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Property Condition Disclosure Law: Why Did States Mandate 'Seller Tell All'?

Anupam Nanda
University of Connecticut

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National Association of Home Builders and University of Connecticut

Abstract

Thirty-six US states have already enacted some form of seller's property condition disclosure law. At a time when there is a movement in this direction nationally, this paper attempts to ascertain the factors that lead states to adopt disclosure law. Motivation for the study stems from the fact that not all states have yet adopted the law, and states that have enacted the law have done so in different years. The analytical structure employs hazard models, using a unique set of economic and institutional attributes for a panel of 50 US States spanning 21 years, from 1984 to 2004. The proportional hazard analysis of law adoption reveals that greater number of disciplinary actions tends to favor passage of the law. Greater broker supervision, implying generally higher awareness among real estate agents, seems to have a negative impact on the likelihood of a state adopting a property condition disclosure law.

1 Introduction

There was a time when 'caveat emptor', or 'buyer beware', ruled in the housing industry[3]. Frequently, buyers used to find material defects after the purchase. Many lawsuits were filed against real estate agents or sellers. The economic intuition behind the scenario closely resembles that of used car sales. The seller has better (or more) information about the condition of the house than the buyer can possibly have, which entails the usual story of information asymmetry. This information asymmetry in property markets was brought to public attention by the path-breaking 1984 California appellate court verdict[4], which made the case for requiring a seller's disclosure statement in real estate transactions.

This paper analyzes the seller's property condition disclosure law. We attempt to determine the factors that explain adoption of the disclosure law. The analytical structure employs hazard models, using a unique and rich set of economic and institutional attributes for the housing market in a yearly panel of 50 US States spanning 21 years, from 1984 to 2004, to address the research question. Among the institutional controls, the number of disciplinary actions taken in conjunction with formal complaints against the real estate licensees, and the extent of broker supervision of the real estate salespersons seem to matter in predicting adoption of the law.

The study contributes to the literature in the following ways: First, using empirical modeling, it adds to our understanding of the property condition disclosure law and the institutional environment of the residential real estate industry. The paper takes a first step in analyzing a real estate law that affects real estate transaction procedure. Second, understanding the law adoption

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[3] Article "What is a Seller's Disclosure?", October 1, 2001, by Dian Hymer. Distributed by Inman News Features.

[4] Easton v. Strassburger (152 Cal.App.3d 90, 1984) was a California Appellate Court decision that expanded the duty of realtors and the grounds for realtor negligence in selling faulty homes. The State Supreme Court declined to hear the case, giving birth to the law in the state.

process helps in highlighting the effect of the law on various institutional procedures in the housing sector. Third, the paper provides a framework and makes the case for empirical analyses of policy statutes in the field of law and economics, especially in the field of real estate law.

Beginning in 1984, numerous legal proceedings have brought greater transparency in property transactions. In the last two decades, many lawsuits in the real estate industry had something to do with property condition and non-disclosure of the material defects at the time of sales. Using data on the claims against errors and omissions insurance by the real estate licensees in five states, Zumpano and Johnson (2003) finds that fully 76% of all suits against real estate salespeople were related to the condition of the property being sold[5]. Increasingly complex real estate transaction procedures have led to homebuyers' greater reliance on real estate agents' assistance in the decision making process, this, in turn, placed real estate professionals in a more litigious environment efforts to satisfy more demanding customers could become costly. This has also increased the skill requirements for real estate salespersons, due to new environmental, health, tax, and mortgage issues and standards. Therefore, two conflicting interests arise for real estate professionals – offering exclusive services for customer satisfaction and taking the risk of making mistakes that may lead to lawsuits. Enacting new laws to protect market interests deemed to be a plausible solution by some state legislatures.

The seller's disclosure statement protects both the buyer and the seller from possible disputes after the transaction. It also prevents any misplaced liability on the seller and the broker who represents the seller. Thus, it can be viewed as a tool to avoid lawsuits, which are viewed as deadweight losses to some extent[6]. Zumpano and Johnson (2003) describes the case aptly by

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[5] Not all states require real estate salesperson to carry Errors & Omissions (E&O) insurance coverage.
[6] Zumpano and Johnson (2003) conclude: "There seems to be little question that the property condition disclosure, whether mandatory or voluntary, can reduce error and omission claims against real estate licensees".

noting that "in response to growing concern about the perceived increase in real estate broker litigation, a growing number of state legislatures have promulgated property condition disclosure statutes as a way of insulating real estate practitioners from legal liability problems surrounding sales transactions". The disclosure statement shifts risk from the real estate buyers and brokers to the sellers. It was in the interest of risk-averse brokers to adopt such laws. The National Association of Realtors (NAR), which is a major trade association of real estate agents, lobbied for the disclosure law and secured the mandate in many states in the early 1990s. There is a question about whether seller disclosure should be mandated by statute or not[7]. The most obvious argument for a statute is that it ensures widespread adherence to the mandate. A high rate of compliance is important in achieving the goal of any disclosure statement.

