Litigation Costs in Civil Cases: Multivariate Analysis

Report to the Judicial Conference Advisory Committee on Civil Rules

Emery G. Lee III
&
Thomas E. Willging

Federal Judicial Center
March 2010

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Executive Summary

This report presents the results of multivariate analysis of factors associated with litigation costs reported in a national, case-based survey of attorneys of record in federal civil cases terminated in the fourth quarter of 2008. Separate models were estimated for plaintiff and defendant attorney respondents. Both models explain a large proportion of the variation in litigation costs. Factors associated with *higher* litigation costs, even after controlling for other factors, for both plaintiff and defendant attorneys, included:

- higher monetary stakes in the underlying litigation;
- longer processing times (time from filing to disposition);
- trial dispositions (bench and jury);
- electronic discovery requests from both sides of the case;
- disputes over electronic discovery;
- greater case complexity;
- summary judgment practice;
- concern over the nonmonetary stakes in the underlying litigation; and
- representation by larger law firms.

A few factors explained variation in the plaintiff attorney model but not in the defendant attorney model, including the number of expert depositions conducted and hourly billing. Similarly, some factors, including the number of types of discovery reported and contentiousness between the parties, explained variation in the defendant attorney model but not in the plaintiff attorney model.

Background[1]

At the request of the Honorable Mark R. Kravitz, chair of the Judicial Conference's Advisory Committee on Civil Rules ("Committee"), the Federal Judicial Center ("FJC") conducted a national, case-based survey of attorneys' experiences in federal civil cases terminated in the last quarter of 2008 ("the closed cases"). This report, prepared for the Committee's March 2010 meeting, presents multivariate analysis of litigation costs in the closed cases.[2]

The point is obvious, but we state it for clarity's sake: the model estimates presented in this section are only as good as the respondents' reports of costs in the closed cases. Because there is reason to think that parties' costs in a given case will differ depending on whether they are plaintiff or defendant, we estimate separate models for plaintiff attorneys' and defendant attorneys' reported costs. A large sample size permits us to estimate two models with a large number of explanatory variables, even after accounting for respondents not able to report costs in the closed cases. The analysis was limited to the reported costs of respondents working in private law firms; a relatively small number of government and in-house cost reports have been excluded. More information about the analysis is provided in the Methods section, *infra*.

The following hypotheses were tested:

H_1: The higher the stakes, the higher the costs will be, all else equal.

H_2: The longer a case takes to reach termination, the higher the costs will be, all else equal.

H_3: Cases terminated by trial will have higher costs than other dispositions, all else equal.

H_4: Cases in which a request is made for electronically stored information ("ESI") will have higher costs than cases in which no such request is made, all else equal. In the following models, parties are identified by their role with respect to ESI; the baseline for comparison is a case without a request for production of ESI.

H_{4a}: Producing parties will have higher costs than parties in non-ESI cases, all else equal.

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1. We acknowledge the valuable assistance of a number of FJC staff members in various stages of preparing this report, especially Jill Gloekler and Margaret Williams.

2. For background, a description of the research and sampling design, and preliminary findings, see Emery G. Lee III & Thomas E. Willging, *Federal Judicial Center National Case-Based Civil Rules Survey: Preliminary Report to the Judicial Conference Advisory Committee on Civil Rules* (Federal Judicial Center 2009) [hereinafter *Preliminary Report*].

H_{4b}: Requesting parties will have higher costs than parties in non-ESI cases, all else equal.

H_{4c}: Parties both producing and requesting ESI will have higher costs than parties in non-ESI cases, all else equal.

H_5: Disputes over ESI will increase overall costs, all else equal.

H_6: Cases with more reported types of discovery will have higher costs than cases with fewer reported types of discovery, all else equal.

H_7: Each expert deposition conducted will be associated with higher costs, all else equal.

H_8: Each non-expert deposition conducted will be associated with higher costs, all else equal.

H_9: Each third-party subpoena issued in the case will be associated with higher costs, all else equal.

H_{10}: The more factually complex the case, as reported by respondents on a seven-point scale, the higher the litigation costs, all else equal.

H_{11}: The more contentious the relationship among the parties, as reported by respondents on a seven-point scale, the higher the litigation costs, all else equal.

H_{12}: Cases in which the court ruled on any summary judgment motion will have higher costs, all else equal.

H_{13}: Cases in which the attorney respondent reported that nonmonetary stakes were of primary or dominant concern to the client will have higher costs, all else equal, than cases where nonmonetary stakes were less important.

