Do Parties Negotiate After Trespass Litigation?

An Empirical Study of Coasean Bargaining[†]

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Abstract

The Coase theorem critically depends on the assumption that parties will bargain after litigation and, barring high transaction costs, mis-allocated entitlements by courts will be re-allocated through voluntary exchanges. Behavioral law and economics theory challenges this view. Ward Farnsworth's 1999 informal small-scale survey lent credence to the claim that parties do not bargain after litigation because of the endowment effect and the animosity created by litigation. Farnsworth's sample is small and statistically biased. Yet no other article has tested whether parties in the real world would systematically fail to bargain because of behavioral reasons. This paper examines over 300 Taiwanese cases in which the landowner sued the illicit possessor for building a structure on the plaintiff's property. We studied how often the landowner registered a sale of property to the possessor after the litigation. We found that it happened in about 5% of cases. We apply a logistic regression analysis to the results and are able to identify some factors that make successful bargaining more likely: the values of land and buildings, the number of plaintiffs and defendants, and defendant attorney representation. This suggests that post-litigation bargaining dynamics are at least partly rational — allocative efficiency and transaction costs (conventionally defined) still matter.

Keywords

Endowment effect (endowment theory), animosity, the Coase theorem, eviction, behavioral law and economics

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I. INTRODUCTION

Coase (1960) is the cornerstone of law and economics, but its empirical foundation is far from solid. While a few early experimental articles aim to test the empirical foundation of the Coase theorem (Elizabeth Hoffman and Spitzer 1982; 1986; Coursey, Hoffman, and Spitzer 1987), very few articles since then directly address the issue of whether the Coase Theorem is empirically valid. Farnsworth (1999), based on interviews with attorneys in 20 nuisance cases, finds that due to animosity incurred during the litigation process, parties did not even attempt to bargain after the litigation. Farnsworth (1999) thus seriously challenges the Coase Theorem, which is built on the assumption that whatever allocative inefficiency rendered by the court, barring "real" transaction costs, will be redressed by post-litigation negotiations. If this finding were universally true, entitlement allocation by the court would become immensely important. If courts assign entitlements to the wrong party, inefficiency will persist, as litigating parties would not deal with each other. Therefore, whether the Coase Theorem holds has immense import regarding how much efforts courts should spend on getting the allocation of entitlements right.

Farnsworth (1999) has a huge impact. In a year, Farnsworth's article was collected in a volume on behavioral law and economics edited by Sunstein (2000). The article/book chapter has since been cited more than 200 times. Interestingly, Farnsworth's empirical findings have been cited as evidence for several different claims. First, many scholars cited this work as evidence that feud, animosity, or emotion in general created during litigation may hinder ex post bargaining.[1] Second, behavioral law and economics scholars went one step further, drawing on Farnsworth's results as evidence that the endowment effect (on the party who wins the litigation) hinders ex post bargaining.[2] Note that Farnsworth (1999:

[1] *See, e.g.,* Cass and Hylton (2013: 252); Malloy and Diamond (2011: 24); Sunstein (1999: 117); Singer (2010: 267);Laycock (2011a: 32); Golden (2014: 2112); Tate (2000: 1715); Marandola (2011: 986); Lichtman (2003: 159); Blumenthal (2008: 631); Bray (2010: 1312); Ayres and Goldbart (2001: 71); Godsil (2004: 1821); Smith (2004a: 1044)("The lawyers interviewed attributed the lack of trades to enmity, which is probably more likely in cases that have been litigated to an appellate decision than in the total universe of nuisance disputes."); Eric A. Posner (2001: 2007); Blumenthal (2005: 204).

[2] *See* Farnsworth (1999: 394); Jolls, Sunstein, and Thaler (1998: 1499–1500); Korobkin (2003:

394) discusses and ultimately does not endorse the endowment effect as the explanation of the observed no-bargaining phenomenon. The literature, however, now has a life of its own. Third, many other scholars are less committed to the psychological explanations offered by Farnsworth and his followers; instead, they simply cited Farnsworth's work as evidence that people may not bargain after litigation.[3]

Farnsworth interviewed attorneys representing nuisance cases; thus, his article has a particularly strong impact on property scholarship. The no-bargaining result has been used to support the claim that the liability rule is superior to the property rule.[4] Property scholars, who tend to favor the property rule over the liability rule,[5] in contrast to scholars in other fields, emphasized that Farnsworth's finding is not indicative of the deficiency of the property rule. As Lewinsohn-Zamir (2001: 232–233) puts it, the ultimatum bargaining experiments

> "attest to the probable success of even one-period bargaining between complete strangers, who interact anonymously and are not troubled by considerations of long-term relationships, reputations, and so forth. Even in such cases, we observe low overall rejection rates, and most games end in agreement as to the division of the pie. Should we not expect negotiations in real life to be as successful, at least, if not more? In contrast with

1291–1292); Nicita and Rizzolli (2006: 108); Lewinsohn-Zamir (2006: 25); Ulen (2013: 25); Becher and Zarsky (2011). *See also* Korobkin (2000: 51)(hypothesizing that the endowment effect will be more pronounced if legal "rules" make entitlement ownership clear than if legal "standards" leave ownership uncertain).

[3] *See* Hasen (2010: 162); Theodore Eisenberg and Miller (2015: 34); Ayres (2005: 11);Melvin A. Eisenberg (2005); Avraham (2004: 296); Frank (2005: 26); Parchomovsky and Siegelman (2004: 97–98); Tor (2007: 27); Baird (2013: 158); Thaler (2000: 140); Merrill (2012: 159); Guttel (2007: 1402); Depoorter and Tontrup (2012: 682); Ulen (2004: 36); Kreutzer (2006); Fennell (2007: 1417); Thel and Siegelman (2010: 1188); Jois (2009); Peppet (2003); David A. Hoffman and Wilkinson-Ryan (2010); Lehavi (2006); Melvin A. Eisenberg (2005: 1002); Fennell (2005); Peppet (2004); Ayres and Goldbart (2001: 14–15); Korobkin (2014). *Cf.* Listokin (2005)(citing Farnsworth's article as evidence that the efficient result is not always obtained even when the number of parties is small); Komesar (2001: 43)(citing Farnsworth's article to bolster the claim that higher stakes may not lead to post litigation bargaining).

