywords

economic development, eminent domain, holdout problem, takings

Urban centers are cut up into little parcels. Where do we acquire large parcels of land to attract large economic engines to enable us to compete with suburbia? We can only get it through eminent domain.

—Tom Londregan, New London City Attorney (quoted in Benedict, 2009, p. 250)

It's home to us. It's home to my parents and my family for a hundred years. Simply put, there is nowhere else I would rather be. My mother has lived there her entire life. She's eighty-three years old. I know she wants to die in that house.

—Matt Dery, one of the plaintiffs in *Kelo v. City of New London* (quoted in Benedict, 2009, p. 256)

The government's taking of private property for public goods like highways, airports, or hospitals is generally regarded as an appropriate (though not always popular) use of its power of eminent domain. More controversial is the taking of property as part of a large-scale economic redevelopment project. The above quotes epitomize the fundamental trade-off surrounding this use of eminent domain: On one side are proponents of strong governmental powers to acquire property for purposes of redeveloping blighted inner cities, but on the other are property rights advocates who see such actions as nothing more than forced transfers of property from one private party to another. The Supreme Court's 2005 ruling in *Kelo v. City of New London*<sup>1</sup> is only the latest court decision to confront these issues.

The goal of this article is to examine empirically those factors, both economic and political, that have governed the willingness of states to authorize the use of eminent domain for urban redevelopment projects. The data are from 1998 to

2002 and so reflect the attitude of states prior to the *Kelo* decision<sup>2</sup>; however, we also examine the political response to *Kelo* using data on legislative reforms passed by several states in the aftermath of the case.

The facts of the *Kelo* case provide a useful context for the analysis in this article. In 2000, the city of New London, with the backing of the state of Connecticut, embarked on an ambitious redevelopment plan aimed at revitalizing the downtown area. The centerpiece of the plan was the construction of a multimillion dollar research facility by the Pfizer pharmaceutical company, which it was hoped would attract jobs, generate additional tax revenues, and generally rejuvenate the city's economy. In approving the plan, the city authorized the New London Development Corporation to use eminent domain if necessary to clear the needed land. Although most owners in the targeted areas sold voluntarily, a few held out, necessitating the condemnation of their properties. The owners of the condemned properties responded by filing suit on the grounds that the takings violated the public use requirement of the Fifth Amendment, which states that land can only be taken without the owner's consent if it is to be put to a “public use.” The plaintiffs, led by Susette Kelo, contended that the public use requirement was not satisfied because the bulk of the land was being transferred to another private party.

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The Connecticut Supreme Court upheld the city's action and the case then went to the U.S. Supreme Court on appeal. In a 5-4 ruling, the Supreme Court concurred that the city was justified in its use of eminent domain based on the following reasoning:

The city has carefully formulated an economic development plan that it believes will provide appreciable benefits to the community, including—but by no means limited to—new jobs and increased tax revenue. . . . Because that plan unquestionably serves a public purpose, the takings challenged here satisfy the public use requirement of the Fifth Amendment.<sup>3</sup>

The reaction to the case was largely negative from both sides of the political spectrum, resulting in a widespread call for political action to limit the perceived abuse of the government's eminent domain power. From a strict legal perspective, however, the case was not especially groundbreaking, as it was merely the latest in a long line of cases at both the state and federal levels that had authorized the use of eminent domain primarily for economic development purposes (Kelly, 2006).

Fleck and Hanssen (2010) review the history of the delegation of eminent domain for various purposes (including economic development) in the United States. They argue that the *Kelo* case, and especially the public backlash against it, reflects an ongoing process by which courts continually monitor the extent of the powers that they delegate to public officials, and periodically rein them in when public outcry signals that those powers are being used excessively. They argue, for example, that *Kelo* pushed the limits of late 20th century style eminent domain use for economic development, which prior to that had been limited to small-scale projects with limited condemnation of residential land.

As for the economics of the issue, the primary justification for the use of eminent domain is to overcome a market failure associated with the assembly of land for large-scale projects such as highways. In such cases, landowners in the path of the project acquire a kind of monopoly power that allows them to hold out for prices in excess of their true valuations, thereby resulting in costly delay and possibly preventing completion of the project (Cohen, 1991; Posner, 2003). The government's power of eminent domain enables it to go ahead with beneficial projects by replacing the costly negotiation process with forced sales. Although the public use requirement limits such actions, the exact meaning of public use remains unclear: Does it refer exclusively to public goods, or can it also encompass private projects with some discernible public benefit? That was the question the *Kelo* Court addressed.

## The Law and Economics of Public Use

As noted, the government's power of eminent domain is limited by the Fifth Amendment takings clause, which states,

"nor shall private property be taken for public use, without just compensation." Thus, the targeted land must be put to a "public use" and the owner must receive "just compensation." Since the Constitution offers no specific guidance on the meaning of these phrases, however, it has been left to courts and legal scholars to define them. Although it is settled law that just compensation equals fair market value (Fischel, 1995; Knetsch & Borcherting, 1979), the meaning of public use continues to spark controversy, as epitomized by the *Kelo* decision and its aftermath. The debate centers on the question of whether municipalities should be allowed to use eminent domain to facilitate economic redevelopment.

Merrill (1986) offers an economic perspective based on what he calls the "means-ends distinction." The "means" concerns the manner by which the land will be acquired, while the "ends" concerns the use to which the land will be put. At first glance, a literal interpretation of public use suggests that the relevant factor is the ends; that is, eminent domain should only be available for those projects that involve the provision of a public good (Ulen, 1992). In contrast, the means approach focuses on possible impediments to the acquisition of the land by ordinary market transactions and particularly justifies the use of eminent domain to overcome holdouts (Cohen, 1991). The problem with this approach, however, is that the logic should apply regardless of whether the acquired land will be put to a public or a private use.