Not all states have seller disclosure as a statutory requirement, although there is a movement in this direction nationally. Almost two-thirds of the US states now require sellers to disclose property condition in a state-mandated disclosure form. California was the first state to require a seller disclosure statement, called The Real Estate Transfer Disclosure Statement (TDS). Beginning in the late 1980s and early 1990s, other states initiated some form of disclosure statement. The overall format of the statement differs considerably across states. The typical disclosure form asks for information on appliances, fixtures, structural items, etc. Generally, any known material defects (regarding the items) that are not readily apparent to a buyer, but known to the seller, should be disclosed[8]. Determining what is a material defect is not always clear. Sometimes an element of subjectivity is involved. In some states, title and zoning questions appear in the disclosure form. Often natural hazards (e.g. a flood or earthquake-prone area) and environmental concerns (e.g., radon, lead, or asbestos exposure) are reflected in particular state-

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[7] See Lefcoe (2004) pg. 228.
[8] Lefcoe (2004) provides an excellent discussion on many different aspects of the property condition disclosure law.

required disclosures. For instance, earthquake hazard disclosure is required in California, but not in New York or in most of the Midwest states.

A Property condition disclosure statement is not a warranty of the unit's condition[9]. It is rather a representation of the information about the property condition by the seller at the time of sale. Scholars argue that the seller-provided inspection is not a substitute for the seller disclosure form, since many material defects may not be revealed by an inspector[10]. For example, inspectors are not supposed to inspect for rodents, or check the walls, foundation, the air-conditioning, and heating system, or know about flooding, and many other potential areas for material defects.

There have been a number of studies on the property condition disclosure law and its impact on different aspects of the residential real estate market. The studies (Pancak, Miceli and Sirmans (1996), Moore and Smolen (2000), Zumpano and Johnson (2003), and Lefcoe (2004)) suggest a positive impact of the law on property values, buyer's satisfaction, broker's avoidance of risk etc. Exploiting the MSA level variation in house prices, Nanda (2005) finds that the average seller may be able to fetch a higher price (about three to four percent) for the house if she furnishes a state-mandated seller's property condition disclosure statement to the buyer. The economic implications of this requirement can be manifold. Most importantly, the seller's disclosure statement directly affects the information asymmetry in real estate transactions. It provides better transparency in property transactions, and facilitates the buyer's decision-making process.

Most studies on regulations in the field of law and economics assume the law being exogenous. A law cannot be treated as exogenous, since any such proposal reflects existing institutions and undergoes close scrutiny and deliberation before it is enacted. The institutional backdrop of the law provides important information on the factors that gradually lead to adoption of the law. We

[9] See Lefcoe (2004) pg. 212-213.
[10] See Lefcoe (2004) pg. 239.

attempt to determine the factors that led to adoption of the law in different states. This examination is especially appropriate when the states mandated the requirement in different years, over the last two decades, and some states have still not enacted a property condition disclosure law. The study contributes to our understanding of the law, indicates whether the objectives of the law have been fulfilled, and whether the mandate should be adopted nation-wide.

In a novel study, de Figueiredo and Vanden Bergh (2004) discuss the factors that led to adoption of the Administrative Procedures Act at different states in different times. The study recognizes the underlying political process of law adoption and attempts to empirically model the determining political factors. In our study, we adopt a similar objective. Unlike de Figueiredo and Vanden Bergh (2004), we not only look at the political factors, but also the factors that closely describe the institutional and economic environment of the housing market. We also incorporate across state heterogeneity in our empirical structure.

The rest of the study proceeds as follows: Section 2 discusses the estimation methods; Section 3 describes economic and institutional variables and develops empirically testable hypotheses; Section 4 analyzes, compares, and contrasts the results from different model specifications; and we conclude in Section 5.

2 An Empirical Framework for Analyzing Law Adoption[11]

In many analyses of statutes, the statute is assumed to be exogenous. However, one might argue that many different legal, economic, and special interest group activities precede government enactment of a law. Following Kiefer (1988) and de Figueiredo and Vanden Bergh (2004), we

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[11] This paper extends the analysis in Nanda (2005), page 10.

formulate a discrete time proportional hazard model to ascertain which factors have influenced for states' in adoption of property condition disclosure laws.