H_{14}: Cases in which the plaintiff makes class allegations will have higher costs, all else equal.

H_{15}: The larger the firm of the attorney representing the client, the higher the costs, all else equal.

H_{16}: Attorneys billing by the hour will report higher costs than attorneys using other billing methods (the most common other method being contingency), all else equal.

Several control variables were also included in the analysis. Because different types of cases may have different costs, the models include controls for the most common nature-of-suit categories in the sampled cases: Contracts, Torts, Civil

Rights, Consumer Credit, Labor, and Intellectual Property. The baseline estimates for the models are for the approximately 10% of sampled cases that do not fall into these six categories ("Other").

The models also include a variable to capture each district's judicial workload (weighted case filings per judge in fiscal year 2008) and circuit control variables. The former variable was included after discussion at the October 2009 meeting of the Committee. The latter variables are best understood as controls for any circuit-level differences in cost. The baseline circuit-for-cost estimates (i.e., the circuit without a dummy variable in the models) is the Eleventh Circuit. Because so few respondents (16 total) in the D.C. Circuit (in effect, in the District Court for the District of Columbia) were able to report cost and/or stakes information, it was impractical to include those respondents with the circuit control variables. The following analyses are thus limited to respondents in closed cases in district courts other than that for the District of Columbia.

Plaintiff Attorney Model

Table 1 displays the results of the multivariate analysis of plaintiff attorneys' estimates of costs in the closed cases. Fully 828 law-firm attorneys' responses to the survey are included in the analysis. The overall model is statistically significant at the 0.001 level and explains approximately 62% of the variation in the dependent variable.

Most of the hypotheses outlined above are supported by the results. The next two sections will discuss the hypotheses in the order they are listed in the previous section. Unless otherwise stated, the following results are statistically significant at the 0.05 level or better.

Higher stakes cases (H_1) and cases with longer processing times (H_2) were associated with higher reported costs for plaintiffs, even after controlling for other factors. A 1% increase in stakes was associated with a 0.25% increase in total costs, and a 1% increase in case duration is associated with a 0.32% increase in costs, all else equal. Cases terminated by trial (H_3) also had higher costs, approximately 53% higher, than cases that did not terminate by trial, all else equal.

The electronic discovery explanatory variables (H_4) show an interesting pattern. The coefficients for parties who were requesting parties only (H_{4b}) and were both requesting and producing parties (H_{4c}) in the closed cases are statistically significant. Thus, all else equal, plaintiffs who only requested ESI reported approximately 37% higher costs, and those who both requested and produced ESI reported approximately 48% higher costs. But plaintiffs who only produced ESI (H_{4a}) did not report statistically significant higher costs than respondents in cases without ESI, once other factors were accounted for. As discussed in the October 2009 report to the Committee, however, only 4% of plaintiff attorney respondents indicated that their client was a producing-only party with respect to ESI.[3] Only 2.3% of plaintiff attorneys in the multivariate regression were producing-only parties. The key point, however, is that for plaintiffs, electronic discovery was associated with higher costs for all parties requesting ESI, even after controlling for other factors, and parties who both requested and produced ESI had higher relative costs than those who requested only.

As expected, disputes over ESI (H_5) were associated with higher costs. For each dispute over ESI reported by respondents, the party had approximately 10% higher costs, all else equal.

Higher levels of discovery in the closed cases (H_6) were not associated with higher costs for plaintiff attorney respondents. But each expert deposition conducted in the closed case (H_7) was associated with approximately 11% higher

3. *See id.* at 20–21, Fig. 8.

costs, all else equal, and each non-expert deposition (H_8) was associated with approximately 5% higher costs, all else equal. The number of third-party subpoenas reported (H_9) was not associated with higher costs.

Factual complexity, as reported by respondents, was associated with higher costs (H_{10}). For each one-unit increase in reported case complexity (measured on a seven-point scale), plaintiff costs increased by about 11%. For plaintiffs, however, contentiousness between the parties (H_{11}) was not associated with higher costs.

Any ruling on a summary judgment motion (H_{12}) was associated with plaintiffs' reported costs increasing by approximately 24%, controlling for other factors, including case duration.

The importance of nonmonetary stakes to the client (H_{13}) increased plaintiff costs by approximately 42%, all else equal. However, plaintiff costs were not higher in cases in which the plaintiff raised class allegations (H_{14}).