The case law shows that courts have historically adopted the logic of the means approach by allowing a liberal interpretation of public use,<sup>4</sup> but as Merrill (1986) notes, they have nearly always sought to justify their decisions with the language of the ends approach by emphasizing the public benefits of the government action (Epstein, 1985). The *Kelo* decision epitomizes this strategy—whereas the bulk of the benefits from the proposed redevelopment project were private, the Supreme Court, in defending its decision to allow eminent domain, highlighted the spillover benefits to the public in terms of jobs and tax revenues while making no mention at all of the need to overcome the holdout problem.

One way to understand this position is that the court was not interested in advancing an economic justification for eminent domain but was merely trying to follow the Constitution and past precedent. The following analysis seeks to test whether economic theory (as described above) helps explain the actual use of eminent domain.

## Empirical Analysis of the Determinants of the Use of Private Takings

### Testable Hypotheses

The preceding discussion suggests several testable hypotheses. The primary one is based on the argument that the proper economic justification for the use of eminent domain is to

**Table 1.** Eminent Domain Cases From January 1, 1998, to December 31, 2002.

| Type of Use                | No. of observations | Total  | Range    | Mean  | Median |
|----------------------------|---------------------|--------|----------|-------|--------|
| Filed private takings      | 50                  | 3,720  | 0-2,517  | 74    | 5      |
| Threatened private takings | 45                  | 6,560  | 0-2,055  | 146   | 12     |
| Development projects       | 50                  | 222    | 0-23     | 4     | 3      |
| All takings                | 22                  | 46,046 | 7-14,319 | 2,093 | 954    |

Source: Berliner (2003).

overcome holdouts. Holdouts would seem to be more likely, all else equal, the more fragmented (or dense) is land ownership and the larger are the number and scale of redevelopment projects in a state. Thus, we would expect to see greater use of eminent domain in jurisdictions with more urban land and denser population, reflecting more dispersed land ownership. A second hypothesis is that redevelopment takings should depend positively on standard determinants of demand such as population, income, and the price of alternatives. Specifically, states with larger populations and higher incomes should see a more extensive use of eminent domain. Additionally, if government officials are sensitive to economic factors they should be less willing to authorize takings when current land uses are more valuable, as measured, for example, by land prices.

Third, the current rate of economic growth in a jurisdiction should influence decisions about efforts to redirect that growth by using eminent domain for development purposes; however, this effect could be ambiguous. On one hand, positive growth should increase the demand for redevelopment, but on the other, jurisdictions with slow growth may be more likely to resort to measures aimed at spurring growth (as exemplified by the *Kelo* case).

Fourth, the willingness to exercise eminent domain may depend on a variety of political and social factors that influence a jurisdiction's taste for redevelopment takings. Political considerations, however, will likely cut in opposing directions. Whereas one would expect Democratic-controlled jurisdictions to favor policies that facilitate the renovation of cities and to favor strong governmental powers aimed at regulating private property in the public interest, one would also expect these jurisdictions to be reluctant to permit forced transfer of land from lower and middle-class homeowners to wealthy business interests. As for Republican-controlled jurisdictions, one would expect them not only to favor business-friendly policies but also to be concerned about the perceived abuse of eminent domain to acquire private property primarily for economic development.

Relatedly, a jurisdiction's philosophical attitude toward government may have a bearing on its willingness to exercise eminent domain. States with light tax burdens and a smaller government footprint or with limits on spending and taxation may have considerable aversion to employing eminent domain for development purposes (Turnbull & Salvino,

2009). Alternatively, resource-strapped states may view takings as a substitute for government initiatives that they cannot otherwise afford to pursue. To capture these effects, we include a variable measuring the tax burden on states. Fifth, we include variables on the property crime rate by state and convictions of state and local public officials to capture the effect of a possible culture of government abuse or corruption in the use of eminent domain. Finally, we include two control variables—a Herfindahl index of racial concentration and a Gini index of income distribution—to test whether there is a racial or income bias in the use of eminent domain.

### Data and Methodology

The dependent variable for the analysis was obtained from a survey undertaken by the Castle Coalition, which catalogued the use of eminent domain for private development projects by state for a 5-year period between January 1, 1998, and December 31, 2002 (Berliner, 2003). (Thus, as noted, the analysis will reflect the behavior of states just prior to *Kelo*.) The Castle Coalition was formed by the Institute for Justice, a nonprofit public interest law firm located in Washington, D.C. The fact that this organization opposes the use of eminent domain for redevelopment purposes raises the possibility of bias in its data collection. Given this concern, we contacted the author directly to find out exactly how the data were obtained. She described a systematic Lexis search for news stories, as well as a search of all state and federal court rulings on the topic. The data are admittedly incomplete but this procedure should not have imparted a systematic bias regarding the *relative* use of eminent domain across states, which is what we are really trying to capture. Moreover, any such bias would, if anything, work against our principal hypothesis, which is that eminent domain is used primarily to overcome the holdout problem rather than to expand the reach of government *per se*.

Ideally, we would like to have metropolitan-level data since most takings decisions for redevelopment purposes are made at the local level but unfortunately such data are not readily available. We nevertheless hope to gain a general sense of how the variation in state economic, political, and demographic environments might condition the choices made by local decision makers. The Castle Coalition's findings, summarized in Table 1, are broken down into "filed

condemnations” representing the number of times a government filed actions in court to acquire property for a private development project, “threatened condemnations” representing the number of properties that the government has indicated it would like to acquire,<sup>5</sup> and “development projects” representing the number of private development projects that are represented in the filed and threatened condemnations. Finally, the report lists total condemnations for all purposes (public and private) for 22 states.