We model duration dependence by specifying a probability distribution for the survival spell until "death", which here is the adoption of a property condition disclosure law[12]. The probability distribution of duration is given by

$$F(t) = \Pr(T < t) \tag{2.1}$$

which specifies the probability that the random variable T is less than some value t; $f(t)$ is the corresponding density function. One useful representation of the duration data is the survivor function

$$S(t) = 1 - F(t) = \Pr(T \geq t) \tag{2.2}$$

Using equations (2.1) and (2.2), we derive the hazard function for duration analysis

$$\lambda(t) = \frac{f(t)}{S(t)} = -\frac{d \ln S(t)}{dt} \tag{2.3}$$

$\lambda(t)$ is the rate at which spells will be completed at duration t; given that they survive until t. Equation (2.3) enables us to distinguish between positive and negative duration dependence. Different distributional assumptions can be made for $\lambda(t)$. Most commonly used are exponential and Weibull distribution.

With the basic structure, as outlined by equations (2.1) through (2.3), next we try to specify the covariates for duration dependence. A simple formulation incorporates time-invariant regressors in a proportional hazard framework, which can be written as

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[12] The baseline specification draws on Kiefer(1988) and Wooldridge(2002).

$$\lambda[t;x] = k[x]\lambda_0(t) \tag{2.4}$$

where $k(x) > 0$ is a nonnegative function of x; and $\lambda_0(t) > 0$ is called the baseline hazard.

Time is separated from the explanatory variables so that the hazard is obtained by shifting the baseline hazard (which is common to all units) as the individual hazard function changes based on a function $k(x)$ of observed covariates (i.e. for all the cross section units the hazard is proportional to the baseline hazard function). The model does not impose any assumptions concerning the nature or shape of the underlying survival distribution. One popular form of the model in equation (2.4) is the logit estimation, where each unit contributes several terms to a logit likelihood function, one term for each period for which the unit was at risk of leaving the treatment stage[13]. Typically, $k(x) > 0$ is parameterized as follows

$$\lambda[t;x] = \exp[x\beta]\lambda_0(t) \tag{2.5}$$

The baseline hazard can be specified by allowing the intercept to be different for logit formulations of each time-period (i.e. by including a dummy variable for each representative period) or by including a function of time. We assume that once a law is adopted, it will remain, and so we eliminate the observations after the disclosure law has been adopted. This censoring of the data is reasonable, given that no state has ever repealed the property condition disclosure law. The hazard function can be represented by a standard normal cumulative distribution function. Therefore, we could estimate the model after conditioning on the event not yet having occurred using a standard logit specification.

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[13] See Kennedy (1998), pg. 259-261 for a simple discussion on this structure.

We can incorporate time-varying covariates into the framework to obtain a conditional hazard function as follows:

$$\lambda[t;x(t)] = \exp[x(t)\beta]\lambda_0(t)$$

(2.6)

$$or \ \lambda[t;x(t)] = \lim_{h\downarrow 0} \frac{P[t \leq T < t+h \mid T \geq t, X(t+h)]}{h}$$

assuming that the limit exists.

One popular way of specifying the hazard function is

$$\lambda[t;x_m,\theta] = k[x_m,\beta]\lambda_m, \qquad m = 1,........,M$$

(2.7)

where θ is a vector of unknown parameters.

An important assumption is that time-varying covariates are constant over the interval of observation $[a_{m-1}, a_m]$, which, in our case, is a year. Equation (2.7) implies that time-varying covariates have a multiplicative effect in each time interval (for M intervals) and it allows a flexible baseline hazard, which is common to all units. Incorporating time-varying covariates is an important step in analyzing law adoption in our panel data framework as the law has been adopted at different times by different states.

Equations (2.1) through (2.7) represent the empirical structure as outlined in Kiefer (1988), and de Figueiredo and Vanden Bergh (2004). However, an important aspect of the law adoption process is that it varies across states. The heterogeneity appears from the fact that different states in our sample have potentially different distributions of the duration dependence. Thus, we are sampling from a mixture distribution. Although we are controlling for a number of time-varying observables, there may still be some heterogeneity due to presence of important unobservables. The problem becomes an omitted regressor problem. The law adoption process may be affected by some institutional factors for which we cannot control. Building upon the empirical structure

in Kiefer (1988) and de Figueiredo and Vanden Bergh (2004), we can incorporate heterogeneity into our framework as follows:

$$\lambda[t; v, x_m, \theta] = vk[x_m, \beta]\lambda_m, \qquad a_{m-1} \le t \le a_m \qquad\qquad (2.8)$$

where $v > 0$ is a continuously distributed heterogeneity term.

