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## Compliance Motivations: Affirmative and Negative Bases

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This research addresses affirmative and negative motivations for compliance with social and environmental regulations. Affirmative motivations emanate from good intentions and a sense of obligation to comply. Negative motivations arise from fears of the consequences of being found in violation of regulatory requirements. The relevance of these is examined for data concerning the motivations of homebuilders to comply with requirements of building codes. The findings highlight the importance of affirmative motivations for situations such as homebuilding for which regulation is better characterized as fulfillment of a social contract than solely as compliance with enforced directives.

**R**egulatory scholars have turned attention in recent years from asking whether regulations are unreasonably designed and enforced to asking why individuals and firms comply with regulations in the first place. This change calls attention to the role of other factors than deterrent fears in motivating compliance with regulations. It also broadens thinking about regulation from the enforcement of directives to fulfillment of a social contract. This research adds to the understanding of compliance motivations and these differing regulatory perspectives.

The prior studies reviewed in this article suggest that individuals and firms comply with regulations either because they fear detection of violations and subsequent punishment, feel a duty

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Invaluable research assistance with this project was provided by Jamie Baker, T. Jens Feeley, Valerie Hunt, Chris Koski, Michael Leahy, Todd Reichert, and Robert S. Wood. Helpful comments on earlier versions were provided by the journal editor, anonymous reviewers, Raymond J. Burby, Neil Gunningham, Bridget Hutter, Chris Koski, Soeren C. Winter, and Robert S. Wood. Funding for this research has been provided to the University of Washington by the National Science Foundation under grant CMS-9813371 and by the U.S. Environmental Protection Agency under grant R82882501. The findings are not necessarily endorsed by the National Science Foundation, the Environmental Protection Agency, the University of Washington, or the city officials who have cooperated in this study. Address correspondence to Peter J. May, Center for American Politics and Public Policy, Department of Political Science, Campus Box 353530, University of Washington, Seattle, WA 98195-3530; phone: (206) 543-9842; fax: (206) 685-2146; e-mail: pmay@u.washington.edu.

*Law & Society Review*, Volume 38, Number 1 (2004)

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to comply, or feel social pressure to comply. These motivations can generally be categorized into those that are affirmative and those that are negative. Affirmative motivations emanate from good intentions and a sense of obligation to comply. Negative motivations arise from fears of the consequences of being found in violation of regulatory requirements. The line between the two sets of motivations is not always easy to draw because they interact in influencing compliance. Nonetheless, the distinction is useful in helping to draw a contrast between different ways of thinking about regulation and compliance.

Clarifying the nature of these motivations and the factors that influence them is important for thinking about regulatory alternatives. Much of the existing literature on regulatory practices addresses the deterrent basis for regulatory compliance and thus addresses negative motivations (e.g., Burby & Paterson 1993; Gray & Scholz 1993; Helland 1998; May & Winter 1999). Yet, greater emphasis on quasi-voluntary compliance with regulations has been viewed by some regulatory scholars as an important basis for improving regulatory outcomes (e.g., Ayres & Braithwaite 1992; Gunningham & Grabosky 1998; Gunningham & Sinclair 2002; Haines 1997).<sup>1</sup> A better understanding of affirmative motivations is important for figuring out how to strengthen such voluntary compliance.

The distinction between affirmative and negative motivations also suggests a more fundamental difference in ways of thinking about regulation. Regulations are usually thought of as enforced directives for which compliance is compelled by enforcement practices and sanctions for violations. A different way of thinking about regulation that is developed in this article is thinking of it as a social contract for which compliance is based on a shared commitment to carry out the provisions of the contract. Much of that commitment rests on affirmative reasons for entering and adhering to the contract.

The two sets of motivations are examined in this research for the regulation of building safety. A variety of characteristics of building regulation make this an exemplary case of the social contract perspective on regulation. The evidence presented here shows that both affirmative and negative motivations are at work in influencing homebuilders' compliance with regulatory provisions. The discussion that follows presents the different ways of thinking about regulation and compliance, expectations about how regulatory practices and other factors affect compliance motivations, the data and measures used in this research, and empirical findings concerning the variation in compliance motivations.

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<sup>1</sup> The use of the term quasi-voluntary indicates that compliance can never be entirely voluntary in that by definition, regulations always carry with them the potential for more coercive action.

## Conceptual Underpinnings

Regulations are legal means of specifying actions that are required to protect public welfare. Compliance with regulations is far from automatic for a variety of reasons. As discussed by Kagan and Scholz (1984), regulatees may not know about regulatory requirements, may not agree with them, may not be capable of complying with them, may find it too costly to comply, or simply may not care. The challenge for regulatory authorities is to craft regulatory approaches that address these obstacles.

### Regulatory Perspectives

The traditional toolkit for obtaining compliance is through enforcement actions and imposition of sanctions for those found to be out of compliance (May 2002; Sparrow 2000). The basic logic of enforced directives is that of a criminal law model of deterrence as examined in the seminal work of Becker (1968; also see Ehrlich 1972). From this perspective, individuals and firms comply because they fear the consequences of being found in violation of regulatory requirements. Inherent in this approach is the presumption that regulatees are unwilling to take necessary actions to comply with regulations and therefore they must be compelled to do so. Obtaining greater compliance is brought about by reinforcing those fears that form the negative set of compliance motivations.

A different perspective about regulation and compliance is provided by thinking about regulation as a social contract. Regulations as contracts, as initially discussed by Goldberg (1976), specify expectations on the part of regulatory authorities and regulatees as well as obligations for both parties. These features are explicit in a regulatory permit, which sets forth monitoring schedules and establishes a set of conditions that constitute adherence to regulatory provisions. The reciprocal contractual relationships are less explicit for many regulations. More commonly, an implicit social contract results from the shared expectations that evolve from repeated interactions over time between regulatory authorities and regulatees.

The notion of a social contract suggests reliance on a different dynamic for compliance than deterrent fears.<sup>2</sup> Central considerations are the shared commitment to carry out the provisions of the contract that result from a norm of reciprocity (Gouldner 1960) involving social exchanges (Emerson 1976) between regulators and

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<sup>2</sup> Thinking of regulation as a social contract can be distinguished from thinking about the role of social norms as complements or alternatives to regulation. The role of social norms is not explicitly considered in this research. The use of the term social as part of the label social contract is used to convey the fact that the benefits of adherence to the contract accrue to more than just the regulatee. It is the external benefits in terms of reduced harms that are the primary rationale for the regulation in the first place.

regulatees. Among other items, regulators approve—either explicitly with permits or implicitly by not sanctioning firms—actions to address harms taken by regulatees, while in exchange regulatees provide compliance with regulations and social benefits associated with that compliance. This social exchange is evident in negotiations that take place, often over time and at arm’s length, between inspectors and regulatees. From this perspective, compliance is based on good intentions, agreement with the benefits of the relevant provisions, and the shared acceptance of the legitimacy of the contract. These constitute an affirmative basis for compliance.