The focus of our analysis will be on the determinants of state-by-state variation in the number of *filed private takings*. We chose not to use the number of threatened takings both because data from five states were absent and because the credibility of the threat could not be ascertained.<sup>6</sup> The discrepancy between the mean and median numbers of filed private takings reflects the skewed distribution across states. Fifteen states had no filed private takings over the 5-year period, whereas eight states accounted for 91% of all filed takings.

In an effort to explain the cross-state variation in filed takings, we regressed this variable on a set of explanatory variables as dictated by the discussion in the previous section. In light of the relatively large fraction of states with no filed private takings, we used a Tobit model for this regression.<sup>7</sup> The specific variables and definitions are as follows:

TAKINGS = The number of private takings filed between 1998 and 2002

POPULATION = Resident statewide population in 2000 (obtained from the U.S. Bureau of the Census)

URBAN LAND = Percentage of urban land in 2000, equal to urban land area divided by total land area (obtained from demographia.com)

URBAN DENSITY = The population density of urban areas in 2000, equal to urban population divided by urban land area (also obtained from demographia.com)

PRICE = The dollar price of the median home in 2000

INCOME = The nominal dollar value of per-capita disposable personal income in 2000

GSP = The ratio of real 2000 gross state product to real 1990 gross state product

TAXATION = The average “Takings and Discriminatory Taxation” subcomponent of the Fraser Institute’s Economic Freedom Index for 1998 to 2002<sup>8</sup>

TEL = 1 if the state had enacted a tax and expenditure limit by 1998, 0 otherwise<sup>9</sup>

PRESIDENT = 1 if the state voted Democratic in 2000, 0 otherwise

GOVERNOR = 1 if Democrats occupied the statehouse in 2000, 0 otherwise

LEGISLATURE = 1 if Democrats held an average majority of seats in both legislative houses in 2000, 0 otherwise

CRIME = Indexed property crime rates in 2000 (obtained from the FBI’s Uniform Crime Report)

CORRUPTION = Annual federal convictions of state and local public officials, 1976 to 2002<sup>10</sup>

RACE = A Herfindahl index of racial concentration in 2000 ranging from zero to one, with higher indices indicating greater racial homogeneity (constructed using Census data)

GINI = The 2000 Gini coefficient for each state

Except for the two binary variables, each variable is expressed in log form to capture any nonlinearities in the presumed relationship.

Summary statistics for all variables appear in Table 2. Population ranged from a high of nearly 34 million residents (California) to a low of just less than one-half million (Wyoming) residents. States with the highest share of urban area were concentrated in the Northeast, led by New Jersey at 37.6% but followed closely by Rhode Island, Connecticut, and Massachusetts, each with more than 35% urban area. States with the smallest urban footprint were found in the West, with Alaska at the bottom of the list. The population density of urban areas showed less geographic concentration, with New York and California each more than 4,000 persons per square mile and Nevada, Hawaii, and Illinois more than 3,000. Density was lowest in New Hampshire and South Carolina. Prices were highest along the coasts, with Hawaii, California, and Massachusetts at the top and Oklahoma, along with other states in the nation’s midsection, at the bottom. Northeastern states dominated the per-capita income ranking.

The simple correlations between our key explanatory variables and the dependent variable, TAKINGS, largely support our suppositions. TAKINGS shows a fairly strong positive correlation with POPULATION ( $r = .66$ ), and a more moderate but positive correlation with URBAN AREA, URBAN DENSITY, and INCOME ( $.3 < r < .5$ ). Our dependent variable is only weakly correlated with PRICE (positively) and gross domestic product (negatively), with  $|r| = .13$  in both cases. Regression methods allow us to test these associations more rigorously and to explore the effects, if any, of the other control variables in the model.

## Results

The results of our Tobit regressions are reported in Table 3. Each model explains about 25% of the variation in the dependent variable TAKINGS. The results show that TAKINGS varies positively with URBAN DENSITY and URBAN LAND, lending support to the hypothesis that states with more fragmented land ownership are more likely to rely on takings to overcome holdout problems. These results are fairly robust to variations in the model specification: URBAN LAND is statistically significant at the 10% level or better in all of the models and URBAN DENSITY is significant in four of the five. To illustrate the effects of these variables, in Model 5 a 1% increase in URBAN



**Table 2.** Descriptive Statistics for Tobit Estimation.

| Variable name                   | No. of observations | Mean      | Median    | SD        | Min     | Max        |
|---------------------------------|---------------------|-----------|-----------|-----------|---------|------------|
| TAKINGS                         | 50                  | 74        | 5         | 356       | 0       | 2,517      |
| POPULATION                      | 50                  | 5,632,004 | 4,036,114 | 6,205,953 | 493,963 | 33,998,767 |
| URBAN LAND (percent)            | 50                  | 6.62      | 3.03      | 9.77      | 0.05    | 37.59      |
| URBAN DENSITY (per square mile) | 50                  | 2,198     | 2,189     | 642       | 1,306   | 4,215      |
| PRICE                           | 50                  | 118,488   | 109,750   | 39,819    | 70,700  | 272,700    |
| INCOME                          | 50                  | 24,963    | 24,800    | 3,188     | 19,491  | 33,837     |
| GSP                             | 50                  | 142.48    | 138.40    | 22.06     | 84.74   | 195.37     |
| TAXATION                        | 50                  | 6.99      | 7.09      | 0.79      | 5.10    | 8.80       |
| TEL                             | 50                  | 0.54      | 1         | —         | 0       | 1          |
| PRESIDENT                       | 50                  | 0.40      | 0         | —         | 0       | 1          |
| GOVERNOR                        | 50                  | 0.36      | 0         | —         | 0       | 1          |
| LEGISLATURE                     | 50                  | 0.46      | 0         | —         | 0       | 1          |
| CRIME                           | 50                  | 3.56      | 3.65      | 0.82      | 2.15    | 5.30       |
| CORRUPTION                      | 50                  | 3.98      | 3.72      | 2.10      | 0.79    | 9.19       |
| RACE                            | 50                  | 0.63      | 0.64      | 0.16      | 0.27    | 0.93       |
| GINI                            | 50                  | 0.45      | 0.45      | 0.02      | 0.40    | 0.51       |