With single-spell data (since no state has ever repealed the property condition disclosure law), we cannot allow general correlation between the unobserved heterogeneity and the time-varying covariates. Therefore, we assume that the covariates are strictly exogenous, conditional on unobserved heterogeneity, and that the unobserved heterogeneity is independent of covariates[14]. We try two common distributions for specifying frailty or heterogeneity, which are normal and gamma distributions. Including time-varying attributes and heterogeneity are important extension of the empirical model in de Figueiredo and Vanden Bergh (2004).

3 Data Description and Empirically Testable Hypotheses[15]

The study uses information on economic variables and institutional variables for 50 US States, from 1984 to 2004. The state level analysis is based on yearly information, yielding 1,050 observations. To our knowledge, 36 states have already mandated some form of disclosure statement. We obtained the effective dates of the mandate from official statements for different states[16]. In our sample, California was the first state to adopt the law (1987). Most of the other 35 states adopted the law in the 1990s.

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[14] See Wooldridge(2002), page 713 for a discussion.
[15] This paper uses the data used in Nanda (2005).
[16] Pancak et al. (1996) lists the states, which adopted the disclosure law until 1996.

3.1 Economic Variables

To measure the housing price changes, we use the repeat sales quarterly Housing Price Index (HPI), reported by the Office of Federal Housing Enterprise Oversight (OFHEO). We use quarterly percentage change in the HPI in an MSA level analysis. For yearly analysis, we take the average quarterly rate of change for the year. One important advantage of the time period is that on average, we can observe the treated units sufficiently before and after the adoption of the disclosure law for most of the states. We use labor market characteristics, such as the seasonally adjusted unemployment rate and the job growth rate, provided by the Bureau of Labor Statistics (BLS). Other economic variables include percentage change in per capita income, percentage change in per capita Gross State Product (GSP), single-family 30-year average mortgage rates for states, and the population growth rate. Broadly, these variables characterize the economic make-up of the state. Data on these controls are obtained from the Bureau of Economic Analysis (BEA).

3.2 Institutional Variables and Hypotheses

Numerous lawsuits against the real estate licensees made the case for adoption of disclosure laws. Potentially the legal activities are governed by the institutional characteristics of the state. Statistics from the *Digest of Real Estate Licensing Laws and Current Issues* (reports from 1985 till date) compiled by the Association of Real Estate Licensing Law Officials (ARELLO) provide a rich set of characteristics that are closely associated with the institutional backdrop of the disclosure law.

Various institutional factors influence the adoption of laws and regulations. We formulate and test various hypotheses regarding the institutional factors in housing market that influence the adoption of property condition disclosure laws. Our goal is to condition on pre-disclosure characteristics to ascertain which factors lead to the adoption. Institutional factors related to real

estate licensing are of particular interest, since dissatisfaction with licensing services and strong lobbying by the licensee associations are viewed as important forces behind successful adoption of mandatory disclosure laws.

Pancak and Sirmans (2005) attempt to find the effects of different institutional factors on the quality of services by real estate licensees. They measure quality of services by the number of disciplinary actions taken against real estate licensees, using controls such as whether the state has mandatory property condition disclosure, extent of broker supervision of salespersons, etc. A major goal of property condition disclosure law is to decrease agents' liability for non-disclosure. Therefore, presumably states with some form of disclosure law will have fewer instances of nondisclosure and thus fewer transaction grievances. Moreover, Zumpano and Johnson (2003) conclude that mandatory property condition disclosure reduces claims on errors and omissions insurance. Therefore, we postulate that the level of disciplinary actions, relative to formal complaints, indicates customer dissatisfaction, and thus is an important factor in predicting law adoption by the regulatory authorities[17].