Firm size also mattered for plaintiff costs (H_{15}). In general, larger firms had higher costs, all else equal. In the results displayed in Table 1, firm size is represented by seven dummy variables for the following firm sizes: 2–10 attorneys; 11–25 attorneys; 26–50 attorneys; 51–100 attorneys; 101–250 attorneys; 251–500 attorneys; and more than 500 attorneys. The baseline category for comparison is the costs for a sole practitioner. For example, a plaintiff attorney in a firm of more than 500 attorneys had costs more than double (109% larger) those of a sole practitioner, all else equal. The one exception was for firms of between 251 and 500 attorneys—although that finding was likely the result of the small number of plaintiff attorneys from firms of that size included in the multivariate regression ($n = 12$).

Hourly billing was associated with higher reported costs for plaintiff attorneys (H_{16}). Plaintiff attorneys charging by the hour reported costs almost 25% higher than those using other billing methods (primarily contingency fee), all else equal. Almost one in three plaintiff attorneys reporting usable cost information reported using hourly billing.

With respect to the control variables, judicial workloads were unrelated to reported costs, and only one circuit had costs higher than the baseline circuit, all else equal. Tort cases had lower reported costs than the "Other" baseline, controlling for other factors, but none of the other nature-of-suit controls were associated with higher costs for plaintiff attorneys.

Defendant Attorney Model

Table 2 displays the results of the multivariate analysis of defendant attorneys' costs in the closed cases. Fully 715 defendant attorneys' responses to the survey are included in the analysis. The overall model is statistically significant at the 0.001 level and explains approximately 76% of the variation in the dependent variable.

Again, higher stakes (H_1) and longer processing times (H_2) were associated with higher costs, even after controlling for other factors. A 1% increase in stakes is associated with a 0.25% increase in reported costs, and a 1% increase in case duration is associated with a 0.26% increase in costs, all else equal. Cases terminated by trial (H_3) had costs about 24% higher than cases not terminating by trial, all else equal.

The electronic discovery explanatory variables (H_4) for defendant attorneys show a different pattern than for plaintiff attorneys. The coefficients for defendants who were requesting-only (H_{4b}) or producing-only parties (H_{4a}) in the closed case are not statistically significant. Thus, one cannot conclude that these parties had higher costs than parties in non-ESI cases, once factors such as case complexity, firm size, and stakes, among others, are controlled for. Once again, however, parties both requesting and producing ESI (H_{4c}) in the closed case had higher costs, by approximately 17%, than defendants in cases without ESI, even after controlling for other factors.

As with the plaintiff attorney model, disputes over ESI (H_5) in the defendant attorney model were associated with higher costs. For each dispute over ESI reported by respondent, the defendant had approximately 10% higher costs, all else equal.

Higher levels of discovery in the closed cases (H_6) were associated with higher costs for defendant attorney respondents. Each additional reported type of discovery was associated with approximately 5% higher costs, all else equal. Moreover, the number of non-expert depositions conducted in the closed case (H_8) was associated with approximately 5% higher costs, all else equal. However, the number of expert depositions conducted in the closed case (H_7) was not associated with higher costs for defendants, once other factors were accounted for. The number of third-party subpoenas reported (H_9) was also not associated with higher costs.

Factual complexity, as reported by respondents, was associated with higher costs (H_{10}) for defendants. For each one-unit increase in reported case complexity (measured on a seven-point scale), defendant costs increased by approximately 13%, all else equal. For defendants, in addition, contentiousness between the parties (H_{11}) was associated with higher costs. For each reported one-unit increase in contentiousness (measured on a seven-point scale), costs increased by 8%, all else equal.

Any ruling on summary judgment (H_{12}) increased defendant attorney respondents' reported costs by approximately 22%, controlling for other factors, including case duration.

The importance of nonmonetary stakes to the client (H_{13}) increased defendant costs by about 25%, all else equal. However, defendant costs were not higher in cases in which the plaintiff raised class allegations (H_{14}).

Firm size also mattered for defendant costs (H_{15}). In general, again, larger firms had higher costs than smaller firms, all else equal. The baseline category for comparison is the cost for a sole practitioner. Thus, for example, a defendant represented by an attorney in a firm of more than 500 attorneys had costs more than double (156% larger) those of a sole practitioner, all else equal.