*Note.* These descriptive statistics are for the normal variable values. The variable TAKINGS represents the number of private takings prior to the *Kelo* case (i.e., from January 1, 1998, to December 31, 2002). The variable POPULATION represents the 2000 population estimates from the Census Bureau. URBAN DENSITY (i.e., urban population divided by urban land) and URBAN LAND (i.e., urban land divided by total land area) variables are estimates from demographia.com based on 2000 data from the Census Bureau. GSP and INCOME refer to, respectively, the ratio of 2000 to 1990 state GSP and per-capita, disposal personal income in 2000 from the Bureau of Economic Analysis. Median house prices (PRICE) in 2000 are from the Census Bureau. TAXATION is the average "Takings and Discriminatory Taxation" subcomponent of the Fraser Institute's Economic Freedom Index for 1998 to 2002, and TEL, from the Rockefeller Institute, is 1 if the state had enacted a tax and expenditure limit by 1998, 0 otherwise. The explanatory political variables (PRESIDENT, GOVERNOR, LEGISLATURE) relate to the 2000 presidential election, and the governor's political affiliation and party control of the state legislature that same year. The data come from the Federal Election Commission, National Governor's Association, and National Conference of State Legislatures, respectively. These variables take the value of 1 if affiliated to the Democratic Party and 0 if Republican. CRIME, from the FBI, measures indexed property crime rates in 2000, CORRUPTION, from Glaeser and Saks, is the annual federal convictions of state and local public officials between 1976 and 2002. RACE is a Herfindahl index, calculated from Census data, of racial concentration in 2000, and GINI, from Census, is the 2000 Gini coefficient for each state.

DENSITY is associated with a 1.3% increase in TAKINGS, all else equal, and a 1% increase in URBAN LAND is associated with an increase in TAKINGS of approximately 0.5%.<sup>11</sup>

Filed takings also vary positively with per-capita disposable income, though this variable is only significant (at the 10% level) in Models 2 and 5. This reflects a greater reliance on takings as the demand for development increases. Median home price is negative in all specifications, as predicted, and significant at the 10% level in Models 3 and 4, and at the 5% level in Models 2 and 5. This result is consistent with the hypothesis that government officials account for the opportunity cost of land in making takings decisions. It is also consistent, however, with a greater tendency to use eminent domain in poorer neighborhoods where residents have less political influence. (As Munch, 1976, showed in her classic study, low valued properties generally received less than market value in eminent domain proceedings whereas high value properties received more than market value.) This latter interpretation is reinforced by the positive coefficient on RACE, which is significant at the 10% level in Models 1 and 3. (At the same time though, Gini coefficients in the same regressions were not significant.)

Though the coefficient on GSP is negative across all specifications of our model, reflecting the view that states use

takings as a tool to spur economic growth, it is only significant (at the 10% level) in Model 4. The Gini coefficient for income inequality is not statistically significant, suggesting that income diversity does not systematically influence the decision to use eminent domain, all else equal. Likewise the crime, corruption, and taxation variables are not significant. Finally, neither of the political variables is significant in any of the specifications, which is unsurprising given the cross-cutting political impacts of eminent domain, as noted above.

Overall, the results in this section provide some support for the economic theory of eminent domain based on the holdout problem.

## Political Reaction to the *Kelo* Decision

The second part of our analysis examines the political reaction in the aftermath of the *Kelo* case. This is made possible by a second Castle Coalition study that examined legislative reforms passed by states in response to the *Kelo* decision (Castle Coalition, 2008). The report assigned a letter grade of A through F to each state based on the degree of legal protection against private takings that it had enacted, where A indicates a high degree of protection and F indicates no protection. (Although the grading necessarily reflects subjective

**Table 3.** Tobit Estimation of Filed Eminent Domain Cases for Economic Development (TAKINGS) From January 1, 1998, to December 31, 2002.