Inherent in this perspective is a more positive assessment of the willingness of regulatees to comply, based on a presumption of what Haines (1997) has labeled “corporate virtue” in referring to the willingness of firms to “do the right thing.” When such virtue is lacking, the option of legal enforcement of contract provisions always exists. As such, in regulatory practice, both affirmative and negative motivations are invoked. At issue for this research is the relevance of each when thinking of regulation as a social contract.

The distinction between affirmative and negative compliance motivations is central to this research. The validity of the distinction is empirically verified in the later presentation of findings. In examining how regulatory and other actions shape affirmative and negative compliance motivations, this research draws on prior studies of regulatory compliance to frame hypotheses. Unlike the prior research, the foci for this research are the two sets of compliance motivations. This approach has two advantages. It avoids the pitfalls of working with problematic measures of compliance, and it provides analytic and empirical insights into the underlying factors that contribute to compliance.

The prior studies addressing regulatory compliance generally call attention to the role of regulatory practices in compelling compliance, the role of the beliefs and attitudes of regulatees about regulations and regulatory authorities in either enhancing or undermining compliance, and the ability of regulatees to comply and factors that limit that ability. Expectations about influences on motivations for compliance are framed in what follows with respect to these three sets of influences.

### **Regulatory Practices**

The regulatory compliance literature calls attention to the role that inspections and behaviors of inspectors play in shaping the perceptions of regulatees that violations will be detected and sanctions will be issued when violations are detected. These considerations address negative motivations, while other aspects of inspection practices address affirmative motivations.

### ***Inspection Frequency, Thoroughness, and Likelihood of Sanctions***

These considerations go hand-in-hand in establishing the deterrent fear of violations being detected and of sanctions being applied when violations are detected. What has been referred to by Reiss (1984; also see Kagan 1994) as specific deterrence is brought about by frequent inspections, thorough inspections, and inspectors' willingness to issue sanctions when violations are not corrected as ordered. The expectation is that more frequent inspections, more thorough inspections, and more frequent sanctions contribute to stronger negative motivations. Prior studies of regulatory compliance reinforce the importance of inspections for compelling compliance (Burby & Paterson 1993; Gray & Scholz 1993; Helland 1998) but are mixed with respect to findings concerning the level of sanctions once violations have been detected (May & Winter 1999; Kuperan & Sutinen 1998). For example, in a study of operators of Australian nursing homes, Braithwaite and Makkai (1991) found that the perceived certainty of detection of violations provided a deterrent effect on both perceived and actual compliance but no effect for the certainty or severity of sanctions.

The influence of these inspection practices on affirmative motivations for compliance is less clear and as such there is no expectation that these will affect affirmative motivations. It might be that affirmative motivations are undermined if inspectors are perceived to be excessively thorough, in that trust in the inspector is undermined. Or, it might be that thorough inspection leads over time to a greater understanding and appreciation of rules as one basis for affirmative motivations. In both of these situations, the relevant consideration is more one of the character of interactions rather than the thoroughness of inspection. That is, a thorough inspector who is friendly and facilitative will be perceived differently than a thorough inspector who is formal and gruff. As such, the enforcement style of an inspector is expected to be the more relevant consideration for influencing affirmative motivations than are the actions of the inspector.

### ***Consistency in Inspection Practices***

As found by Winter and May (2001) in studying Danish farmers' compliance with agro-environmental regulations and by May and Wood (2003) in studying homebuilders' compliance with building regulations in the United States, regulatees seek predictability and consistency in regulatory requirements. The expectation is that more consistent inspection practices—across different inspectors and different inspection experiences—contribute to both affirmative and negative motivations, while inconsistent inspection practices undermine them.

Consistent interpretation of rules and actions foster a sense of fairness in the application of regulations that contributes to the affirmative dimension of compliance motivations. This is consistent with theorizing and findings by Levi (1988, 1997) and by Tyler (1990, 1994) in considering procedural fairness as important components of voluntary compliance by citizens with rules. Consistent decisions about citing violations, issuing correction orders, and ultimately applying sanctions provide a predictable basis of deterrence that constitute negative motivations for compliance. Inconsistent interpretation of rules and inspector actions fosters confusion among regulatees and undermines both affirmative and negative motivations for compliance.

### *Enforcement Styles of Inspectors*

The character of an inspector's interaction with regulatees constitutes enforcement style. As observed by Kagan (1994), regulatory scholars have typically thought of this as varying from a less rigid to a more rigid style. However, there is much evidence from case studies of enforcement that these interactions are more varied (see, for example, Braithwaite, Braithwaite, & Makkai 1994; Braithwaite 1985; Hawkins 1984; Hutter 1997; Richardson, Ogus, & Burrows 1983; Shover et al. 1984). Research by May and Winter (1999), in studying Danish agro-environmental inspectors, provides statistical evidence that enforcement styles vary along more than one dimension. They label the relevant dimensions as the degree to which inspectors are threatening and the degree to which inspectors are formal.

One contribution of this research is replicating the basic findings of May and Winter (1999). In particular, as discussed below in considering measures for this study, inspectors are found to differ with respect to their degree of facilitation—ranging from being helpful and friendly to being uncooperative and threatening—and with respect to their degree of formalism—ranging from being flexible and less picky to being rigid and picky.<sup>3</sup> While different combinations of these styles are possible, as discussed by May and Winter (2000), the basic issue is how more or less of each influences motivations to comply.

The expectation is that formalism and facilitation act as mirror images with respect to their effects on affirmative and negative motivations for compliance. Increased facilitation fosters affirmative motivations while detracting from negative motivations. Facilitation, by definition, leads to greater understanding of the

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<sup>3</sup> The dimensions identified in this research are similar to those of May and Winter (1999) with recognition that what is labeled here as the facilitative dimension is essentially the reverse of what May and Winter label as a coercion dimension.

basis of regulations and means for complying with them.<sup>4</sup> This is an essential ingredient of affirmative motivations. By demystifying means for compliance and bases for applying sanctions, facilitation also undermines the fear that is the basis of negative motivations.

Increased formalism contributes to negative motivations while detracting from affirmative motivations. High levels of formalism signal a get-tough approach that contributes to the negative motivations for compliance. Formalism adds little to the understanding of the basis for rules and as such does not enhance affirmative motivations. Moreover, formalism can undermine affirmative motivations if inspectors' indifference or other behaviors undermine confidence in the system.

### **Attitudes and Beliefs**

Regulatees are not neutral parties who simply respond to signals of regulatory agencies and inspectors. Rather, regulatees bring to the table a set of attitudes and beliefs about the regulations in question and the regulatory process.

### ***Trust and Legitimacy***

The expectation is that increased levels of trust and perceptions of legitimacy of the regulations enhance affirmative motivations. Trust is conceived of here as confidence in regulatory authorities. Levi (1988, 1997:21–2) argues that trust serves to reinforce “credible commitments” on the part of governments that, in turn, foster quasi-voluntary compliance with rules. Closely related is the perceived legitimacy of a regulation, which Tyler (1990) argues is a key consideration of why people obey laws. Bardach and Kagan (1982:104–7) add empirical support for the role of legitimacy within the social regulatory context.