[4] For such a claim, see, e.g., Kuperman (2011: 273) (arguing that winners will not sell their rights unless paid an astronomical amount dubbed an "acrimony" or "commensurability premium" and that protecting an unwilling seller with a property rule can result in an anticommons block to efficient use). *But see* Ayres and Madison (1999: 52) (arguing that an explicitly alienable injunction may encourage negotiation).

[5] *See, e.g.*, Epstein (1998); Epstein (1997); Smith (2004b); Chang (2015b).

> ultimatum experiments, bargainers in real life communicate directly with one another and have ample opportunity to discuss their disagreements and negotiate an acceptable compromise."[6]

Lewinsohn-Zamir (2001: 233) also stresses the point that "bargaining under a property rule, in contrast to bargaining under a liability rule, will usually be carried out *in advance* — that is to say, before any breach of the entitlement owner's rights has occurred. Therefore, we should not fear the same degree of animosity that can obstruct successful bargaining conducted ex post (i.e., after such a breach), before the filing of a lawsuit, or around an existing court order" (emphasis added). Given the stakes involved in property scholarship, this article will empirically test the no-bargaining hypothesis in the trespass context.

Farnsworth's article invited other critiques as well. The first defense by rational choice theorists is that perhaps courts in those nuisance cases assign the entitlements correctly, thus no deal (Huang 2000: 469; Richard A. Posner 2001: 283–284). In addition, Farnsworth looked into concluded appellate cases, whereas it is rational for parties to negotiate before, not after, the conclusion of appeal procedures to save expenses (Richard A. Posner 2001: 283–284). Farnsworth's interviewees are most likely convenient samples, and thus the generality of the finding is questionable (Ayres and Madison 1999: 52; Huigens 2001: 555; Richard A. Posner 2001: 283–284). Moreover, there are other interview-based studies and anecdotes that show that parties do sometimes successfully bargain after litigation.[7] More importantly, Farnsworth's tiny sample suffers from the selection bias. That is, people who are strongly averse to bargaining away their entitlements are the ones who litigate to a reported appellate judgment (Laycock 2011b: 33). It is well-known that most disputants settle before bringing the dispute to courts. Hence, the hurdle to post-litigation bargaining (or the sheer lack of any bargaining) is not the animosity created by

[6] *See also* Lewinsohn-Zamir (2014: 392); Smith (2004a: 1044) (promoting bargaining ex ante also avoids the problems of rancor that beset negotiations ex post.)

[7] Laycock (2011b: 32) points out that, among others, Eduardo Peñalver's unpublished samples of restrictive covenants cases show that parties do bargain after litigation. Fischer (2010: §33.2 at 301 n.48) points out evidence that defendants would buy themselves out of expensive injunctions.

litigation itself but the (selectively few) parties' pre-existing tendency not to bargain.

To date, Farnsworth's article remains the only research that empirically examines whether litigation *itself* obstructs bargaining. There are, however, a few researches that try to understand the post-litigation dynamics better. Rosenthal (2007) provides a detailed historical account of a famous nuisance case in England in the second half of the nineteenth century, finding that bargaining took place between the parties for decades after the litigation. Shmueli (2015b), in interpreting an observational study in post-divorce litigation in Israel,[8] finds that litigation does not stop highly emotional couples from bargaining with each other. Nevertheless, as Shmueli (2015b: 1201–1211) recognizes, the institutional environment of Jewish family law (and divorce procedure in particular) is very different from that of nuisance law. Given the import of this issue, there should be more studies on the Coase-Farnsworth divide. This empirical paper aims to contribute to the debate.

Perhaps the lack of observational studies should not be *that* surprising, as data are hard to come by. As pointed out above, lack of post-litigation bargaining itself is not a clear sign of inefficiency. Courts may have assigned entitlements to the right party. To identify a mis-allocation, empiricists need to have an objective criterion that can be used to measure the efficiency of the court-administered allocation. Yet researchers usually have less information regarding cases than courts do. Even after solving the aforementioned problem, scholars need to find a reliable way to keep track of bargaining between parties after litigation. Unlike lawsuits, deals are usually confidential and not in public records.

To avoid these pitfalls, this observational study uses data on trespass litigation and the following transactions in Taiwan. Taiwan adopted the Torrens registration system (Chang, Chen, and Wu 2016). Transfers of property rights have to be registered to be effective. Thus, if the losing party buys the land from the winning party, the transactions will be on public records, available for purchase for academic purposes. This (partly) solves the tracking issue.[9]

[8] The empirical article cited by Shmueli (2015b) was written by Amihai Radzyner in Hebrew and published in 35 Hebrew University of Jerusalem Law Review 5 (2015). For more information on Israel's post-divorce litigation and the *get* system, see Shmueli (2015a).

[9] Note, however, that bargaining via contracts such as leases is still not observable. But this

In addition, in the trespass context, courts in Taiwan have no discretion in re-allocating entitlements; instead, barring valid contractual or property relations between the two parties that give the defendant a subsidiary right to possess (Chang 2015a), courts have to rule in favor of the record landowners. In other words, the legal rule in such cases is completely insensitive to the efficiencies at stake in a dispute. This ensures that at least in some cases, the post-litigation entitlement allocation would be ex post inefficient.[10]

More specifically, the sampled trespass cases are a non-entity party (a natural person) who is the record landowner suing another non-entity party who possessed the land without permission and constructed buildings on the land. An ex post allocatively inefficient decision would be to rule for eviction and tearing down the house if the house is more valuable to the possessor than the land is valuable to the landowner. As the fair market values of the buildings and land at the time of the litigation can be estimated ex post as rough proxies for the economic values of the two parties, a scholarly judgment on efficiency could be made. By examining whether land values and building values correlate with the bargaining result, we could cast light on the rationality of the post-litigation dynamics between the two parties.