| Dependent variable: TAKINGS | Model 1           | Model 2          | Model 3           | Model 4           | Model 5           |
|-----------------------------|-------------------|------------------|-------------------|-------------------|-------------------|
| POPULATION                  | 1.5888*** (4.24)  | 1.4016*** (4.26) | 1.4573*** (4.15)  | 1.5133*** (4.43)  | 1.3378*** (4.04)  |
| URBAN LAND                  | 0.4716** (2.49)   | 0.5090*** (2.74) | 0.4155* (1.88)    | 0.5131** (2.30)   | 0.5104** (2.24)   |
| URBAN DENSITY               | 3.0866** (2.25)   | 2.0734 (1.59)    | 3.1150** (2.31)   | 2.8954** (2.15)   | 2.6108* (1.94)    |
| PRICE                       | -2.7851 (1.51)    | -3.8317** (2.54) | -2.8172* (1.84)   | -3.0130* (1.98)   | -3.7730** (2.56)  |
| INCOME                      | 5.9665 (1.39)     | 6.8925* (1.95)   | 5.300 (1.47)      | 4.2428 (1.35)     | 5.6861* (1.93)    |
| GSP                         | -3.9101 (1.23)    | -2.6540 (1.33)   | -3.4576 (1.44)    | -3.6065* (1.68)   | -3.3013 (1.64)    |
| TAXATION                    | -1.3084 (0.32)    | -3.4156 (1.02)   |                   |                   |                   |
| TEL <sup>(a)</sup>          | 0.5048 (0.80)     | 0.4441 (0.80)    |                   |                   |                   |
| PRESIDENT <sup>(a)</sup>    | -0.5911 (0.65)    | -0.4381 (0.54)   |                   |                   |                   |
| GOVERNOR <sup>(a)</sup>     | -0.6149 (1.23)    | -0.7184 (1.43)   |                   |                   |                   |
| LEGISLATURE <sup>(a)</sup>  | 0.5393 (0.95)     | 0.1223 (0.22)    |                   |                   |                   |
| CRIME                       | 1.0285 (0.66)     |                  | 1.2169 (0.87)     |                   |                   |
| CORRUPTION                  | 0.2830 (0.42)     |                  | 0.4620 (0.77)     |                   |                   |
| RACE                        | 3.0268* (1.87)    |                  | 2.6232* (1.89)    | 1.5195 (1.18)     |                   |
| GINI                        | 0.6432 (0.10)     |                  | 3.9615 (0.74)     |                   |                   |
| Constant                    | -63.7421** (2.18) | -51.4406* (1.95) | -54.7520** (2.02) | -47.8011** (2.07) | -49.5923** (2.16) |
| No. of observations         | 50                | 50               | 50                | 50                | 50                |
| Pseudo R <sup>2</sup>       | 0.2735            | 0.2608           | 0.2563            | 0.2505            | 0.2436            |
| Sigma                       | 1.5816            | 1.608            | 1.6161            | 1.6316            | 1.6569            |

Note. The dependent variable (TAKINGS) is the log of the number of filed private takings in each state for the 5-year period from January 1, 1998, to December 31, 2002. The independent variables are also in their log forms, except for the political variables, identified by the superscript (a). These variables take the value of 1 if Democratic and 0 if Republican, except for TEL, where 1 indicates the adoption of taxation and expenditure limits. The absolute values of the coefficient estimates' t statistics are in parentheses. Regression coefficients with the superscripts \*\*\*, \*\*, and \* are statistically significant (using robust standard errors) at 1%, 5%, and 10%, respectively.

judgment, what matters most is the relative ranking.) It is important to note that the Castle Coalition graded states not for their history of restraint with respect to private takings but for the vigor of their response to the *Kelo* decision. As of 2008, 42 states had enacted at least some new protections, whereas eight states had failed to enact any reforms.

Two previous studies have used these data to conduct a similar analysis. Morriss (2009) focused only on those states that responded by some form of legislation as opposed to a citizen-initiated response. He thus excluded Arizona, Nevada, North Dakota, and Oregon from his analysis. His results showed that states with higher population growth rates and a larger fraction of Republicans in the state legislature were more likely to enact reforms limiting the use of eminent domain for private development. Conversely, states with statutory limits on taxes and spending and with Republican governors were less likely to enact such reforms. In a similar study, Lopez, Jewell, and Campbell (2009) created their own classification of state responses by analyzing 18 separate dimensions of restrictions, definitions, prohibitions, and exemptions codified in post-*Kelo* reforms. They found that states with a higher value of new home construction, greater economic freedom, and less income inequality were more likely to enact substantive reforms. They also found that a state's history of using eminent domain for private development did not affect

the strength of its reform efforts and, in contrast to the Morriss study, neither did political factors.

### Data and Methodology

A grading system of the sort used by the Castle Coalition is an example of an ordinal scale of measurement. Thus, in our effort to explain the variation in Castle Coalition grades, we modeled it as a limited dependent variable that ranged in value from F = 0 to A = 4 and used an ordered logit approach. The dependent variable is listed in Table 4 as GRADE.<sup>12</sup>

Our approach differs from both Morriss (2009) and Lopez et al. (2009). The Morriss study used Castle grades but arbitrarily collapsed the scale into a dichotomous variable: 0 for grades of F through C and 1 for grades of B and better and modeled state responses as a probit. The approach followed by Lopez et al. resulted in a trichotomous measure: 0 for no change in law, 1 for a weak, largely symbolic response, and 2 for a strong update, modeled as an ordered probit. Our method allows for a broader range of response to the *Kelo* decision and preserves more of the original variability in the source data.

The explanatory variables in our model include those measures identified by the previous researchers as significant. Most, such as the political control of the legislative and

**Table 4.** Additional Descriptive Statistics for Logit Estimation.

| Variable name      | No. of observations | Mean                  | Median                | SD                    | Min                   | Max                   |
|--------------------|---------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| GRADE              | 50                  | 1.9                   | 2.0                   | 1.30                  | 0.0                   | 4.0                   |
| TEL                | 50                  | 0.6                   | 1.0                   | 0.49                  | 0.0                   | 1.0                   |
| GOVERNOR           | 50                  | 0.44                  | 0.0                   | 0.50                  | 0.0                   | 1.0                   |
| LEGISLATURE        | 50                  | 0.48                  | 0.0                   | 0.50                  | 0.0                   | 1.0                   |
| GSP                | 50                  | 169.88                | 164.50                | 17.46                 | 145.57                | 229.54                |
| CONSTRUCTION       | 50                  | 977.24                | 820.17                | 478.64                | 337.67                | 2,355.48              |
| GINI               | 50                  | 0.45                  | 0.45                  | 0.02                  | 0.40                  | 0.51                  |
| PRICE              | 50                  | 177,234               | 148,400               | 90,579                | 82,700                | 477,700               |
| INCOME             | 50                  | 30,503                | 29,789                | 3,714                 | 24,249                | 40,689                |
| PER-CAPITA TAKINGS | 50                  | $8.18 \times 10^{-6}$ | $1.55 \times 10^{-6}$ | $2.95 \times 10^{-5}$ | $1.12 \times 10^{-7}$ | $2.04 \times 10^{-4}$ |
| URBANIZATION       | 50                  | 0                     | -0.38                 | 1.53                  | -2.54                 | 3.21                  |