The expectations for the influence of trust and perceived legitimacy on negative motivations differ for the two concepts. Increased trust can be expected to enhance negative motivations. This also follows from Levi (1997) in that regulatees are more likely to have deterrent fears if they trust regulators to follow through on their threats (i.e., the threats are credible). Scholz and Lubell (1998) provide empirical support for this aspect of trust in arguing that the relationship they find between trust in government and taxpayer compliance results from the heuristic function that trust plays in evaluating compliance actions. In contrast, increased perceptions of

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<sup>4</sup> It is possible that such understanding leads to a principled disagreement with requirements. The assumption in this research is that such principled disagreement is not extensive. Although homebuilders were often critical of regulations and the regulatory process, very few expressed outright disagreement with the need for some form of regulation.

legitimacy of rules are not expected to contribute to deterrent fears. Such perceptions may foster a greater sense of the importance of enforcing the regulation, but that in itself does not necessarily contribute to the fears that constitute negative basis for compliance.

### ***Reputation***

The desire of regulatees to earn the approval and respect of others is also a relevant consideration. The expectation is that concern with reputation adds to both affirmative and negative motivations for compliance. Those who are concerned about their reputation will want to do their part so as not to tarnish their reputation. As such, reputational concerns enhance the sense of obligation to comply, which is an affirmative motivation. Reputation also comes into play with respect to negative motivations because the potential for loss of reputation or respect among peers is a potential cost associated with the imposition of sanctions for violations of regulations (Grasmick & Bursik 1990; Grasmick, Bursik, & Kinsey 1991). Given this potential, those regulatees who place a value on reputation will be more likely to have greater fears of the negative consequences of detection of noncompliance.

### **Ability to Comply**

Perhaps the most basic set of considerations influencing compliance motivations are the factors that enhance or detract from the ability of regulatees to comply. Expectations about these are not central to this research, but these factors are important to control for when analyzing the influence of differences in regulatory practices and in attitudes and beliefs. Prior studies of regulatory compliance suggest a distinction between those factors that enhance the ability to comply and those that constrain it. That ability is enhanced among regulatees who have greater knowledge of regulations and how to comply with them as generally found among larger firms that have greater technical and financial capacity (Haines 1993; Winter & May 2001). The ability to comply is constrained as the costs of compliance, with respect to actual monetary outlays and competitive disadvantages such as delays in production, increase (Burby & Paterson 1993; Winter & May 2001), and by communication and other gaps caused by disparate operations or subcontracting (Haines 1993; Mayhew & Quinlan 1997).

### **The Setting, Data, and Measures**

The setting for this research is the regulation of building safety as it relates to requirements concerning the construction of new homes. Homebuilding is a heavily regulated industry for which in



the United States contractors are subject to code requirements established by states (Turner 2001). The primary mechanisms for ensuring that homes are safely built are inspections for code compliance that are carried out by local governmental inspectors. The certainty of inspection provides a clear example of practices aimed at compelling compliance through detection and correction of violations. However, the deterrent basis for compelling compliance is uneven. Inspectors differ in their inspection practices and their willingness to impose sanctions. At the same time, homebuilders have more at stake than avoiding penalties. They have reputations to maintain and a product for which quality is a highly desired attribute in the marketplace. These considerations are important components of the affirmative bases of compliance.

The regulation of building safety differs in two key respects from other regulatory functions. Inspection is infrequent and sometimes nonexistent for most regulatory functions. In contrast, inspection is both certain and frequent for building safety. Each newly constructed structure is inspected at several points in the construction process in order to obtain an occupancy permit.<sup>5</sup> The formal process involves identification and correction of code deficiencies, while the informal aspects entail a set of repeated negotiations between inspector and builders over how best to address those deficiencies. This suggests a second key difference, in that whereas for most regulatory settings inspection is primarily aimed at preventing harms, building inspection is aimed at identifying and rectifying problems. Stated differently, inspectors expect to find problems, for which the inspection process can be viewed as working out acceptable means of compliance with code provisions.

There are several constraints on homebuilders' compliance with building code provisions. One constraint is the complexity of codes. Code provisions number hundreds of pages and are often specified in technical terms that are not easily understood. A second constraint stems from the indirect control of homebuilders over construction quality. Modern homebuilding is a collaborative effort in which general contractors employ a series of subcontractors specializing in different phases of the construction process. It is not uncommon to have six or more subcontractors perform work on a single-family home. Miscommunication, misunderstandings, and mistakes by subcontractors often result in code deficiencies and workplace accidents (Mayhew & Quinlan 1997). A third constraint is inconsistencies in what building inspectors require (May & Wood 2003).

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<sup>5</sup> The number of inspections required for single-family homes by the jurisdictions in this study varies from three to sixteen, with a majority of jurisdictions requiring inspection in at least six stages of construction.

## Data

The data for this research were collected in 2000 with a mail-out survey of a sample of residential homebuilders distributed among 14 jurisdictions in western Washington.<sup>6</sup> The jurisdictions were randomly selected to be representative of a mix of different size cities and municipal approaches to code enforcement that were identified in a prior study of enforcement of building codes (see Burby, May, & Paterson 1998). The sample frame consisted of cities of over 10,000 in population with sampling stratified by population size and municipal enforcement approach.<sup>7</sup> A sample frame of 461 homebuilders was derived from lists supplied by the participating cities. Each potential respondent was contacted by telephone in order to verify that the homebuilder had built one or more single-family homes in the designated city in the prior year. Valid responses were received from 260 respondents for a response rate of 56%.<sup>8</sup> Questions were posed about experiences with building inspection for a specific city, designated from the 14 cooperating jurisdictions with which the homebuilder had experience, and about more general attitudes about building codes and motivations for compliance with them.

Although limited data are available for assessing nonresponse biases, the data that were obtained suggest no substantial biases in the types of firms that are represented in the final sample. As part of initial gathering of contact information by telephone, information was obtained from all respondents about the size of their firms. These data show that on average, non-respondents do not differ from respondents with respect to number of homes built in the past two years ( $p = .20$ ) or with respect to number of employees ( $p = .63$ ). Of course, the more relevant issue for non-response biases is whether there are systematic differences in affirmative and negative motivations among respondents and non-respondents. The data do not exist for gauging the degree of this bias but the presumption is that given the lack of distortions in the types of firms, biases in motivational bases are not substantial.

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<sup>6</sup> The participating jurisdictions were Bellevue, Bothell, Everett, Kirkland, Longview, Lynnwood, Port Angeles, Mount Vernon, Redmond, Renton, Seattle, Tacoma, Tumwater, and Vancouver, Washington. Four additional jurisdictions chose not to participate in the study.

<sup>7</sup> This led to selection of four cities originally classified as having strict enforcement policies, five having creative policies, and five having accommodative strategies. The distinctions in municipal enforcement approaches were important to help ensure variation in enforcement styles but do not enter directly into this study.