For defendant attorneys, hourly billing was not associated with higher costs (H_{16}). This finding makes sense once one considers that fewer than 5% of defendant attorneys reporting usable cost information reported using a billing method other than hourly billing.

With respect to the control variables, judicial workload was not associated with higher costs. Only two circuits had higher costs than the baseline circuit, all else equal. In terms of nature-of-suit categories, Intellectual Property cases had costs almost 62% higher, all else equal, than the baseline "Other" category. None of the other nature of suit controls was associated with higher costs.

Methods

Given the survey's sampling design, an unweighted, ordinary-least-squares regression was performed,[4] using robust standard errors, with STATA 11 software. The dependent variable in the ordinary-least-squares regression models is the natural logarithm of the attorney respondents' estimate of costs (sometimes called a log-linear model). Log transformation of a cost (or time) dependent variable is relatively common for at least two reasons. First, the multivariate regression model enables one to predict the cost of a case based on the explanatory variables in the model, but without log transformation of the dependent variable, the model may predict *negative* cost estimates for some cases. Log transformation of the dependent variable precludes negative cost estimates.[5] Second, log transformation of the dependent variable is preferable because it does not treat incremental increases in absolute cost the same. Without log transformation, the model would treat any increase in costs of, for example, $5,000, as the same—whether that increase was from $5,000 to $10,000 (a 100% increase) or from $1,000,000 to $1,005,000 (a 0.5% increase). The log transformation instead treats cost increases in percentage terms.[6]

This advantage of using the log-linear model carries over to the interpretation of the regression coefficients. For explanatory variables that are not log transformed (in these models, only case duration in days and stakes in dollars were log transformed), multiplying the unstandardized regression coefficients (included in the tables) by 100 yields the effect of a unit increase in the explanatory variable on costs as a percentage. Thus, if the coefficient for the trial variable (whether the case was terminated by trial) is .373 (assuming that it is statistically significant), then the effect on the costs of the closed case of a trial disposition, compared to all other dispositions, is an increase in costs of 37.3%, all else equal. For explanatory variables that have been log transformed (case duration in days, the stakes in dollars), the unstandardized regression coefficients can be understood as elasticities, i.e., as the percentage increase in the dependent variable of a 1% increase in the explanatory variable. For example, if the unstandardized regression coefficient for the log of case duration is .24, then a 1% increase in case duration is associated with a .24% increase in cost, all else equal.

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4. *See* Christopher Winship & Larry Radbill, *Sampling Weights and Regression Analysis*, 23 Soc. Methods & Res. 230, 242 (1994) ("When sampling weights are only a function of [explanatory] variables included in the model to be estimated, unweighted OLS will be the appropriate course to take."). In the present study, attorneys in cases that terminated by trial and in cases that lasted more than four years were oversampled. Both case duration and trial termination were included in the regression models as explanatory variables. For an explanation of the sampling design, see *Preliminary Report*, *supra* note 2, at 77–78.
5. Paul David Allison, Multiple Regression: A Primer 154 (Sage 1999).
6. *Id.*

Many of the explanatory variables included in the models were dichotomous ("dummy") variables, which take the value of one in specified circumstances (e.g., whether the case was terminated by trial) and zero in all other circumstances. The following variables were modeled as dummy variables: the ESI variables (producing only, requesting only, or both producing and requesting); the summary judgment variable (whether the court made any ruling on summary judgment); the class allegation variable (whether the plaintiff made class allegations); the size-of-firm variables; the hourly billing variable; the nature-of-suit category variables; and the circuit-level control variables. The following variables were modeled as ordinal-level variables: the discovery level variable; the case complexity variable; and the contentiousness variable. Finally, the following were modeled as continuous-level variables: case duration in days (log transformed); stakes in dollars (log transformed); the number of ESI disputes reported; the number of expert and non-expert depositions and third-party subpoenas reported; and weighted case filings per judge.[7]

7. Weighted case filings per judge as reported, on a district-by-district basis, in *2008 Federal Court Management Statistics*, compiled by our colleagues in the Statistics Division at the Administrative Office of the U.S. Courts.