Since rational parties should bargain under the shadow of the law (Mnookin and Kornhauser 1979), one would wonder why parties did not settle when the outcome is so predictable. The first reason is that the court-adjudicated compensation trespassers have to pay landowners is much below market value. Thus, if the use value for trespassers is around market value, it makes financial sense for trespassers just to be sued and stay around the land during the litigation. (Losers in Taiwan do not have to compensate winners their attorney fees.) Moreover, while plaintiffs are surely to win, enforcement of the court verdicts would take time, as court marshals consider using force to evict trespassers as the last resort.

In addition, in 2010–2015, in only about 40% of the civil cases did defendants hire attorneys (in our data, 41%). Pro se defendants may not realize that they do not have a case. Negotiation after the court of the first instance

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means that successful bargaining is likely to be more than what we can observe.

[10] Always ruling in favor of the record landowner could be ex ante efficient, as it incentivizes unauthorized bad-faith possessors to give up conversion and seek voluntary transactions.

renders a decision (the context we study) is feasible probably because defendants, especially pro se ones, realize that they indeed do not have rights to stay.

In short, we find that successful post-litigation bargaining follows roughly 5% of the natural person versus natural person trespass lawsuits. The difference of land value minus building value negatively correlates with successful bargaining. Both are statistically significant and intuitive. Defendants represented by attorneys during litigation are associated with a higher likelihood of consummated deals. People in rural areas appear to be more inclined to post-litigation bargaining than those in urban regions. While we are not able to test Farnsworth's behavioral conjectures, our data reveal that not all litigating parties refuse to talk to each other after the judicial proceedings and some did reach a deal. Moreover, the success of bargaining correlates with factors that could be explained by the traditional law and economics framework.

Like Farnsworth, we interviewed several attorneys who represent the plaintiffs and defendants in cases where post-litigation bargaining was successful. We learned from them that the transaction prices after litigation are not always market value, but around the official land values (about 70% of market values). The reason is that court-administered enforcement would be lengthy, sometimes brutal, and plaintiffs preferring a quick and peaceful resolution are willing to take a concession.

The rest of this article proceeds as follows: Part II elaborates our empirical strategy. Part III summarizes the data sets. Part IV reports the findings and discusses their implications. Part V concludes.

II. INSTITUTIONAL SETTING

The key legal feature in this study is that in Taiwan (like in China and Japan), ownership of land and ownership of buildings are separate. Owners of buildings (being it a one-family house or a factory) do not necessarily have property rights over land. In the sampled court cases, the de jure landowners sue the trespassing possessors who have de jure or de facto ownership of the building.[11] Land

[11] Regarding de facto ownership (or, right of de facto disposal, as it is literally called in Taiwan), see

registration is mandatory, while building registration is optional. Among the 365 observations in our data set, we are sure that 178 buildings (49%) are not registered, while 12 (3%) are. We do not know whether the buildings in question are registered in all other cases. The possessors failed to register the buildings either because they do not know that they could do so or because they are unable to, as they cannot present certificate of the right to use land to the registry, which is one of the required documents.

Why do people become possessors? As judges do not need to judge whether the possessors are good faith or bad faith to resolve the case, there is scant information on this matter. Nonetheless, from the transcripts excepted by courts we know that many trespassers claim that there were agreements between parents or ancestors of the two parties, and such agreements form the basis of their land use. (This argument is untenable, as contracts do not run to third parties.) In some cases, former tenants or borrowers stayed on the land after their contracts with the owners expire. Several examples of boundary encroachment cases are included as well.[12] Among the 166 observations in which the length of possession is available, the median time of possession is 14 years (standard deviation: 16).

The entitlement held by the landowners is very clear under the Taiwan Civil Code and the court jurisprudence. Plaintiffs can prove land ownership by presenting the official registration certificate. Defendants who cannot establish their contractual or property use rights will be evicted and ordered to pay unjust enrichment to the plaintiffs, as the possessors have used the land for free. (In all the sampled cases, plaintiffs/landowners prevail.) The possessors in these cases all own buildings on top of plaintiffs' land. Thus, the restitution duty of the evicted possessors also includes demolishing the building. If defendants refuse to do so, court marshals will tear down the constructions and request the defendants to reimburse the expense.

Parties would bargain after the litigation if the court decision is not allocatively efficient. If possessors value the building more than landowners value the plot, the former would purchase the land from the latter. If the existing building has positive value for the landowner (it has negative value if the landowner is going to sell the land to real estate developers), the landowner can waive the demolition obligation or even compensate the possessor, as part of the means to induce defendants to go away voluntarily. Nonetheless, as described above, most of the studied buildings are unregistered; thus, we are not able to

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Chang and Smith (2015).

[12] For boundary encroachment law in Taiwan, see Chang (2016). For an empirical study of how judges in Taiwan used the equity power given by the new Civil Code, see Chang (2014).

track whether such transactions have taken place. Again, this shows that the 5% post-litigation, successful negotiation rate is an under-estimate.

To give the readers more contextual knowledge of what happened in those trespass cases, we summarize the facts and legal reasoning of a typical case, in which the two parties reached a deal after the litigation. In a case in New Taipei City (about 3 million residents),[13] the record landowner sued three separate defendants who lived in separate houses on the land. All defendants countered that their families have lived in the houses for more than 40 years; the houses were built by the defendants' relatives. By the time, the land was owned by the "Lu Family Ancestral Worship Association", a unique civil association whose main purpose is to worship the ancestors in the Lu family. The defendants claimed that the head of the association at the time consented the construction of these buildings, as "all Lu family members can live on the land." The plaintiff did not deny such claims. The court's ruling is pretty straight-forward: the plaintiff is the record owner and the defendants are not lease tenants or holders of property rights, so the buildings have to be torn down and the land returned to the plaintiff. This case exemplifies trespass disputes that arise because of title search problems: defendants believe that they have contractual or property rights to use the land while they don't.