<sup>8</sup> Response rates among the 14 participating jurisdictions ranged from 33% to 68%. The differential response rates are equalized as part of the weighting of the data, discussed below, so that results are not affected by differences in response rates among cities.

In order to gain practical insights about various aspects of building regulation, field observations were undertaken within four of the 14 jurisdictions under study. The jurisdictions were selected to provide a mix of different sizes and approaches to enforcement of building codes. Fifteen sets of inspections were observed by accompanying inspectors on their rounds. The field visits entailed observation of the inspection process, an independent rating of compliance for selected regulatory provisions, and unstructured interviews with both inspectors and homebuilders.

The unit of analysis is the individual homebuilder. The data are weighted for the statistical analyses to reflect the number of homebuilders in each jurisdiction in the sample.<sup>9</sup> This weighting compensates for differing response rates and differing levels of construction activity among jurisdictions. The selection of cities and responses of homebuilders when weighted according to this scheme provides a reasonable statistical representation of homebuilders. The focus on new construction of single-family homes provides a common basis of comparison for inspection requirements and a common set of building code provisions.<sup>10</sup> Code provisions concerning life safety (e.g., fire and handrail provisions) and seismic safety (e.g., strength of structure and foundation) are specifically addressed. The former is a critical issue for code enforcement while the latter is more technically difficult and thereby likely to show the greatest variation in compliance. Adherence to these provisions is typically inspected at the time of completion of the framing of a single-family home.

The homebuilders in the sample provide a diverse set of homebuilding experience. The median number of years of experience in constructing single-family homes is 12.3 years with a median of 12 homes constructed in the past two years. The median number of employees for firms in the sample, not including subcontractors, is three. The majority report building homes that are priced at less than \$300,000. Nearly 13% report that they build homes that sell for greater than \$600,000. The average price of homes in the area in 1997 was \$214,000.

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<sup>9</sup> The weighting scheme was based on the ratio for each jurisdiction of the mean number of permits issued for the three years prior to the study, as reported by the U.S. Census, divided by the median number of homes built by homebuilders in the jurisdiction, as reported by our survey results.

<sup>10</sup> At the time of data collection, the relevant building code provisions were the 1997 provisions of the Uniform Building Code as amended, in some instances, by local jurisdictions.

## Measures

The key variables to be explained are affirmative and negative motivations for compliance. These are described as part of the discussion of findings. The key explanatory measures are those that relate to inspection practices (thoroughness and consistency of inspection, likelihood that sanctions will be issued, and enforcement style), attitudes and beliefs of homebuilders (trust in the inspection process, need for regulations, and importance of reputation with others), and ability and constraints on ability to comply. Statistical details about the measures are provided in the Appendix.

All measures are drawn from the survey results and reflect homebuilders' perceptions. Three potential threats to validity of the data should be addressed. One is reliance on subjective perceptions rather than objective reports. This is dictated by the use of survey responses, but it is also desirable in that it is perceptions rather than objective conditions that shape motivations. A second, related potential threat is the accuracy of the reporting. One gauge of this is the face validity of the measures that are employed (i.e., the reasonableness of question wording and response categories). A related analysis of the data from this study provides an assessment of the validity of respondents' reporting of the frequency with which deficiencies were found by inspectors. As explained in May and Wood (2003), the Pearson correlation between this self-reporting of compliance and field measures for a small sample of homes is .73. This suggests a reasonable level of correspondence of reporting of what could be expected to be one of the more biased set of responses, thereby increasing confidence in the validity of other responses. A third potential concern is the use of five-point Likert scales, as opposed to scales with more response categories, for many of the measures. This, along with the summated indexes that are constructed, follows the practice of Spector (1992) in his tutorial on summated rating scales.<sup>11</sup>

### *Inspection Practices*

Inspection thoroughness is measured as the respondent's mean rating on a scale of 1 (passing attention) to 5 (key item) of the attention typically given by inspectors to seismic and life safety provisions of building codes. Two thirds of the respondents rated thoroughness with a score of 4 or higher. The perceived likelihood of sanctions being issued is measured as the respondent's mean

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<sup>11</sup> Spector (1992) suggests that questions that have between five and nine categories of response are usually appropriate. He presents data showing the stability of findings using five response categories. Increasing the number of categories of response can give a false sense of precision. Often such increases lead to respondents making probabilistic choices among additional response categories, thereby decreasing the reliability of the measure.

rating on a scale of 1 (not likely) to 5 (very likely) of the “likelihood that inspectors would require a re-inspection if a violation was identified” for seismic and life safety provisions of building codes. Eighty percent of the respondents rated this likelihood with a score of 4 or higher. The consistency of inspection processes is gauged by respondents’ rating of the consistency of what inspectors require on a scale of 1 (a major constraint) to 5 (not an issue for compliance). Fifty-seven percent of the respondents rated lack of consistency in requirements as a constraint on compliance. Over the course of multiple inspections of a given home, homebuilders often deal with different inspectors from the same city, and over the course of building homes in different jurisdictions, homebuilders deal with different inspectors from those cities. Invariably, differences in interpretation of requirements frustrate homebuilders.

Enforcement style is conceptualized as the character of the day-to-day interactions of inspectors when dealing with homebuilders. Homebuilders were asked to rate inspectors from the jurisdiction in which they most recently have built homes on a five-point scale with respect to nine characteristics concerning how trustworthy, fair, helpful, knowledgeable, easy to work with, threatening, picky, rigid, and thorough inspectors are for that jurisdiction relative to other jurisdictions. From these, two different underlying dimensions—facilitation and formalism—were derived. Scores on each dimension are used to characterize differing enforcement styles. The methodological appendix (Table A1) shows the results of the statistical analysis that was used to derive the underlying dimensions. Facilitation varies from less trustworthy and less supportive inspectors to those who are more trustworthy and more supportive. Formalism varies from a less rigid and less picky style to a more rigid and more picky style. As explained earlier, this formulation of enforcement style replicates prior statistical approaches to measuring this concept. The findings confirm that enforcement style has different dimensions that when combined lead to a variety of different ways of interacting with regulatees (see May & Winter 2000).

### *Attitudes and Beliefs*

The degree of trust homebuilders place in the inspection process is measured as an index of trust.<sup>12</sup> The index is based on a respondent’s mean level of agreement on a scale of 1 (completely

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<sup>12</sup> The index of trust and rating of the relevant inspectors’ degree of facilitation both relate to perceptions of regulatory processes, but are based on different items. The index of trust addresses general perceptions of building regulation, while the measure of facilitation addresses perceptions of characteristics of inspectors for the particular jurisdiction within which the homebuilder had recently constructed homes. The Pearson correlation between the two measures is .28 ( $p < .01$ ).

disagree) to 5 (completely agree) with statements that “you can generally trust building inspectors,” “building inspectors are generally quite competent,” “enforcement of building inspection is generally fair,” “dishonesty in building inspection is rare,” “inspectors are useful in acting as a form of quality control in spotting defects in construction,” and “homebuilders can rely on inspectors for advice about dealing with code provisions.” Fifty-five percent of the respondents rated the degree of trust on this index with a score of four or higher.