Often real estate licensees are liable for both intentional and unintentional non-disclosure of many aspects of the housing transaction. We hypothesize that greater supervision would prevent intentional and unintentional mistakes by the salespersons. As in Pancak and Sirmans (2005), we construct this supervision variable as the ratio of number of brokers to number of salespersons. As constructed, the variable may also capture variations in experience and education among

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[17] When the disciplinary actions figure is missing or zero, we take the average of the figures within a 1-year range. When the total disciplinary actions figure is missing in ARELLO reports, if available, we take the sum of the figures under different categories of disciplinary actions, or we take the sum of the actions by consent and number of formal hearing as number of disciplinary actions (this is the case until 1986). Then we take sum of disciplinary actions and formal hearings from column of complaints resulting in some actions. Both of these are expected to provide the number of complaints having enough substance to attract legal attention. This is typically the case with Arizona and Hawaii for 1984 to 1986.

licensees. In the analysis, this variable is an important factor, as it captures two important things: licensee awareness and the resulting effect on customer satisfaction or the quality of service.

Concerted pressure and lobbying by realtors' associations brought the law in most states. To have a sense of how organized the real estate agents are in different states, we include the number of active brokers, associate brokers, and salespersons in each state in our analysis. Ideally, the percentage of licensees who are associated with some trade organizations like NAR could serve as an excellent indicator of the lobbying effort. However, it is hard to obtain this information across the states for the long time series that we are considering in this study.

We also include a control for partisan control in the state legislation. Following de Figueiredo and Vanden Bergh (2004) and Nanda (2005), we include an indicator variable for Democratic and Republican control. Above all else, political process brings about the regulations. In order to fully exploit the information on political make-up of the state general assembly, we use detailed partisan control variables rather than a simple blue/red category. We use Democratic control with Republican governor as the omitted category. The information on partisan control for each general election cycle is obtained from the National Conference of State Legislatures (NCSL).

Table (1) reports the summary statistics of the above controls for the treated and the control units. A few important observations can be made from the summary statistics of the two groups. At the state level, average percentage change in HPI is slightly higher (1.13 percent against 1.01 percent for MSAs, and 1.24 percent against 1 percent for states) for the treated group than for the control group. The unemployment rate and other economic controls are generally, on average, higher for the control units. Average number of disciplinary actions (about 110 against 43) and average number of complaints (about 869 against 793) are higher for the states that adopted disclosure laws. A higher number of disciplinary actions and complaints against the licensees suggest that

these controls are important in capturing the dissatisfaction of consumers, and, due to high volume of complaints, regulators might be inclined to enact a state-mandated disclosure requirement. On average, control units tend to have greater broker supervision (50 percent against 48 percent) than the treated units. This supports the hypothesis that greater broker supervision ensures fewer mistakes and greater awareness of the market practices among salespersons, which, in turn, tend to reduce the dissatisfaction among homeowners. The disclosure states tend to have a higher number of active licensees. Finally, there are more Republican states that adopted the law than Democratic states.

4 Results

4.1 With Time-Invariant Institutional Variables

As outlined in section (2.2), our estimation strategy is one of hazard analysis where we model the duration dependence conditioning on the adoption not yet having occurred. We start with models with time-invariant attributes. Table (2) reports results from four different model specifications for the proportional hazard model of disclosure law adoption. This analysis is done with the state-level data (1,050 observations). We use the pre-disclosure average number of disciplinary actions taken against the licensees, licensee supervision index, and number of licensees as controls for pre-treatment characteristics[18]. Essentially, we assume that these institutional characteristics are exclusive to the housing market. We still use the economic variables as time-varying attributes since they are not directly associated with the housing market. The columns are distinguished by the inclusion of lagged percentage change in HPI. We include the housing price growth rate to capture the housing trend of the market. Lagged value is more appropriate, as the variable should not greatly influence the adoption year. It seems that inclusion of the second lagged percentage

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[18] Due to missing information, we cannot use all the years before the law adoption for Indiana, Montana, and New York. However, we still use information from pre-disclosure period for these states.

change in HPI matters in this set-up. We also allow the intercepts to differ across the census divisions.

Most importantly, as hypothesized, the average number of disciplinary actions relative to number of complaints seems to affect adoption. A greater number of disciplinary actions relative to complaints favors adoption of a state mandate (robust significant positive impact across the columns). The greater the degree of broker supervision, the lower is the state's likelihood of adopting the law (robust significant negative impact across the columns). This supports the postulate that greater broker supervision, by ensuring fewer mistakes and greater awareness among the salespersons of the market practices and standards, tends to reduce dissatisfaction among homeowners, which, in turn, lowers the number of lawsuits that might trigger adoption. Interestingly, as observed in Table (1), Republican control tends to favor (although not statistically significant) the adoption of property condition disclosure laws. Republican control tends to be associated with regulations that promote transparency in housing transactions. More active housing markets seem to adversely affect the likelihood of adopting the disclosure law. Possibly, consumers as well as licensees prefer to neglect the disclosure issues when housing markets are 'hot'. In a market of high appreciation rates, it may be better idea to sell the newly acquired 'lemon' rather than registering complaints or lawsuits.