To give another example, in which no successful post-litigation bargaining was recorded, the plaintiff who lives in the most expensive neighborhood in Taiwan sued his two neighbors.[14] The two neighbors each occupied less than 5 square meters of the plaintiff's land, as their kitchens and garage encroached over the boundary. The defendants both countered that they have relied on the survey conducted by the registry office more than three decades ago. The two parties disputed about what the old survey actually found. Eventually, the court ruled that based on the contemporary survey the defendants did encroach the boundary and they had no right to use the plaintiff's land. Thus, the encroaching constructions must be removed. This case exemplifies trespass disputes that arise because of survey problems: defendants do not realize that they occupy their neighbors' land while they do.

[13] The case number, literally translated, is Banqiao District Court Year 100 Zhong Su Zi No. 289 Decision.
[14] The case number, literally translated, is Taipei District Court Year 100 Su Zi No. 4155 Decision.

III. EMPIRICAL STRATEGY

A. *Simple Tallying*

One basic empirical question this article seeks to answer is how often post-litigation bargaining leads to successful deals between the two parties. Without contending which judicial decisions are ex post allocatively inefficient, we matched the court case data with the real estate registry data to examine the frequency of successful deals. A drastic 0% would be strong evidence for Farnsworth's thesis, whereas, say, 90% successful bargaining rate would be a definitive win for the hard-core Coasean. A moderate result would be hard to interpret without context and call for further analysis.

Ideally, we would be able to single out those allocatively inefficient cases and focus on whether those cases led to successful bargaining. After all, there are no economic or behavioral reasons to expect that efficient allocation by the court would be changed by the litigating parties afterwards. Nevertheless, the economic values (also called reservation value) of the two parties are unobservable; thus, we cannot judge whether the courts' rulings are allocatively inefficient. Comparing the market values of the buildings and parcels under dispute is a reasonable alternative. For lack of detailed hedonic characteristics of the buildings under dispute, we are not able to estimate their market value accurately. Thus, we are hesitant in declaring any case as allocatively efficient and excluding it from future analysis. This constraint forces us to include all cases, allocatively inefficient or not, in the analysis. Hence, the successful bargaining rate we calculated is surely *under-estimated*, as many cases in the denominator are allocatively efficient, and thus would not have led to any deal.

B. *Regression Framework*

Whether there is successful post-litigation bargaining can be used as the dependent variable in a logistic regression model, which would identify variables that could predict the result. This observational study cannot identify causal relations.[15] The goal of using the regression framework is to uncover

[15] In a future study, we will conduct a laboratory experiment to make causal examination of the

correlations between successful post-litigation bargaining and factors that could capture critical elements in the theories of traditional law and economics and behavioral law and economics. More specifically, allocative efficiency could be partially reflected in the variables on estimated market values of buildings and land. Transaction costs increase with the number of plaintiffs and defendants. Statistical significances of these variables (with the expected signs) suggest that post-litigation exchanges (or lack of) are rational.

Three sets of variables are included in the regression model to shed light on Farnsworth (1999)'s animosity thesis. A dummy variable on whether the two parties bargained before litigation could inform us whether they were on friendly terms before litigation. Included also are dummy variables that control for levels of economic development, based on the conjecture that the extent of urbanization may affect social norms — rural social norms contain mechanisms that may prevent the formation of animosity during litigation and reduce the ill effect of animosity in post-litigation bargaining. Attorney representation may also affect the emotion of the parties. Our experience of reading tens of thousands of court decisions that usually excerpt the transcripts of both parties' claims and debates in open court suggests that pro se parties often resort to compassion and common-sense justice, and their debates are usually more heated. By contrast, represented parties focus on legal matters and are thus more cool-headed. If our personal observation is generalizable, cases with parties represented by attorneys are less likely to create animosity than those with pro se parties. Perhaps the role of defendant attorneys is more important, because defendants are always the losing parties in our data set (they should more or less expect losses coming…), and thus pro se defendants may tend to more vigorously defend themselves with extra-legal arguments than others who counter-claim through the mouth of professionals.

The literature cited above conjectures that the endowment effect may also contribute to the lack of negotiation. We agree with Klass and Zeiler (2013) and Zeiler (2016) that the endowment effect as known in the legal literature is better called the "endowment theory," which posits that "ownership sets one's reference point, the movement from which triggers either a perceived gain or loss, and that people perceive the transfer or sale of endowments as losses" (Klass and Zeiler 2013: 4). The trespass litigation setting studied in this article does not trigger a perceived gain on the landowners' side. As mentioned above, all the plaintiffs/landowners won the lawsuits we studied thanks to the accurate and legally binding Torrens registration system. They knew all along that they clearly

Farnsworth thesis.

had titles, and the court agreed. There might be a small uncertainty in some cases as to whether defendants might be entitled to possess. We suspect that the effect would be at most weak. In other words, even if the endowment theory is right (this is contested by Zeiler 2016), landowners' willingness to accept would have been increased at the time they became owners, not after litigation. Therefore, in this empirical study, we do not examine the role of endowment.

Sub-section 1 introduces hedonic regression models as the method to assess the market values of land and describes how building values were estimated. Sub-section 2 describes the set-up of the logistic regression model.

1. *Estimating Market Values of Land and Building*

As the Taiwan Civil Code treats buildings and land as separate real estates (Chang, Chen, and Wu 2016), we assess the values of them separately. Land in the Taiwan context literally means the soil, not including constructions of any kind. The estimated market value of land would be fairly accurate. Chang, Chen, and Lin (2016), using the same real estate transaction price data set, find that market value of land in Taiwan is highly predictable when the size, zoning, transacting month, etc. are taken into account. Table A.1 in the Appendix shows that the R^2 of the hedonic regression model is close to 0.8.