The need for building regulations is gauged by respondents’ rating of the need for energy and seismic provisions within building codes. Each could be considered by homebuilders to be an unnecessary requirement. This index is based on the respondent’s mean level of agreement on a scale of 1 (completely disagree) to 5 (completely agree) with statements that “a national energy crisis is likely within the U.S.” and “a major earthquake is likely within this area” within the next 20 years. Twenty-seven percent of the respondents agreed that an energy crisis is likely and 40% agreed that a major earthquake is likely.

The importance that homebuilders place on their reputation is measured with respect to other homebuilders and among building officials. Homebuilders could consider each to be a relevant peer group from which approval is sought. This index is based on the respondent’s mean level of agreement on a scale of 1 (completely disagree) to 5 (completely agree) with statements that the reputation among each of these “is an important consideration for how we do business.” Seventy-five percent of respondents agreed that their firm’s reputation with these peer groups is important.

### *Ability and Constraints*

The ability of homebuilders to comply is gauged by a set of measures concerning knowledge of code provisions, size of firm, experience in homebuilding, and quality of homebuilding. Knowledge of code provisions is based on respondent rating of the familiarity of employees and subcontractors with code provisions. Size of firm is gauged by the number of homes constructed in the past two years. Experience in homebuilding is measured by the years of homebuilding experience. The typical sales price of homes that the homebuilder constructs is used as a proxy for the quality of homebuilding.<sup>13</sup> The major potential constraint on compliance motivations is the cost of complying with building code

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<sup>13</sup>The sales price of a home might be considered both as a proxy for quality and the cost of compliance, because more expensive homes typically have more involved construction. Given that this is considered only as a control variable in the analyses presented here, sorting this out is not critical for this research.

**Table 1.** Importance of Potential Motivations for Compliance

Potential Motivations for Compliance	Percent Citing as an Important Motivation <sup>a</sup>
Reputation for Construction of High-Quality Homes	93
Duty to Comply with Building Requirements	83
Marketplace Demands for Homes Without Defects	79
Avoidance of Delays in Construction Brought About by the Need to Correct Building Code Deficiencies	76
Confidence that Building Codes Assure the Structural Integrity of a Home	67
Fear of Legal Liability for Failing to Meet Building Code Provisions	61
Fear of Fines or Sanctions for Building Code Violations	29

<sup>a</sup>Percentage of respondents rating each item as 4 or 5 on a five-point scale for importance as a motivation for compliance with building regulations. Number of observations = 260.

requirements. To get at this, an index was constructed of the extent to which respondents agree with statements, on a five-point scale of 1 (completely disagree) to 5 (completely agree), that energy and seismic provisions are “costly to comply with.” Fifty-three and eighty percent, respectively, agreed that these provisions were costly.

## Findings

Motivations for compliance were gauged by asking respondents to rate how important on a scale of 1 (not important) to 5 (very important) they thought each of five items were “as considerations for your firm’s efforts to adhere to requirements of building codes.” Table 1 shows the items and the percentage of respondents that rated each as being an important consideration. Although one must be cautious in interpreting such self-reporting of motivations, the relative ranking of the motivations makes intuitive sense. It may seem surprising that the fear of sanctions for code violations is not a more preeminent concern given frequent inspection. However, we found in field observations of inspection that inspectors frequently chose to suggest actions to rectify violations and gave verbal warnings rather than issued citations or fines.

A principal component analysis was used to identify common, underlying components of the individual motivations for compliance. The best statistical fit for the principal component analysis is obtained by a two-dimensional solution. These two dimensions explain 55% of the overall variation.<sup>14</sup> Table 2 displays the results

<sup>14</sup> A one-dimensional solution only explains 33% of the variation and does not represent several items well. A three-dimensional solution explains 68% of the variation, but several items are not uniquely mapped into a single dimension, thereby providing a theoretically confusing solution. The third item also fails to meet the convention of an Eigenvalue greater than one. The Cronbach reliabilities for the two-dimensional solution are .71 for the affirmative dimension and .60 for the negative dimension.

**Table 2.** Structure of Compliance Motivations

	Loadings for Compliance Motivations <sup>a</sup>	
	Affirmative Motivations	Negative Motivations
Potential Motivations <sup>b</sup>		
Reputation for Construction of High-Quality Homes	<b>.80</b>	.02
Marketplace Demands for Homes Without Defects	<b>.73</b>	.14
Confidence that Building Codes Assure the Structural Integrity of a Home	<b>.72</b>	.05
Duty to Comply with Building Codes	<b>.70</b>	.04
Fear of Fines or Sanctions for Building Code Violations	.04	<b>.80</b>
Fear of Legal Liability for Failing to Meet Building Code Provisions	.17	<b>.75</b>
Avoidance of Delays in Construction Brought About by the Need to Correct Code Deficiencies	.03	<b>.68</b>
Model Statistics		
Eigenvalue	2.32	1.57
Variance Explained	33%	22%

<sup>a</sup>Cell entries are Pearson correlations between the two dimensions of homebuilders' motivations and measures of the perceived importance of each item as a motivation for compliance. The dimensions were derived using principal component analysis and varimax rotation of axes. Items shown in bold are those used to label each dimension.

<sup>b</sup>Respondents were asked to rate "how important each of the following are as considerations for your firm's efforts to adhere to the requirements of building codes." Each item was measured on a scale of 1 (not important) to 5 (very important).

of the principal component analysis with cell entries showing the correlation between each of the individual items and the underlying dimensions. The first dimension loads highly on affirmative motivations relating to a homebuilder's general reputation, demands for homes without defects, confidence in codes, and sense of duty to comply. The second dimension loads highly on those items relating to fears or harms associated with noncompliance, comprising negative compliance motivations. These two dimensions reflect the two basic motivations for compliance with social and environmental regulations that are fundamental to this research.

One concern is whether or not reputation for high-quality homes and marketplace demands, which address more instrumental considerations, are appropriately classified as components of affirmative motivations. The statistical findings of Table 2 show that these considerations are part of affirmative rather than negative motivations.<sup>15</sup> The conceptual argument is that marketplace

<sup>15</sup> A three-dimensional principal component solution separates reputation and marketplace demands from confidence in codes and duty to comply. However, the third factor does not meet the statistical criterion of an Eigenvalue greater than 1 and the two sets of factors are not clearly distinguished. Furthermore, the reliability of the affirmative index as used here with all four items is higher than with fewer items (.71 vs. .60). As an



demands provide signals about societal desires for which reputation in the marketplace is an important indicator of the ability to interpret those signals. In this manner, marketplace demands and reputation act in much the same way Scholz and Pinney (1995; also see Scholz & Lubell 1998) have argued that a duty heuristic serves as a shortcut for establishing obligations to comply with regulations.