4.2 With Time-Varying Institutional Variables

We consider models that include time-varying covariates; address the measurement error problem; and control for state level heterogeneity. Table (3) takes the initial specification, as in column (4) in Table (1), and reports alternative econometric specifications. In this analysis, we use time-varying institutional attributes, which is a major departure from Table (2). Incorporating time-varying covariates is an important step in analyzing law adoption in our panel data

framework, as the law has been adopted in different periods by different states, and it adds more information to our estimation.

In Table (3), we suppress the estimates on economic variables except housing price growth rate, as those are robust across specifications. For the hazard analyses in this table, we assume most the commonly used Weibull distribution for duration dependence. Column (1) in Table (3) reports estimates from the hazard model with time-varying covariates with interval of one year. We use this model as a baseline specification in this analysis. Although we do not find significant estimates to test our main hypotheses, the signs are consistent with our postulates. As expected, number of disciplinary actions relative to number of complaints is positive, and the supervision index is negative. The 'hot' market argument regarding the housing price growth rate holds in this model. One concern that arises from insignificant estimates on institutional controls is that legislators may not have observed current year values in deciding on law adoption. We use first lagged values of the institutional variables in column (2), but it does not significantly improve our findings.

Measurement error is a major issue with the institutional variables. Moreover, legislators may look over a longer period to formulate their opinion about the need for such laws. Adopting a law is a slow process with debates, lobbying, deliberations, etc. In order to address the measurement error problem, in column (3) we take the average of second to fourth lagged values for the institutional controls. The estimates support our concern, and indicate a significant positive effect of number of disciplinary actions relative to number of complaints, and a significant negative effect of the supervision index. These two variables relate to most important hypothesis of the paper: a higher level of consumer dissatisfaction, as indicated by disciplinary actions and complaints against real estate licensees, and a lower level of broker supervision (implying ill-prepared real estate agents who intentionally or unintentionally fail to disclose) that tend to

encourage adoption. This is well established in column (3). The 'hot' market argument regarding the housing price growth rate holds in this model.

The law adoption process varies across states, depending on many factors. The heterogeneity stems from the fact that different states in our sample have potentially different distributions for the duration dependence. In columns (4) and (5), we try to address the heterogeneity concern in a few different ways by building upon our specification in column (3). First, in column (4), we assume that the heterogeneity term v in equation (2.8) is normally distributed. We find a robust and significant effect of number of disciplinary actions relative to number of complaints and the supervision index. To explore further the concern that heterogeneity is present, we assume a gamma distributed frailty term in column (5). We find results similar to those in column (4) for our major hypothesis of consumer dissatisfaction. The effect of disciplinary actions relative to number of complaints becomes insignificant in column (5), but the general magnitudes of the estimates for disciplinary actions relative to number of complaints, supervision index, and house price growth are quite stable over all three specifications in columns (3), (4), and (5).

Our empirical analysis, as presented in Tables (2) and (3), supports two key postulates. A higher level of consumer dissatisfaction, as indicated by a higher level of disciplinary actions and complaints against real estate licensees, and a lower level of broker supervision, implying that " … mistakes can be made that will damage one or more parties to a real estate sale", both increase the likelihood of adopting a property condition disclosure law[19].

5 Conclusion

At least two-thirds of the US states have already mandated some form of seller's property condition disclosure statement, and there is a movement in this direction nationally. This paper

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[19] See Zumpano and Johnson (2003), page 286.

attempts to ascertain the factors that lead a state to adopt a disclosure law. Motivation for the study stems from the fact that not all states have adopted the law, and states have enacted the law in different years. The analytical structure employs hazard models, using a unique set of economic and institutional attributes for a yearly panel of 50 US States, spanning 21 years, from 1984 to 2004.

A formal attempt has been made to explain the adoption of the disclosure law. Among the institutional controls, the number of disciplinary actions taken in conjunction with formal complaints against the real estate licensees, and the extent of broker supervision of real estate salespersons seem to matter in predicting adoption of the law. Specifically, a greater number of disciplinary actions tends to favor passage of the law. Greater broker supervision, implying more awareness among real estate agents, seems to have a negative impact on the likelihood of a state adopting a disclosure law. The study, on a more general note, offers an analytical framework for understanding the adoption of other laws or institutional arrangements.