More specifically, we first run an ordinary least squares regression, clustered by 364 towns/districts, with robust standard errors. The dependent variable is sale prices. The independent variables control for the land size, 9 types of zoning, transaction months, and the number of plots involved. Only simple land sales are included. That is, excluded are sales of buildings alone and those of buildings and land, with or without accompanying sales of parking spaces. The hedonic regression mode that is used to estimate the fair market value for land[16] takes the following form:

$$P_i = \alpha + \beta A_i + \theta N_i + \delta Z_i + \eta M_i + \gamma S_i + v_i \qquad (1)$$

where P is natural log of sale prices. A is natural log of land area; N is natural log of the number of land plots involved; Z are the 8 zoning dummies that capture 9

[16] Note that as no price data are available before August 2012, half of our observations, the pre-August 2012 ones, have to make do with their estimated value in August 2012.

types of zoning (see Table 2 for details);[17] *M* are dummy variables indicating the month of the transaction. *S* are a series of dummies indicating the towns or cities where the plots are located. *v* is the error term. The coefficients to be estimated are $\alpha, \beta, \delta, \theta, \eta, and\ \gamma$. (The regression results are reported in model (1) in Appendix Table 1.) Finally, we plugged the hedonic characteristics of the plots under dispute into equation (1) and used the coefficients to estimate their market value.

The estimated market values of buildings would not be as accurate as those of land, mainly because the written court decisions do not always provide sufficient information regarding the buildings. Age, building materials, and total floor areas are often unavailable from the court decisions and elsewhere. The court decisions do provide sufficient information for us to be sure that the buildings included in our regression analysis are not low-rise or high-rise condominiums. Instead, they are houses or house-like constructions. Hence, we computed the average sale prices of houses in each town/district and used this average sale price in the town/district of the buildings in question as their estimated values.

One may picture the houses used in our data as the high-priced one-family houses in American suburbs and question whether using them in the computation over-estimates the values of the buildings under dispute. The buildings in our dataset, however, do not fit this profile. Note again that land and buildings on top of land are separate estates. A high-priced one-family house in Taiwan would be sold *along with the underlying land*. Houses that are sold alone — the data points used in our computation — will be much less valuable for lack of the clear right to use the underlying land, just like those buildings observed in the court decisions. In the real estate transaction price data, there are 184,954 houses sold along with the underlying land, while there are only 4,427 houses sold alone ($\fallingdotseq$42:1). Two-sample *t*-tests show that the differences between these two types of house in terms of unit prices and total prices are statistically significant at the 0.001 level. (You bet that the former type of houses

[17] Note that we are not able to identify the zoning of every land parcel under disputes. For those plots, we ran a separate hedonic regression model without the zoning dummies. The regression results are reported in model (2) in Appendix Table 1.

is much more valuable and more likely to be located in more developed regions of Taiwan.) Hence, the buildings we studied and the houses compared are similar in the important aspect that both lack the clear title to sit on the land.

2. *Logistic Regression Model*

Combining the estimated land values and building values with the information gathered from court decisions, we run a logistic regression model, clustered by case, with robust standard errors. The dependent variable equals 1 if plaintiffs sold titles to defendants after litigation; 0 if otherwise. The independent variables include aforementioned theoretically interesting factors and other controls. Only observations with buildings under dispute are included in the regression. In other words, observations with other constructions such as fences are excluded, as our proxy for building values would be way off the mark when the construction is tombs, fish ponds, or parking facilities. The logistic regression model takes the following form:

$$D= \alpha +\beta_1 \textbf{LV\_BV}+\beta_2 \textbf{ATT} +\beta_3 \textbf{NUM} +\beta_4 \textbf{STRA} +\beta_5 \textbf{YR} +\beta_6 \textbf{PRE} + \varepsilon \qquad (2)$$

where **LV_BV** is the estimated land value minus the estimated building value;[18] **ATT** represents whether plaintiffs and defendants are represented by attorneys; **NUM** is dummy variables on whether the numbers of plaintiffs and defendants equal one (=1) or more than one (=0); **STRA** is two dummy variables capturing the three levels of economic development and one dummy variable indicating whether the land in question is located in an urban planning region;[19] **YR** is two dummy variables controlling for the three different years of court ruling; and **PRE** is whether the two parties attempted bargaining before litigation.

[18] We have also tried to run land value and building value as two variables (and, alternatively, replaced land value with the size of the land — the Pearson correlation coefficient of these two variables is 0.6.). The results are essentially the same.

[19] We gathered this information regarding urban planning region on central and local government websites based on the unique identification land number.

IV. DATA

A. *Court Decisions*

The following protocols were used to identify trespass cases with the factual pattern needed. All judicial decisions regarding property disputes in Taiwan are published on-line, available for free to everyone. Lawplus, the West Law of Taiwan, downloaded cases from the official website of the court and used advanced text-mining techniques to analyze and categorize these cases. From Lawplus, our keywords[20] yield hundreds of cases between January 1, 2011 and December 31, 2013.[21]

During the hand-coding process, several types of cases were excluded:

1) One of the parties is a corporation, a common-interest community board, or a government agency, as entities may be less subject to the animosity of litigation and human bias and heuristics (Cf. Arlen and Tontrup 2015); corporations may change names or use subsidiary or affiliated corporations or foundations to purchase the rights instead; government agencies have more than monetary concerns; and corporation managers and government officials have personal goals that they may put in front of the entities' interests.

2) The defendant/trespasser did not build anything permanent on the land. Without buildings owned by the trespasser, it is difficult to compare the economic value of the trespasser with that of the landowner. We also expected that trespassers without an immovable property on the land who lose the eviction lawsuit could easily pack and go. That is, trespassers generally lose very little even if they do not bargain with the winning landowners. Land is also generally more valuable than chattels fixated on land.

3) Cases involve complicated fact patterns (e.g. multiple illicit possessors built multiple buildings across multiple plots owned by different persons), as the

[20] We limited the search results to substantive rulings related to real estate disputes that contain a reference to Article 767 of the Taiwan Civil Code (the cause of action for trespass). In addition, we added search terms "tearing down construction and returning land OR returning land NOT returning construction NOT plaintiffs pay all filing fee NOT condominium board."