### **Explaining Variation in Affirmative and Negative Motivations**

Table 3 presents regression results for explaining variation in compliance motivations. The dependent variables are the scores for each set of motivations that were derived from the principal component analysis of Table 2. The regression models were estimated using Ordinary Least Squares (OLS) regression with appropriate transformation of variables to meet assumptions of linear relationships. Visual inspections and statistical tests were conducted to verify that OLS regression assumptions were met. Because the coefficients of the models are standardized values, they can be used as a gauge of the relative importance of different factors while keeping in mind differences in variability of the explanatory factors and differences in dependent variables.

The model for the affirmative motivations explains 41% of the variation and the model for the negative motivations explains 9% of the variation. Inspection practices are the dominant explanatory variables for negative motivations while attitudes and beliefs, along with knowledge of regulatory provisions, are the dominant explanatory variables for affirmative motivations. The lower explanatory power for negative motivations regression is partly explained by the lower measurement reliability of those scores, which makes explanation statistically more difficult.

### ***Inspection Practices***

The findings concerning inspection thoroughness, consistency, and perceptions of likelihood of sanctions are shown in the top part of Table 3. These aspects of inspection practice affect negative motivations but do not affect affirmative motivations. This is consistent with the basic precepts of deterrent approaches to achieving compliance, which are based on enhancing fears of detection and prosecution of violators. The lack of an effect of inspection thoroughness on negative motivations suggests home-builders do not necessarily view thorough inspectors as being

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additional check on the appropriateness of the affirmative motivation measure, alternative regressions were estimated for an index of affirmative motivation without the reputation item. The findings were essentially the same as those reported in Table 3, except for a lower explained variation (adjusted  $R^2 = .36$ ) and a non-significant coefficient for the effect of degree of facilitation.

**Table 3.** Explaining Differing Motivations

	Regression Models Explaining Compliance Motivations <sup>a</sup>	
	Affirmative Motivations	Negative Motivations
Inspection Practices		
Inspection Thoroughness	.05 (.80)	.01 (.16)
Likelihood of Issuing a Sanction	-.05 (.96)	.18*** (2.63)
Consistency of Inspection Requirements	-.03 (.57)	.15** (2.12)
Enforcement Style		
Degree of Facilitation	.13** (2.02)	-.14** (1.71)
Degree of Formalism	-.14*** (2.49)	-.11 (1.57)
Attitudes and Beliefs		
Trust Placed in Inspection Process	.12** (1.83)	-.01 (.02)
Need for Regulations	.13*** (2.47)	.04 (.62)
Importance of Reputation with Other Builders and Inspectors	.34*** (5.83)	.23*** (3.11)
Ability and Constraints		
Knowledge of Code Provisions (Squared)	.30*** (5.27)	.01 (.10)
Number Homes Built During Last Two Years (ln)	.01 (.22)	.06 (.83)
Years of Homebuilding Experience (ln)	.09 (1.50)	-.12 (1.62)
Quality of Homebuilding	.04 (.77)	-.09 (1.23)
Perceived Costs of Compliance	-.12** (2.23)	.14** (2.07)
Model Statistics		
Number of Observations	220	220
Adjusted R <sup>2</sup>	.41	.09
F-Value for Overall Model	12.74***	2.61***

\*\* $p < .05$  (one-tailed); \*\*\* $p < .01$ .

<sup>a</sup>The dependent variables are the factor scores obtained from the principal component analysis shown in Table 2. Cell entries are standardized regression coefficients, with the absolute value of t-statistics in parentheses. All variables are scaled so that positive coefficients indicate that greater levels of a given factor lead to increased levels of relevant motivations.

tough.<sup>16</sup> As expected, homebuilders who perceive higher likelihood sanctions (measured as likelihood of re-inspection) are more likely to rate negative motivations higher. Consistency of inspection practices was expected to have a positive effect upon both sets of motivations. This is clearly demonstrated for negative motivations, but the regression findings fail to evidence an effect upon affirmative motivations.

The more interesting findings concerning inspection practices relate to the differing enforcement styles of inspectors. The

<sup>16</sup> This is evidenced by the fact that the Pearson correlation between perceived thoroughness and likelihood of invoking sanctions is only .27 ( $p < .01$ ).

findings generally support the expectations that formalism and facilitation act as mirror images with respect to their effects on motivations. Facilitation fosters affirmative motivations while detracting from negative motivations, and formalism detracts from affirmative motivations. (Contrary to expectations, the findings do not evidence a positive effect of formalism on negative motivations.) These are important findings because they show that inspectors' behaviors can affect the dispositions of regulatees to comply with regulations. The findings also suggest potential problems in fostering a deterrent climate if inspectors are too facilitative and in enhancing affirmative motivations if inspectors are too formal.

### *Attitudes and Beliefs*

The hypotheses concerning trust in the inspection process, need for regulations, and reputational influences are addressed with the regression coefficients in the middle part of Table 3. The influence of trust on affirmative motivations is consistent with the expectation that increased levels of trust give confidence that mutual obligations of the regulatory social contract will be met. In contrast, the failure to find the expected effect of trust on negative motivations suggests that homebuilders do not necessarily believe that deterrent threats are credible (i.e., trust does not serve as a proxy for credible threats). This makes sense because the common response by inspectors to code violations by homebuilders is to discuss remedies and work through problems. Only rarely are stop-work orders or other formal sanctions issued.<sup>17</sup> These findings about trust suggest that for homebuilders at least, the trust heuristic discussed by Scholz and Lubell (1998) as a basis for compliance operates through affirmative motivations rather than through negative motivations.

The findings regarding perceived need for regulations address what might be considered as one aspect of legitimacy of a social contract. Those who perceive a greater need for the regulations presumably see them as being more legitimate. The findings show that increased perceptions of need enhance affirmative motivations. This is as expected and is consistent with the reasoning of Tyler (1990) and of Levi (1988) concerning legitimization of rules. The failure to find a relationship between need and negative motivations is consistent with expectations.

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<sup>17</sup> This statement is based on field observations conducted as part of this research. According to the data collected by Burby and May (1998) for a national study of building code enforcement agencies, injunctions to stop work because of violations are issued only 5% of the time. The most common formal sanction is a field (written) citation to correct deficiencies, which is issued 50% of the time. As observed in our field visits as part of this research, inspectors often talk through corrections with builders rather than issue written notifications or more serious sanctions.

Reputation among other builders and inspectors is shown to be an important influence upon both sets of motivations. The strong influence on affirmative motivations partly reflects the fact that overall reputation in the marketplace is a component of affirmative motivations. However, the reputation that is being measured here is a more specific form of peer influence that is related, but different than, reputation in the marketplace.<sup>18</sup> The role of peer reputation in enhancing negative motivations reflects the fact that fear of loss of reputation or respect among peers is an important consideration for some homebuilders. The fear of loss of reputation, and associated market impacts on sales, is clearly an important aspect of deterrence for homebuilders.

### *Ability and Constraints*

These considerations are included as controls for other factors that are more central to the research. The most salient finding is the strongly positive influence of knowledge of code provisions on affirmative motivations. One explanation for this is that knowledge builds understanding of the rationale for rules, which in turn fosters a stronger sense of obligation to comply. This is consistent with the findings of Winter and May (2001) about the importance of knowledge of rules as a precondition for compliance. Yet, two factors potentially constrain that knowledge for homebuilding in particular and decentralized operations more generally. As found by May and Wood (2003), inconsistencies in inspection styles can undermine the understanding of what is required to comply. And, as found by Mayhew and Quinlan (1997), extensive use of subcontractors further constrains the communication of regulatory expectations.