REFERENCES

Arellano, M., and B. Honore, (2001), "Panel Data Models: Some Recent Developments" in J. Heckman and E. Leamer edited *Handbook of Econometrics*, Vol 5, Amsterdam: North Holland.

Association of Real Estate Licensing Law Officials (ARELLO), (1985-2005), *Digest of Real Estate Licensing Laws and Current Issues*.

de Figueiredo Jr., Rui J.P., and R.G. Vanden Bergh, (2004), "The Political Economy of State-Level Administrative Procedure Acts", *The Journal of Law and Economics*, Vol. XLVII.

Kiefer, N.M., (1988), "Economic Duration Data and Hazard Functions", *Journal of Economic Literature*, Vol. 26, No. 2, 646-769.

Lefcoe, G., (2004), "Property Condition Disclosure Forms: How Realtors Eased the Transition from 'Caveat Emptor' to 'Seller Tell All' ", *Real Property, Probate and Trust Journal*, Summer.

Moore, G.S., and G. Smolen, (2000), "Real Estate Disclosure Forms and Information Transfer", *Real Estate Law Journal*, 28: 319-326.

Nanda, A., (2005), "Property Condition Disclosure Law: Does 'Seller Tell All' Matter in Property Values?", University of Connecticut, Dept. of Economics Working Paper Series, No. 2005-47. http://ideas.repec.org/p/uct/uconnp/2005-47.html

Olazabal, A.M., (2003), "Redefining Realtor Relationships and Responsibilities: The Failure of State Regulatory Responses", *Harvard Journal on Legislation*, 40: 65-132.

Pancak, K.A., and C. F. Sirmans, (2005), "The Effect of Agency Reform on Real Estate Service Quality", University of Connecticut Working Paper.

Pancak, K.A., T.J. Miceli, and C. F. Sirmans, (1996), "Residential Disclosure Laws: The Further Demise of Caveat Emptor", *Real Estate Law Journal*, 24: 291-332.

Wooldridge, J., (2002), "Econometric Analysis of Cross-Section and Panel Data", MIT Press.

Zumpano, L.V., and K.H. Johnson, (2003), "Real Estate Broker Liability and Property Condition Disclosure", *Real Estate Law Journal*, 31, 285-302.

Table 1 Summary Statistics

Variable	Disclosure Mandate			No Disclosure Mandate		
	N	Mean	Std. Dev.	N	Mean	Std. Dev.
50 States Characteristics: 1984—2004: 1,050 Observations						
%Change in HPI	735	1.243	1.329	315	1.008	0.789
%Unemployment Rate	735	5.514	1.685	315	5.628	1.879
%Job Growth Rate	735	1.513	1.895	315	1.682	1.976
%Per Capita Income Change	735	1.392	0.647	315	1.417	0.777
%Per Capita GSP Growth Rate	735	4.884	3.432	315	4.707	3.147
%Population Growth Rate	735	1.042	1.084	315	1.012	1.210
%Mortgage Rate	735	8.432	1.788	315	8.433	1.763
Number of Real Estate Licensees/1000 population	735	6.479	3.735	315	5.199	2.430
No. of Complaints	735	868.650	1482.715	315	793.365	2671.183
No. of Disciplinary Actions	735	109.686	261.837	315	42.768	53.779
Licensee Supervision Index	735	47.785	26.494	315	50.191	24.878
Democratic Control Democratic Governor	735	0.214	0.410	315	0.270	0.444
Democratic Control Republican Governor	735	0.223	0.417	315	0.209	0.407
Republican Control Republican Governor	735	0.284	0.451	315	0.269	0.444
Republican Control Democratic Governor	735	0.246	0.431	315	0.238	0.426

Table 2 Parametric: Proportional Hazard Model with Time-Invariant Controls

(Dependent Variable: Law Adoption Dummy)