[21] We started the coding project in 2014, and we wanted to leave ample time for the litigating parties to bargain, so we end the search period at the last day in 2013. We did not plan to go earlier than 2011, as some of the earlier cases will not show the parties' full names for privacy reasons.

court decisions do not provide sufficient information for us to break the case into several observations (that is, some key variables would be missing).[22]

Eventually, we coded 335 cases, producing 365 observations. One observation represents one "bargaining occasion" — the typical case being that one illicit possessor (or co-possessors) negotiates with one landowner (or co-owners) to preserve the former's building on the said land. In two scenarios, one case produces multiple observations: 1) When a landowner or multiple co-landowners in one case sued multiple illicit possessors who occupied separate parcels, every parcel is one observation. Here, possessors clearly would bargain with landowners individually over their separate real properties. 2) When a landowner or multiple co-landowners in one case sued one illicit possessor whose multiple buildings occupied separate parcels, every building is one observation, as possessors need not bundle the bargaining of the multiple buildings together. In other words, although there is only one possessor, she could decide to bargain for land use rights for one building but not others; thus, there is more than one bargaining occasion.

From the court decisions, we coded the unique land identification number and parties' names in order to match with other data. Also chronicled are the length of the illicit possession, whether the construction was registered, and the hedonic characteristics of the building. We had planned to use them to estimate how valuable the buildings are, but information regarding these three factors is often missing. Most of the variables used in the logistic regression models were also coded from the judicial decisions. We also tracked whether these cases were appealed to the court of the second instance and the Supreme Court. Summary statistics for the court case data are reported in Table 1.

Table 1 Summary statistics of key variables from court cases and land registration records

Variable types and names	Percentage
Defendants bought land ownership from plaintiffs after litigation	4.9

[22] From the registry data (see below), we know that none of these complicated cases has led to successful bargaining. It should not be surprising, as transaction costs in this type of cases are higher.

(broadly defined)	
Defendants bought land ownership from plaintiffs after litigation (narrowly defined)	4.4
Plaintiff represented by attorneys	72.3
Defendant represented by attorneys	40.8
Parties bargained before litigation	6.9
Economic development strata†	**100**
Level 1 (includes strata 1, 2 and 3)	76.7
Level 2 (includes strata 4 and 5)	19.5
Level 3 (includes strata 6 and 7)	3.8
Year	**100**
2011	46.0
2012	38.9
2013	15.1

† Strata 1 to 7 represent central business district, industrial and business districts, growing towns, towns with traditional industries, less developed towns, aging towns, and least developed towns, respectively.[23]

B. *Registration Record*

Taiwan adopts the Torrens registration system (Chang, Chen, and Wu 2016). Information regarding legal rights is chronicled by the unique land identification number. That is, if one knows the land number, she could go to a land registry office or go to a commercial website authorized by the land registration office to look up the property right information of that parcel. To protect privacy, the competent agency recently decided to hide certain personal information when a random person requests the information. As researchers working in public institutions, we were able to acquire copies of "land ownership certificates" and "transaction records" with all critical information unhidden. Most importantly, the full names of the current and former owners (or *usufructuaries*) enable us to ascertain whether, when, and through what kind of transfer the losing defendant /illicit possessor acquires certain property rights from the winning

[23] The stratum classification is based on Hou et al. (2008), following which, the 309 towns and boroughs (under counties and cities, respectively) in Taiwan can be categorized into seven tiers based on socio-demographic variables (including age, education, industrial structure, occupation, and personal income). Stratum 1 is the most developed, while 7 is the least.

plaintiff/landowner. The land ownership certificates also chronicle, among others, the land size.

C. *Real Estate Transaction Price Data*

The data on real estate transaction prices that we use for constructing the hedonic prediction of land values are from the Department of Land Administration of the Ministry of the Interior, which keeps records of all land transaction prices since August 2012, and are available for free download. Our data contain hedonic characteristics of real properties and sale prices reported from August 2012 to June 2015. After filtering out observations that have missing or suspicious values (such as a 1-dollar sale) and those with zoning designations that are not featured in our court case data set, we have 304,529 observations for land sales, as reported in Table 2, and 4,239 observations for house sales, as described in Table 3. The summary statistics for the estimated land and building values are listed in Table 4.

Table 2 Summary statistics for Land Transaction Data

Panel A: Continuous variables

Variable names	N	Mean	Median	St. Dev.	Max.	Min.
Price	304,529	12,067	3,140	59,478	9,544,010	10
Land area	304,529	1,570	391	5,658	1,250,871	0.01
Number of transacted land	304,529	1.7	1	1.3	9	1

Note. Price in thousands in Taiwan Dollar (1 USD= 30 NTD). Land area in square meters. N in this panel corresponds to Model 2 in Appendix Table A.1. We only included land parcels whose zoning designations appear in our court case data set.

Panel B: Categorical variables

Variable names	**Percentage**
Zone	**100**
urban (industrial)	1.98
urban (residential)	22.21
urban (other)	18.95

urban (business)	2.65
urban (agricultural)	12.99
non-urban (agricultural—not prime)	9.02
non-urban (preserved)	9.46
non-urban (agricultural—prime)	18.11
non-urban (village)	4.61
Economic development strata	**100**
1	6.09
2	14.40
3	32.77
4	17.49
5	20.08
6	6.81
7	2.36

Note: N(=296,740) in this panel corresponds to Model 1 in Appendix Table A.1. We only included transactions that involve only land. Therefore, urban business zoning, for instance, is "under-represented."

Table 3 Summary statistics for houses transaction prices

Variable names	N	Mean	Median	St. Dev.	Min.	Max.
Price	4,239	4,112	3,228	4,213	2	154,000

Note. Values in thousand in NT dollars.

Table 4 Summary statistics for estimated real estate values

Variable types and names	N	Mean	Median	St. Dev.	Min.	Max.
Estimated market value of the land under dispute (ln)	327	25,305	6,147	52,390	66.8	558,888
Estimated average market value of houses in the same or neighboring towns(ln)	327	5,446	2,974	6,262	5.5	217,00

Note. Values in thousands of NT dollars.