Although some of the literature has suggested increased compliance among larger firms (Gunningham & Sinclair 2002; Haines 1993) and those with greater abilities more generally (Burby & Paterson 1993; Winter & May 2001), these results fail to find an effect for the variables related to capacity. It may be that there is too little variation in the size of homebuilders under study to detect an influence of size or capacity beyond that found for knowledge of rules. Increases in costs of compliance have a negative effect on affirmative motivations, which is reflective of the increased burdens associated with increased costs. The positive effects of increased costs on negative motivations may reflect the fact that as costs of compliance increase, both the complexity of the project and the incentives to cut corners are greater. Each of

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<sup>18</sup> The Pearson correlation between the measure of importance that homebuilders place on overall reputation in the marketplace and the index of importance of peer reputation is .48 ( $p < .01$ ).

these increases the fear of being caught in violation of noncompliance with regulatory provisions.

## Conclusions

This research seeks a better understanding of affirmative and negative motivations for compliance with social and environmental regulations. Affirmative motivations emanate from good intentions and a sense of obligation to comply. Negative motivations arise from fears of the consequences of being found in violation of regulatory requirements. The foundations for thinking about these two sets of motivations are different perspectives about regulation. The traditional perspective is that enforcement and deterrence are necessary for compelling compliance with regulatory directives. A different perspective is that compliance results from a sense of obligation and shared commitments for fulfilling an implicit regulatory social contract. The line between the two sets of motivations is not always easy to draw. Both sets of motivations are relevant in practice, and legal actions are often necessary for the enforcement of contracts. Nonetheless, the distinctions are analytically useful in drawing attention to other factors than deterrent fears in motivating compliance with regulations and in suggesting that regulation can sometimes more fruitfully be thought of as a social contract.

Three sets of findings stand out from this research. One set is the empirical validity of the basic distinction between affirmative and negative motivations and the patterns among factors that influence each. Homebuilders' motivations for compliance with building regulations are shown to map into distinct dimensions that reflect these two sets of motivations. Negative motivations are shown to be mostly influenced by inspection practices, while affirmative motivations are mostly influenced by attitudes and beliefs of regulatees and by their knowledge of the rules. The former adds to the findings of studies that show the importance of inspection for deterrence (e.g., Burby & Paterson 1993; Gray & Scholz 1993; Helland 1998). The findings about attitudes and beliefs add to prior findings concerning the role of trust in regulators and the legitimacy of regulations (Levi 1988; Tyler 1990, 1994), and concerning the role of awareness of rules (Winter & May 2001) in shaping compliance with regulations. This research is unique in separating out influences upon the two sets of compliance motivations, whereas prior studies address compliance as a whole. As such, this research helps to elucidate the understanding of compliance.

The findings concerning the role of inspectors' enforcement styles in shaping affirmative and negative motivations constitute a

second set of noteworthy findings. The finding that enforcement styles vary along two dimensions—the degree of formalism and the degree of facilitation of inspectors—confirms the basic statistical findings of May and Winter (1999) in studying Danish agro-environmental inspectors while being based on data from a different regulatory and national setting. This finding adds further statistical support that the prior notions of differences in style as consisting solely of variation in the rigidity of inspection are incomplete (e.g., Kagan 1994). The unique aspect of this research is showing that formalism and facilitation tend to act as mirror images with respect to their effects on motivations. Facilitation fosters affirmative motivations while detracting from negative motivations, and formalism detracts from affirmative motivations. (No effect was found for the influence of formalism on negative motivations.)

These are important findings because they show that inspectors' behaviors can affect the dispositions of regulatees to comply with regulations. Especially important is the finding that facilitative actions foster affirmative motivations, suggesting that inspectors can play an important role in shaping a sense of obligation to comply that is fundamental to the regulatory social contract. Yet, the fact that formalism undermines affirmative motivations also suggests a potential downside to responsive regulation (Ayes & Braithwaite 1992). It may be, as suggested by Haines (1997), that once inspectors "get tough" with a regulatee and gain compliance, any later efforts at a more facilitative approach with that entity will backfire. Regulatees will still see the regulator more as a "cop" than as a "consultant." Similarly, the findings suggest that efforts to be facilitative may lull regulatees into a degree of complacency that undermines later threats or other deterrent actions. Clearly, these findings are only suggestive, because sorting out how enforcement styles affect motivations over time requires longitudinal data.

A third set of noteworthy findings from this research is the importance of peer reputation in influencing both affirmative and negative motivations. In keeping with the social contract perspective on regulation, the shared expectations of what constitutes a well-built home (i.e., reputation for building good homes) strongly affect affirmative motivations. In keeping with the deterrent perspective on regulation, the fear of loss of reputation or respect among peers is an important influence on negative motivations.

Taken together, these findings suggest that the regulation of building safety can be fruitfully considered from the social contract perspective about regulation. This perspective highlights the shared expectations that constitute an implicit contract and the resultant sense of obligation to carry out those provisions. The shared, contract-like expectations of homebuilders and inspectors about what constitutes compliance for a given home are based

on code provisions and negotiations between inspectors and homebuilders about their specific application. Yet, as shown by May and Wood (2003), variation among multiple inspectors in interpretation of code provisions can undermine this shared understanding.

The norm of reciprocity that underlies contractual relationships is reinforced by the fact that the inspection process is typically viewed by inspectors and by homebuilders as a form of shared problem solving. The character of the interactions of inspectors and homebuilders further reinforces a social exchange based on maintaining good working relationships. Inspectors frequently choose to induce compliance through facilitation and knowledge enhancement over compelling compliance through punishment. Finally, the basic motivations for compliance are more consistent with a social contract than a deterrent perspective of regulation. Homebuilders in this study were less strongly motivated by negative factors than they were by affirmative factors.

This, of course, does not mean that enforcement is irrelevant and that deterrence has no role in building regulation. Inspection is critical for identifying and rectifying code deficiencies, and as such is a central means for assuring adherence to the implicit contract provisions. In addition, flagrant code violations are presumably deterred by homebuilders' concerns about the costs of delay that would be associated with stop-work orders or other strong sanctions for code violations. Although enforcement looks tough on paper with frequent inspections and the option to issue sanctions for violations, the informal workings of the enforcement apparatus are more important in reinforcing the regulatory contract. This is underscored by the observation that inspectors do not normally interpret code deficiencies as intentional acts, but rather as problems in need of mutually acceptable solutions.