Note. These descriptive statistics are for the normal variable values. Grade is the Castle Coalition grade score, where F = 0, D = 1, C = 2, B = 3, and A = 4. Construction, the per-capita dollar value of residential construction put in place in 2004, is from Census. Per-capita Takings are 1998 to 2002 Castle Coalition private takings totals divided by state population in 2000. Urbanization is the first principal component of four separate variables (see the appendix). The remaining variables come from the same sources identified in Table 2 but are updated to new values. TEL, GSP, Price, and Income are updated to 2005 values, Governor and Legislature to 2006.

executive branches of government, economic growth (which we measured using GSP rather than population growth), income inequality, economic freedom (our TAXATION variable), and tax and expenditure limits, were used in Part I of this article, whereas others are new to the analysis. In particular, we add the per-capita dollar value of new residential construction by state, CONSTRUCTION, to capture the opportunity cost of commercial development, given that the competition for a limited supply of land often pits homebuilders against commercial developers.<sup>13</sup> Also, following Lopez et al. (2009), we include the number of private takings per capita during the 1998 to 2002 period (the dependent variable from the previous section) to measure a state's history of using eminent domain for economic development. Though their study found no evidence that a history of private takings led to substantive legal changes, we viewed the variable as potentially important enough to warrant reexamination.<sup>14</sup>

Finally, although the post-*Kelo* reforms were largely driven by political factors, we wish to examine whether the same economic considerations that affected the willingness of states to use eminent domain for redevelopment *prior* to *Kelo* also influenced their decisions of whether or not to prohibit such actions *after Kelo*. We therefore include the variables URBAN LAND, URBAN DENSITY, PRICE, and INCOME reflecting, as noted above, a state's underlying stage of urbanization.

### Empirical Results

Table 4 presents descriptive statistics for the new and updated variables, and Table 5 shows the results of our ordered logit model for GRADE. The coefficients estimate the change in the ordered log-odds of receiving a higher grade, given changes in the independent variables. The results confirm earlier findings that tax and expenditure limits and the strength of the

construction lobby affected states' responses to the *Kelo* decision in the predicted way. Other things equal, having a tax and expenditure limit raises the ordered log-odds of receiving a lower Castle Coalition grade. The relationship between CONSTRUCTION and GRADE is also significant and robust across specifications. The positive coefficient on CONSTRUCTION suggests that state legislatures are sensitive to the interests of residential land users in their competition with commercial interests for control over the limited supply of land.

Other factors found to be important in previous studies are not significant in our model. Specifically, variables quantifying the partisan makeup of state government, economic growth, and income inequality all fail to meet the threshold of statistical significance. The TAXATION variable appears weakly significant (at the 10% level) only in Model 3. PER CAPITA TAKINGS were also positive and significant in Model 3 (at the 5% level), in contrast to the absence of such a finding in Lopez et al. (2009), offering some evidence of a backlash against the *Kelo* decision. Except for PRICE, which is significant at the 5% level in Model 1, the other variables from our TAKINGS regression showed little sign of having influenced legislatures' reaction to the *Kelo* decision. Closer inspection, however, suggests that multicollinearity among the PRICE, URBAN LAND, URBAN DENSITY, and INCOME variables may be clouding the results. There are, of course, convincing theoretical reasons to expect these variables to be collinear as they are all separate manifestations of the underlying process of urbanization. Thus, it is possible that the GRADE regression is simply incapable of isolating the separate influences of each of these variables, especially given the small sample size involved.

Multicollinearity can be addressed in a variety of ways, but forming a principal component of the suspected collinear variables allows us to retain them in the analysis and explore the



**Table 5.** Logit Estimation of Castle Coalition Grades (GRADE).

| Dependent variable: GRADE  | Model 1           | Model 2           | Model 3           | Model 4 |
|----------------------------|-------------------|-------------------|-------------------|---------|
| TEL <sup>(a)</sup>         | -2.2025** (2.29)  | -1.9150*** (2.61) | -1.6946** (2.40)  | -1.6946 |
| GOVERNOR <sup>(a)</sup>    | 0.8202 (1.29)     | 0.7095 (1.21)     |                   |         |
| LEGISLATURE <sup>(a)</sup> | 0.2118 (0.21)     | -0.5191 (0.72)    |                   |         |
| GSP                        | -4.6041 (0.67)    | -0.0299 (0.01)    |                   |         |
| CONSTRUCTION               | 4.5601*** (3.03)  | 3.2872** (2.35)   | 3.3703*** (3.90)  | 3.3703  |
| TAXATION                   | 4.4291 (1.06)     | 3.5342 (1.03)     | 4.3761* (1.83)    | 4.3761  |
| GINI                       | -6.4056 (1.06)    | -1.9523 (-0.40)   |                   |         |
| PRICE                      | -3.7089** (-2.25) |                   |                   | -1.0344 |
| INCOME                     | 1.6753 (1.21)     |                   |                   | -3.1673 |
| URBAN DENSITY              | 2.3472 (0.41)     |                   |                   | -0.9578 |
| URBAN AREA                 | -0.0279 (0.13)    |                   |                   | -0.1545 |
| PER-CAPITA TAKINGS         | 0.2318 (1.01)     | 0.2940 (1.60)     | 0.3833** (2.03)   | 0.3833  |
| URBANIZATION               |                   | -0.5526** (2.27)  | -0.6656*** (3.14) |         |
| LIMIT D                    | -5.1988           | 0.3913            | -0.4487           | -0.4487 |
| LIMIT C                    | -2.3816           | 2.9074            | 1.9212            | 1.9212  |
| LIMIT B                    | -1.5302           | 3.6808            | 2.6509            | 2.6509  |
| LIMIT A                    | 1.1245            | 6.2371            | 5.0703            | 5.0703  |
| No. of observations        | 50                | 50                | 50                | 50      |
| Pseudo R <sup>2</sup>      | 0.2663            | 0.2276            | 0.2040            | 0.2040  |