V. FINDINGS AND DISCUSSIONS

A. *5% of the Parties Made a Deal After Litigation*

Among the 365 observations in our dataset, in 18 observations (5%), defendants successfully acquired land ownership after the lawsuit. In 1 special

case, the plaintiff and the defendant are co-tenants. The defendant, after losing the trespass lawsuit, petitioned (in a follow-up case) the court for co-ownership partition, and the second court ordered partition in-kind so that the defendant could preserve her building. As the defendant did not acquire property rights from the plaintiff through voluntary bargaining, this observation is not counted as one of the 18 successful instances of bargaining. In 3 other observations, the plaintiffs and defendants are also co-tenants and the two parties after the trespass litigation partitioned the land by voluntary agreement, mediation, and settlement.[24] As these partition agreements are voluntary, these three observations are counted as successful bargaining.

There are two borderline observations. In one of them, the plaintiff sold the title to the defendant's attorney, whose last name is the same as the defendant's. The attorney may be the defendant's escrow, or perhaps the attorney saw the value of the land while handling the case. In the other observation, the plaintiff sued on behalf of all the other co-tenants, and the defendant bought the share of one of the co-tenants not named as the plaintiff in the case. In the regression analysis reported in Section C, we report the same regression model using two slightly differently coded datasets. In the first one, the two borderline cases are counted as successful bargaining, while in the second they are counted as no deal.

B. *Plaintiff's Willingness to Sell*

Parties did settle even after three rounds of litigation. Farnsworth (1999) studied appellate cases. While our data contains district court cases, we track the whole history of these cases. 12 of the 18 successful instances of bargaining took place after the defendant lost in the district court. 4 of the 6 appeals led to post-litigation settlement. Parties in 2 cases could nail down a deal after the ruling by the Supreme Court of Taiwan. Table 5 reports the length of the post-litigation negotiation. While a few parties took merely a few months to strike a deal, a few parties spent substantially more time in negotiating and

[24] Regarding the differences in partition by voluntary agreement, mediation, and settlement in Taiwan, see Chang (2012).

further litigating. The parties have spent up to 485 days after the last court ruling to negotiate with each other before reaching a deal.

Table 5 Days between registration of ownership transfer and court ruling

Case number	District court ruling	Appellate court ruling	Supreme court ruling
1	41		
2	62		
3	70		
4	111		
5	†188		
6	310		
7	310		
8	367		
9	377		
10	377		
11	*398		
12	473		
13	*492	169	97
14	†634	236	
15	†727	564	
16	731	312	
17	760	**485**	
18	993	724	385
	All-case average: 414 No-appeal-case average: 257	All-case average: 415 No-appeal-case average: 399	All-case average: 241

Note: * marks the two borderline cases. † marks the three cases after which the two parties resolve the dispute through co-ownership partition. The cells show the number of days between registration of ownership transfer and court ruling. All-case averages only take into account cases that have entered the particular level of courts. (That is, the all-case average for the Supreme Court of Taiwan simply takes the mean of 97 and 385.) No-appeal-case average computes the average days of cases that were not appealed to a higher court. (That is, the all-case average for the appellate court takes the mean of 236, 564, 312, and 485.)

As we acquire land registration record in December 2014, given the lengthy negotiation shown in Table 5, haggling between parties whose cases were ruled

in 2013 and 2012 might still be on-going. Thus, it is not surprising that 12 of the 18 successful bargaining observations come from court cases rendered in 2011 while only 43% of the observations are from 2011 cases. This also suggests that the real successful bargaining rate would be higher than what we found.

C. *Traditional and Behavioral Law and Economics Are Both (Partly) Right*

Traditional rational-choice law and economics could aptly explain part of the findings. As the logistic regression results reported in Table 6 show, the more valuable land is as compared to buildings, the less likely that there is successful post-litigation bargaining. This variable is statistically significant at the 0.1% or 1% level. These results are as expected, as post-litigation transactions would occur only when the entitlement allocation is inefficient. In addition, the single plaintiff dummy variable is statistically significant at the 5% or 10% level. While the single defendant dummy variable is statistically significant at the 10% level in only one model, the positive signs in both models are also as expected. Transaction costs are lower when one person alone on the buying and selling side can make the call.

Our findings can also be interpreted as consistent with Farnsworth (1999)'s claim that animosity hinders post-litigation bargaining. Defendants represented by attorneys are associated with successful bargaining (statistically significant at the 1% or 5% level), while attorney representation on the plaintiff side is nowhere near statistical significance. As pointed out above, plaintiffs as the record landowners only need to show the judge the land registration record to establish their claims — not much emotion needed to win their cases. Defendants, by contrast, face an uphill battle and, had they not retained attorneys, would be more likely to show emotion (such as blaming the plaintiffs for breaking promises that their ancestors made) that creates animosity. In other words, attorneys usually make the case less personal, more legalistic. Defendant attorneys realize that in trespass cases handled by professional judges, emotion is useless in winning. Instead, attorneys focused on "cold" legal arguments. From reading the written court decisions that often includes claims and transcripts of cross-examinations by two parties, we do observe this difference between pro se

defendants and represented defendants. In the latter scenario, lack of animosity during the litigation contributes to later successful bargaining.

A few caveats, however, are in order. First, overly aggressive attorneys might be the source of animosity,[25] but we are unable to observe whether attorneys were aggressive in court; neither can we observe and compare the level of animosity across cases. Second, attorney representation is not random.[26] It may very well be the (unknown) reasons that lead to the defendants' hiring an attorney in the first place that make a successful deal possible. Nonetheless, we do not think that defendants hired attorneys because they were thinking ahead about post-litigation bargaining. Rather, successful post-litigation bargaining is the side effect of attorney representation.