Clearly not all, if not many, regulatory situations fit this closely an implicit social contract. Consideration of the stakes involved and the nature of the enforcement game seem to be relevant in delineating the circumstances for which regulation looks more like a social contract. When the costs of compliance are relatively high and appear to have little immediate benefits to the regulatee, as might be the case once a minimal level is achieved for workplace safety or for environmental pollution, affirmative motivations are less relevant and deterrent actions are necessary. In these situations, as noted by Burby and Paterson (1993), compliance is more likely to be viewed as something that needs to be exacted. In contrast, when the benefits of compliance have immediate positive consequences that accrue to the regulatee, deterrence is less relevant and affirmative motivations seem to play a stronger role. This seems to be the case for homebuilders for which reputation in the marketplace is often an important consideration. In these

situations, both inspectors and regulatees have incentives to view compliance as problems in need of mutually acceptable solutions.

A second consideration, first highlighted by Scholz (1984), is the nature of the enforcement game. The fact that inspection is certain and repeated for homebuilding distinguishes enforcement of building codes from most regulatory arenas where enforcement is limited and involves very few, if any, interactions with inspectors. In the case of repeated inspections, there is an opportunity to establish shared expectations about compliance. In addition, there is a basis for developing trust in the inspection process and to enhance reputation with inspectors. These shared expectations and mutual trust are central to the norms of reciprocity and sense of obligation that underlie a regulatory contract.

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## Methodological Appendix

### A. Measurement of Enforcement Style

Homebuilders were asked to rate building inspectors on a five-point scale with respect to the items listed in Table A1. In order to provide a reference for these ratings, respondents were asked to consider "how building inspectors for the designated city compare with those of other cities in the region in their inspection approach." Factor analysis (principal component analysis) was used to derive two underlying dimensions from the nine items used to measure characteristics of enforcement style. Table A1 displays the results of the principal component analysis showing the correlation between each of the items measuring enforcement style and the two underlying dimensions.

**Table A1.** Dimensions of Enforcement Style

	Loadings for Enforcement Style Dimensions <sup>a</sup>	
	Facilitative Dimension	Formalism Dimension
Inspector Characteristics <sup>b</sup>		
Less Trustworthy vs. More Trustworthy	<b>.85</b>	.00
Less Fair vs. More Fair	<b>.83</b>	-.19
Less Helpful vs. More Helpful	<b>.82</b>	-.17
Less Knowledgeable vs. More Knowledgeable	<b>.79</b>	.14
Harder to Work with vs. Easier to Work with	<b>.65</b>	-.45
More Threatening vs. Less Threatening	<b>.60</b>	-.36
Less Picky vs. More Picky	-.31	<b>.85</b>
Less Rigid vs. More Rigid	-.27	<b>.84</b>
Not as Thorough vs. More Thorough	.35	<b>.79</b>
Model Statistics		
Eigenvalue	4.23	2.01
Variance Explained	47%	22%

<sup>a</sup>Cell entries are Pearson correlations between the two dimensions of enforcement style and items measuring the respondent ratings of inspectors (each item on a scale of 1 to 5 with endpoints as shown). The dimensions were derived using principal component analysis and varimax rotation of axes. Items shown in bold are those used to label each dimension. Each item is measured on a five-point scale with the endpoints consisting of the indicated labels.

<sup>b</sup>Respondents were asked to rate "how inspectors for [a designated city] compare with those of other cities in the region in their inspection approach."

**B. Other Measures**

Category and Item	Mean (s.d.) <sup>1</sup>	Measure <sup>2</sup>
Motivations for Compliance		
Affirmative Motivations	0 (1.00) Alpha = .71 <sup>3</sup>	Derived from principal component analysis of potential motivations for compliance (see Table 2 of text).
Negative Motivations	.01 (1.00) Alpha = .60	
Inspection Practices		
Consistency of Inspection Requirements	2.42 (1.23)	Rating of the consistency "of what inspectors require" on a scale of 1 (a major constraint) to 5 (not an issue for compliance).
Inspection Thoroughness	4.22 (.64) Alpha = .80	Mean rating on a scale of 1 (passing attention) to 5 (key item) of the attention typically given by inspectors to seismic and life safety provisions of building codes.
Perceived Likelihood of Issuing a Sanction	4.63 (.62)	Mean rating on a scale of 1 (not likely) to 5 (very likely) of the "likelihood that inspectors would require a re-inspection if a violation was identified" for seismic and life safety provisions of building codes.
Enforcement Style:		
Degree of Facilitation	3 (.98) Alpha = .87	Derived from principal component analysis of enforcement style characteristics (see Table A1). Re-scaled on a 0-to-6 scale. Higher values indicate greater levels of facilitation.
Degree of Formalism	3 (.98) Alpha = .80	Derived from principal component analysis of enforcement style characteristics (see Table A1). Re-scaled on a 0-to-6 scale. Higher values indicate more formal enforcement styles.
Homebuilders' Attitudes		
Trust in Inspection Process	3.72 (.79) Alpha = .81	Mean level of agreement on a scale of 1 (completely disagree) to 5 (completely agree) with statements that "you can generally trust building inspectors," "building inspectors are generally quite competent," "enforcement of building inspection is generally fair," "dishonesty in building inspection is rare," "inspectors are useful in acting as a form of quality control," and "homebuilders can rely on inspectors for advice about dealing with code provisions."
Perceived Need for Regulations	3.08 (.91) Alpha = .55	Mean level of agreement on a scale of 1 (completely disagree) to 5 (completely agree) with statements that "a national energy crisis is likely within the U.S." and "a major earthquake is likely within this area" within the next 20 years.
Importance of Reputation with Other Builders and Inspectors	4.18 (.86) Alpha = .58	Mean level of agreement on a scale of 1 (completely disagree) to 5 (completely agree) with statements that the reputation among each of these "is an important consideration for how we do business."
Homebuilder Competence		
Knowledge of Code Provisions	4.21 (.66) Alpha = .80	Mean rating of knowledge of seismic and energy code provisions by employees and subcontractors. Each rated from 1 to 5 for which higher values indicate greater knowledge. Squared values are used for meeting linearity assumptions.

*(continued)*

**B. Other Measures (Continued)**

Category and Item	Mean (s.d.) <sup>1</sup>	Measure <sup>2</sup>
Number of Homes Built During Last Two Years	45.91 (119.60)	Respondent reporting of new, single-family residential homes built. Range from 1 to 800. Natural log values are used for meeting linearity assumptions.
Years of Homebuilding Experience	15.64 (10.68)	Respondent reporting of years firm has built homes in western Washington. Range from 1 to 75. Natural log values are used for meeting linearity assumptions.
Quality of Homebuilding	2.89 (1.71)	Respondent identification of the category of the price of a typical home built by their firm rated on a scale of 1 (below \$200,000) to 6 (greater than \$600,000).
Homebuilder Constraints Knowledge of Code Provisions	3.85 (.84)	Mean rating on a five-point scale of 1 (completely disagree) to 5 (completely agree) that energy and seismic provisions are "costly to comply with."

<sup>1</sup>Standard deviation is in parentheses.

<sup>2</sup>All measures are based on respondent ratings as part of the mail-out survey, with an overall number of cases of 260. Items vary in actual number of cases because of item non-response.

<sup>3</sup>Cronbach alpha measure of reliability for summated indices.