Regressors	(1)	(2)	(3)	(4)
% No. Disciplinary Actions relative to no. complaints	0.006 (0.004)	0.006 (0.004)	0.007*** (0.004)	0.007*** (0.004)
Licensee Supervision Index	-0.008** (0.004)	-0.008** (0.004)	-0.007*** (0.004)	-0.007*** (0.004)
No. of Real Estate Licensees/1000 population	-0.022 (0.029)	-0.024 (0.028)	-0.023 (0.028)	-0.025 (0.028)
Democratic Control Democratic Governor	-0.124 (0.269)	-0.126 (0.268)	-0.093 (0.269)	-0.101 (0.268)
Republican Control Republican Governor	0.011 (0.226)	0.009 (0.227)	0.058 (0.233)	0.058 (0.233)
Democratic Control Republican Governor	0.071 (0.295)	0.071 (0.294)	0.107 (0.295)	0.105 (0.295)
Mortgage Rate	-0.374* (0.140)	-0.368** (0.145)	-0.365** (0.148)	-0.358** (0.147)
% Unemployment	-0.093 (0.077)	-0.115 (0.077)	-0.125 (0.081)	-0.135*** (0.080)
% Job Growth	0.173** (0.072)	0.169** (0.071)	0.171** (0.072)	0.170** (0.072)
%Per Capita Income Change	-0.262*** (0.151)	-0.246 (0.153)	-0.279*** (0.151)	-0.266*** (0.151)
%Per Capita GSP Growth Rate	-0.031 (0.027)	-0.025 (0.027)	-0.020 (0.028)	-0.019 (0.028)
%Population Growth Rate	0.091 (0.109)	0.103 (0.108)	0.126 (0.112)	0.128 (0.110)
HPI-rate_Lag-1		-0.085 (0.071)		-0.052 (0.070)
HPI-rate_Lag-2			-0.148** (0.069)	-0.141** (0.062)
Fixed Effect?	Census Division	Census Division	Census Division	Census Division
Joint Significance of Census Div. Effects	$\chi^2(8)$=22.32 (Pr~0.00)	$\chi^2(8)$=23.81 (Pr~0.00)	$\chi^2(8)$=27.75 (Pr~0.00)	$\chi^2(8)$=28.00 (Pr~0.00)
Adj. R^2	0.231	0.222	0.212	0.213
N	728	678	628	628

NOTES: Models include logarithm of time as the baseline hazard specification. Clustered Standard errors are reported within parentheses. '*', '**', and '***' denote 1 percent, 5 percent and 10 percent significance level. This analysis includes data for all the states, from 1984 to 2004.

Table 3 Parametric: Proportional Hazard Model with Time-Varying Controls

(Dependent Variable: Law Adoption Dummy)

Regressors	(1)	(2)	(3)	(4)	(5)
% No. Disciplinary Actions relative to no. complaints	0.003 (0.008)	0.002 (0.011)	0.019* (0.008)	0.019* (0.009)	0.016 (0.011)
Licensee Supervision Index	-0.014 (0.011)	-0.004 (0.007)	-0.029* (0.009)	-0.029* (0.011)	-0.031* (0.013)
No. of Real Estate Licensees/1000 population	-0.016 (0.036)	-0.017 (0.025)	0.012 (0.045)	0.012 (0.055)	-0.004 (0.059)
Democratic Control Democratic Governor	-0.143 (0.521)	-0.129 (0.494)	-0.073 (0.479)	-0.071 (0.481)	-0.108 (0.584)
Republican Control Republican Governor	0.161 (0.389)	0.156 (0.397)	0.001 (0.386)	0.001 (0.408)	0.062 (0.517)
Democratic Control Republican Governor	0.236 (0.607)	0.229 (0.583)	0.091 (0.639)	0.089 (0.595)	0.147 (0.655)
HPI-rate_Lag-1	-0.124 (0.110)	-0.128 (0.130)	-0.126 (0.156)	-0.125 (0.148)	-0.105 (0.192)
HPI-rate_Lag-2	-0.235* (0.091)	-0.229* (0.078)	-0.237* (0.102)	-0.237 (0.146)	-0.227 (0.182)
Model Description	Current Time-Varying Attributes	First Lagged Time-Varying Attributes	Avg. of 2nd. To 4th. Lagged Time-Varying Attributes	Avg. of 2nd. To 4th. Lagged Time-Varying Attributes	Avg. of 2nd. To 4th. Lagged Time-Varying Attributes
Modeling Concern	More information	Current values not considered.	Variables measured with error	Heterogeneity	Heterogeneity
Distribution for Duration Dependence	Weibull	Weibull	Weibull	Weibull	Weibull
Distribution for Heterogeneity Term				Normal	Gamma
Log Likelihood	-104.33	-104.87	-96.48	-96.48	-96.94
N	628	628	528	528	528

NOTES: Models include logarithm of time as the baseline hazard specification and census division fixed effects. All findings for economic variables in Table 2 are robust across the models considered in Table 3. Clustered standard errors are reported within parentheses. '*', '**', and '***' denote 1 percent, 5 percent and 10 percent significance levels. This analysis includes data for all 50 states, from 1984 to 2004.