Finally, social norm of harmony may also affect the results. Shorter social distance reduces the transaction costs of pre- and post-litigation bargaining. If social distance in rural areas is shorter than that in urban areas, the less economically developed the town in which the dispute took place, the more likely the parties could make a deal after the litigation. The sign and magnitude of the coefficients of the economic development variables, the pre-litigation bargaining dummy variable, and the urban zoning dummy variable support this claim. In particular, the dummy variable that equals 1 when the towns are the least economically developed is statistically significant at the 10% level in both models. This partial-out effect has taken into account the relative values of the land and the building under dispute, so the story behind this variable might be the following:

In rural areas, as compared to urban areas, people act under the shadow of the communitarian social norm. Animosity is less likely to arise from the lawsuits in the first place. Even after litigation, neighbors of the disputants may intervene to mediate and make the deal happen. While we do not have data on which parties bargain but fail to consummate a deal after litigation, the courts' decisions do indicate (perhaps under-inclusively) whether parties tried to negotiate with each other before going to court. Table 7 demonstrates that

[25] Taiwan's civil procedure law does not allow aggressive discovery; that is, one party cannot request the other party to present all kinds of documents. In other words, defendants cannot anger plaintiffs by aggressive discovery.

[26] As background, in 2010–2015, about 60% of the plaintiffs and about 40% of the defendants were represented by attorneys in the court of first instance in Taiwan.

parties from the less developed towns are more likely to bargain before litigation (p=0.085). The finding corroborates with our conjecture.[27]

Table 6 Logistic Regression Results

	(1)		(2)	
	D bought from P=1; otherwise=0 (Broadly defined)		D bought from P=1; otherwise=0 (Narrowly defined)	
Variables	Coef.	Robust std. error	Coef.	Robust std. error
Estimated market value of the land under dispute (ln) minus estimated average market value of houses in the same or neighboring towns (ln)	-0.508**	(0.156)	-0.538***	(0.145)
=1 if plaintiff represented by attorneys	0.501	(0.677)	0.905	(0.806)
=1 if defendant represented by attorneys	2.149**	(0.775)	1.713*	(0.710)
=1 if only one plaintiff; =0 if more plaintiffs	1.507*	(0.703)	1.219+	(0.720)
=1 if only one defendant; =0 if more defendants	1.054+	(0.619)	0.985	(0.691)
=1 if in urban planning zone	-0.778	(0.807)	-0.128	(0.827)
Economic development strata (baseline=1)				
Level 2 (includes strata 4 and 5)	0.781	(0.925)	0.968	(0.945)
Level 3 (includes strata 6 and 7)	2.156+	(1.175)	2.394+	(1.245)
Year (baseline=2011)				
2012	-1.033	(0.893)	-0.887	(0.910)
2013	-0.382	(0.903)	-0.184	(0.962)
=1 if parties bargained before litigation	1.124	(0.926)	1.213	(0.932)
Constant	-5.830***	(1.722)	-6.347**	(1.951)
Observations	327		327	
Number of clusters	301		301	
pseudo R-sq	0.276		0.251	

Note: +, *, **, and *** denote statistical significance at the 10%, 5%, 1%, and 0.1 % levels, respectively. Robust standard errors are in parentheses; clustered by case. In model (1), dependent variable in 18 observations equals 1, while that in 16 observations equal 1 in model (2). The 2 borderline observations that make

[27] Ramseyer (2015: 422), in studying the effect of social capital in Japan, argues that people in high social-capital regions less often sue. If less economically developed regions in Taiwan have higher social capital, our finding would also be consistent with the Ramseyer finding.

the difference in these two models are discussed in Part V.A.

Table 7 Economic development and pre-litigation bargaining

	Pre-litigation bargaining		Total
Economic Development strata	No	Yes	
1 (central business district, industrial	263	17	280
and business districts, growing towns)	93.9%	6.1%	100%
2 (towns with traditional industries,	66	5	71
less developed towns)	93.0%	7.0%	100%
3 (aging towns, least developed towns)	11	3	14
	78.6%	21.4%	100%
Total	340	25	365
	93.2%	6.9%	100%

Pearson $chi^2(2) = 4.9338$; $p=0.085$.

VI. CONCLUSION

Farnsworth (1999)'s influential article has been cited in different ways. First, scholars cited it as evidence that litigants do not bargain after lawsuits. If this were true, the Coase theorem loses its most important empirical foundation. Entitlement allocation, by courts or by other institutes, would matter a great deal for economic efficiency. Our empirical study on trespass lawsuits in Taiwan shows that successful deals can be struck after litigation, even after the two parties have fought all the way to the supreme court. At the very least, the Coase theorem is not always wrong. Our findings also show that the bargaining outcome correlates with factors that can be explained by transaction costs and economic efficiency. Perhaps the Coase theorem usually holds.

Scholars have also used Farnsworth (1999) as a spring board for advancing behavioral law and economics theory. Certain statistically significant variables in the logistic regression model appear to be consistent with the behavioral theory that animosity created by litigation may hinder post-litigation bargaining.

The dialogue and debate must continue. The Coase Theorem deserves a more solid empirical foundation.

Appendix Table A.1 Hedonic regression models for land values

	(1)		(2)	
	Price (ln)		Price (ln)	
	Coef.	Robust Std. Error	Coef.	Robust Std. Error
Area of land (ln)	0.874***	(0.008)	0.789***	(0.010)
Number if plot (ln)	0.036**	(0.012)	0.068***	(0.016)
Zoning dummies				
urban (residential)	0.405***	(0.052)		
urban (other)	-0.707***	(0.065)		
urban (business)	0.841***	(0.064)		
urban (agricultural)	-0.952***	(0.057)		
non-urban (agricultural—not prime)	-1.326***	(0.065)		
non-urban (preserved)	-2.101***	(0.080)		
non-urban (agricultural—prime)	-1.137***	(0.056)		
non-urban (village)	-0.342***	(0.057)		
Sale month dummies	Yes		Yes	
Town dummies	Yes		Yes	
R^2	0.775		0.691	
N	296,740		304,529	

Note: +, *, **, and *** denote statistical significance at the 10%, 5%, 1%, and 0.1 % levels, respectively. Robust standard errors are in parentheses; clustered by town/city.

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