Note. The dependent variable (GRADE) is the Castle Coalition grade issued to each state. The independent variables are also in their log forms, except for URBANIZATION, which is the first principal component of the logged values of PRICE, INCOME, URBAN DENSITY, and URBAN AREA, and for the political variables, identified by the superscript (a). These variables take the value of 1 if Democratic and 0 if Republican, except for TEL, where 1 indicates the adoption of taxation and expenditure limits. The absolute values of the coefficient estimates' z statistics are in parentheses. Regression coefficients with the superscripts \*\*\*, \*\*, and \* are statistically significant (using Huber/White robust covariances) at 1%, 5%, and 10%, respectively. Model 4 is identical to Model 3 but lists the quasi-coefficient values for the component variables in URBANIZATION (see the appendix).

extent of their possible influence over GRADE. In our case, the first principal component of PRICE, URBAN LAND, URBAN DENSITY, and INCOME accounts for 58% of the variation among the four variables (more than twice the share of the next principal component) and varies positively with each constituent variable, as we would expect if it were reflecting an underlying influence such as urbanization. We thus label this composite variable URBANIZATION and drop the separate urban variables from the regression analysis. Despite the fact that URBANIZATION is a weighted sum of four separate variables, it is negative and statistically significant at the 5% level in Model 2 and at the 1% level in Model 3. (The appendix shows how the separate influence of each component variable of the composite measure used in Model 4 can be recovered.) In urban states where the holdout threat is greater, the Castle grade for willingness to enact reforms was lower than in rural states. This suggests, consistent with economic theory, that the opportunity cost of placing restrictions on the use of eminent domain for private development takings is higher in urban compared with rural states.

## Conclusion

Few dispute the legitimacy of government's power to take private property for the production of classic public goods like highways or parks. More controversial, however, are

efforts to use eminent domain as part of large-scale redevelopment projects whose primary beneficiary is a private party. Although proponents of strong governmental powers view such "development takings" as essential for reinvigorating blighted inner cities, private property rights advocates see them as nothing more than a forced transfer of land from one private party to another. The Supreme Court's 2005 ruling in *Kelo v. City of New London* provides a useful context for reexamining this debate.

Our empirical results suggest that the actual use of development takings at the state level over the period 1998 to 2002 (pre-*Kelo*) is consistent with the economic justification for eminent domain as a means of overcoming the holdout problem associated with land assembly. Specifically, states with larger urban footprints, which are consequently more vulnerable to the threat of holdouts, were more likely to employ eminent domain as a tool for redevelopment. As for the political response to the *Kelo* decision, although we found some evidence of a backlash in states with a history of having used eminent domain for redevelopment, we also found that states with greater concentrations of urban land were less willing to tie their hands regarding the future use of takings for this purpose.

The above conclusions have several implications for economic development policy. First, the U.S. Supreme Court has demonstrated a consistent willingness to approve the

use of eminent domain for urban redevelopment projects, provided those projects are part of a well-conceived and comprehensive plan. Historically, state courts had been somewhat less willing to adopt this view, but the *Kelo* decision may change that. Second, the actual use of eminent domain across states, even before *Kelo*, seems to have broadly conformed to economic justifications for the use of eminent domain to overcome the holdout problem associated with land assembly. Finally, post-*Kelo* reforms, though largely politically driven, also seem to have left the door open for the continued use of redevelopment takings, especially in states where redevelopment is most likely to be demanded or needed.

The preceding conclusions are by no means the final word on this contentious issue. The results of our analysis, although suggestive, are limited by the available data. Since most redevelopment projects are undertaken at the local rather than the state or federal level, we would ideally like metropolitan area data on takings. If anything, however, we expect such data to strengthen our results because, although local decisions are not immune to political factors, they are more likely to reflect the economic interests of local residents.

## Appendix

A little arithmetic allows us to recover the influence on GRADE of each component variable in the URBANIZATION composite measure. Since

$$\text{URBANIZATION} = \gamma_1[(x_1 - \mu_{x1})/\sigma_{x1}] + \cdots + \gamma_4[(x_4 - \mu_{x4})/\sigma_{x4}]$$

where the expressions inside the brackets are simply the standardized PRICE ( $x_1$ ), URBAN LAND ( $x_2$ ), URBAN DENSITY ( $x_3$ ), and INCOME ( $x_4$ ) variables and the  $\gamma$ s are the so-called principal component “loadings” or weights, then the “quasi-coefficient” for each component variable is simply

$$b_{\text{Urbanization}}(\gamma_n)/\sigma_{xn}$$

or the coefficient estimate on URBANIZATION times the ratio of each variable’s principal component loading to its standard deviation. These results appear in Model 4.