Table 1: Regression Results, Dependent Variable Logged Costs Reported by Plaintiff Attorneys in Closed Cases

Variable	Coefficient	Robust S.E.	P-Value
Stakes (logged)	0.251	0.032	0.000
Duration (logged)	0.318	0.069	0.000
Trial termination	0.527	0.109	0.000
ESI			
Producing only	0.342	0.231	0.140
Requesting only	0.372	0.106	0.000
Both producing and requesting	0.484	0.123	0.000
Disputes	0.104	0.035	0.003
Discovery level	0.008	0.020	0.694
Number of expert depositions	0.113	0.026	0.000
Number of non-expert depositions	0.052	0.009	0.000
Number of third-party subpoenas	-0.010	0.009	0.253
Factual complexity	0.107	0.027	0.000
Contentiousness	0.027	0.024	0.263
Summary judgment ruling	0.236	0.102	0.021
Nonmonetary stakes dominant concern	0.424	0.128	0.001
Class allegations	0.445	0.231	0.055
Firm size			
2–10 attorneys	0.379	0.097	0.000
11–25 attorneys	0.647	0.142	0.000
26–50 attorneys	0.762	0.181	0.000
51–100 attorneys	1.020	0.193	0.000
101–250 attorneys	1.031	0.267	0.000
251–500 attorneys	0.253	0.489	0.606
> 500 attorneys	1.087	0.284	0.000
Hourly billing	0.248	0.106	0.019

Table 1 (continued)

Variable	Coefficient	Robust S.E.	P-Value
Nature of suit			
Torts	-0.362	0.183	0.048
Contracts	-0.230	0.161	0.154
Consumer	-0.277	0.200	0.165
Civil Rights	-0.155	0.172	0.369
Labor	-0.233	0.205	0.257
Intellectual Prop.	0.371	0.239	0.121
Weighted case filings (FY2008)	0.000	0.000	0.640
Circuit			
1st	0.302	0.273	0.269
2d	0.222	0.180	0.217
3d	0.172	0.184	0.349
4th	0.070	0.180	0.698
5th	0.111	0.165	0.501
6th	-0.212	0.211	0.313
7th	0.223	0.192	0.244
8th	0.143	0.208	0.491
9th	0.596	0.170	0.000
10th	0.259	0.189	0.172
Constant	3.209	0.540	0.000

$N = 828$; F (df = 41, 786) = 43.50 ($p = 0.000$)
$R^2 = 0.623$

Table 2: Regression Results, Dependent Variable Logged Costs Reported by Defendant Attorneys in Closed Cases

Variable	Coefficient	Robust S.E.	P-Value
Stakes (logged)	0.251	0.025	0.000
Duration (logged)	0.260	0.058	0.000
Trial termination	0.243	0.088	0.006
ESI			
Producing only	0.076	0.096	0.428
Requesting only	0.213	0.137	0.123
Both producing and requesting	0.169	0.084	0.044
Disputes	0.102	0.035	0.004
Discovery level	0.051	0.017	0.003
Number of expert depositions	-0.023	0.026	0.377
Number of non-expert depositions	0.048	0.005	0.000
Number of third-party subpoenas	0.002	0.007	0.740
Factual complexity	0.135	0.025	0.000
Contentiousness	0.075	0.020	0.000
Summary judgment ruling	0.223	0.073	0.002
Nonmonetary stakes dominant concern	0.252	0.092	0.006
Class allegations	0.227	0.139	0.104
Firm size			
2–10 attorneys	0.608	0.155	0.000
11–25 attorneys	0.846	0.162	0.000
26–50 attorneys	0.858	0.168	0.000
51–100 attorneys	1.155	0.181	0.000
101–250 attorneys	1.136	0.172	0.000
251–500 attorneys	1.411	0.175	0.000
> 500 attorneys	1.560	0.185	0.000
Hourly billing	0.407	0.213	0.056

Table 2 (continued)

Nature of suit			
Torts	0.038	0.153	0.806
Contracts	-0.049	0.150	0.742
Consumer	-0.238	0.202	0.239
Civil Rights	-0.017	0.144	0.936
Labor	-0.121	0.161	0.452
Intellectual Prop.	0.623	0.217	0.004
Weighted case filings (FY2008)	-0.000	0.000	0.968
Circuit			
1st	0.173	0.171	0.313
2d	0.389	0.141	0.006
3d	-0.006	0.141	0.968
4th	0.167	0.139	0.231
5th	0.056	0.113	0.617
6th	-0.164	0.136	0.227
7th	-0.120	0.148	0.420
8th	0.145	0.160	0.366
9th	0.436	0.135	0.001
10th	-0.175	0.151	0.248
Constant	3.096	0.471	0.000

$N = 715$; F (df = 41, 673) = 58.31 ($p = 0.000$)
$R^2 = 0.757$