The quasi-coefficients are not true coefficients in the regression sense. Regression coefficients carry a *ceteris paribus* interpretation but a change in URBANIZATION can arise from a simultaneous change in any of the component variables, so this *ceteris paribus* condition is violated. Nevertheless, the quasi-coefficients can help give us a sense of the relative contribution of each URBANIZATION component to a change in GRADE.

Each component variable loads positively on the URBANIZATION composite measure, as one might expect, with PRICE and INCOME receiving weights of roughly 30%, and URBAN AREA and URBAN DENSITY about 20% each. And each

quasi-coefficient is negative—a product of a positive loading and a negative regression coefficient on URBANIZATION. Urban states, with their larger prices, incomes, population densities, and developed land areas, have more to lose by restricting the use of eminent domain, and that appears to be translating into lower Castle Coalition grades. INCOME has the greatest indirect impact on GRADE, a 10% increase in INCOME boosts the logged-odds of the next lower letter grade by 0.3—three times the magnitude of the next highest quasi-coefficient. The influences of PRICE and URBAN DENSITY are similar: 10% increases in either raises the logged odds of the next lower grade by 0.1. The link between URBAN AREA and GRADE is the smallest of the four.

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## Notes

1. 545 U.S. 469 (2005).
2. While this article was in progress, another study using the same data set appeared (Kerekes, 2011). Using a different methodology, that article obtained similar results to those reported here regarding the factors determining the use of eminent domain for economic redevelopment. It did not, however, examine the political response to *Kelo*.
3. *Kelo v. City of New London*, 545 U.S. 469 (2005). For a compelling history of the case, see Benedict (2009).
4. The key cases are *Berman v. Parker*, 348 U.S. 26 (1954); *Poletown Neighborhood Council v. City of Detroit*, 304 N.W.2d 455, 410 Mich. 616 (1981); *City of Oakland v. Oakland Raiders*, 32 Cal.3d 60, 646 P.2d 835, 183 Cal. Rptr. 673 (1982); *Housing Authority v. Midkiff*, 467 U.S. 229 (1984); and *Wayne v. Hathcock*, 684 N.W.2d 765, 471 Mich. 445 (2004) (which overturned *Poletown*). Miceli (2011, chap. 2) reviews this issue.
5. In five states (Alabama, Iowa, Louisiana, Mississippi, and Washington), the number of threatened condemnations was listed as “not specified.” In some states the report listed “none known” for a given category. We interpreted this as zero.
6. Kerekes (2011) used filed and threatened takings as the dependent variable, but found that the results did not change when only filed takings were used.
7. We also ran the model using ordinary least squares and did not obtain substantially different results. We used 2000 data for most of the explanatory variables to reflect average conditions during the sample period. We verified, however, that there was little change in these variables between 1998 and

2000 (correlations for all were .95 or better). Thus, our results are not sensitive to the use of 2000 as the base year.

8. This variable is a simple index of state tax revenues that serves as a subnational component of the Fraser Institute's broader index of economic freedom. It is an average of each state's ranking on separate 10-point scales of total tax revenue, indirect tax revenue, and sales taxes (each as a percentage of gross domestic product), along with the top marginal income tax rate and the threshold to which it applies. The Fraser Institute is a conservative Canadian think tank that has ranked first among Canadian think tanks and in the top 30 worldwide in a survey of academics, policy makers, and journalists conducted by the University of Pennsylvania for its *Global Go-To Think Tank Index*.
9. Obtained from a Rockefeller Institute policy brief (Bae & Gais, 2007).
10. Obtained from Glaeser and Saks (2006), based on Justice Department records of the number of federal, state, and local officials convicted of corruption-related offenses.
11. Because the takings data were largely obtained from newspaper accounts, the significance of the urban variable could reflect a reporting bias since most daily newspapers are in urban areas. To test this possible bias, we ran some further regressions with the number of daily papers by state included as an additional explanatory variable. In none of these regressions was the "newspaper" variable significant and in none did it eliminate the significance of the urban variables (though in some cases it weakened their significance to the 10% level). As an additional check, we tried a two-stage approach with newspapers as an explanatory variable in the first stage and again we found no evidence of bias in the second stage regression. These results are available from the authors on request.
12. The Castle Coalition actually graded states using an A to F, plus-minus system. But to have included all possible categories would have resulted in too unwieldy a number of dependent variables for an ordered logit analysis. Supplementary regressions (not shown) that converted Castle scores to grade-point equivalents enabled us to retain the grade distinctions but implicitly treated the dependent variable as occupying a ratio scale—whereby a movement from C− to C+ marked the same relative improvement as a movement from B− to B+. Nevertheless, the results of these regressions were not substantively different from those presented here.
13. The National Association of Homebuilders joined the National Association of Realtors in filing an amicus brief in support of the petitioners in *Kelo*. The brief argued, in part, that housing will almost never afford a community with the economic development benefits that a commercial application will. If economic development as a sole justification for public use is decided using a rational basis test with deference to local legislative bodies, then the door is left open for local governments to abuse their eminent domain powers.
14. We note that adding a second model in which takings appears as an explanatory variable raises no particular specification difficulties. Strictly speaking, takings are not endogenous to this multi-equation system because state grades, our current focus, are not simultaneously a cause and consequence of takings. Instead, the two models form a recursive structure. Many

of the same factors may influence both takings and grades, and takings may affect grades but grades issued in 2008 cannot play a role in the determination of takings that occurred between 1998 and 2002. Thus, we can estimate each model separately, and our estimates will be both unbiased and consistent. See Gujarati (2003) for a discussion of the distinction between simultaneous and recursive models in economics.

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