

Rush to Judgment? Trial Length and Outcomes in Patent Cases¹

Mark A. Lemley,² Jamie Kendall,³ & Clint Martin⁴

Most patent trials in the last thirty years have been before juries. While the vast majority of patent cases settle before trial, the fact that a jury waits at the end of the road affects most aspects of patent litigation, from where parties file their cases to who they sue (and in what groups) to what discovery the parties consider important to the fight over whether particular doctrines are questions of law or questions of fact. Litigants on both sides go to great lengths to try to get to an edge before the jury, hiring jury consultants, practicing their cases before mock juries, and choosing districts and judges based on how they will manage the case before the jury.

For the last decade the received wisdom in the patent bar has been that the best place for patentees to file their suit is the Eastern District of Texas.⁵ One of us recently challenged that wisdom in an empirical study, pointing out that the popularity of the district has slowed proceedings there considerably.⁶ But the Eastern District remains the most popular venue for patent plaintiffs, in significant part because of the perception that the juries there are pro-patentee and that the judges manage their cases in ways that patentees find favorable. In

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² William H. Neukom Professor, Stanford Law School; partner, Durie Tangri LLP.

³ J.D. candidate, Stanford Law School.

⁴ Legal Department, Google Inc. Thanks to Tim Malloy for raising the issue with us and to John Allison, Colleen Chien, Chris Cotropia, Rose Hagan, Lee Petherbridge, David Schwartz, and participants at the Empirical Patent Studies workshop at Cornell Law School for helpful comments.

⁵ See, e.g., Yan Leychkis, *Of Fire Ants and Claim Construction: An Empirical Study of the Meteoric Rise of the Eastern District of Texas as a Preeminent Forum for Patent Litigation*, 9 YALE J.L. & TECH. 193, 195, 204 (2007); Megan Woodhouse, *Shop 'til You Drop: Implementing Federal Rules of Patent Litigation Procedure to Wear Out Forum-Shopping Patent Plaintiffs*, 99 *Geo. L.J.* 227 (2010).

⁶ Mark A. Lemley, *Where to File Your Patent Case*, 38 *AIPPLA Q.J.* 401 (2010).

particular, the Eastern District of Texas has a reputation for fast trials, and there is a general perception in the patent bar that quick trials (especially involving multiple defendants) favor patentees.⁷ Fast trials prevent defendants from dragging the case into a technical morass of prior art. They keep the jury's attention focused on the patentee's invention, not on all the other things the defendant may have developed. And they are particularly tough for defendants in multi-defendant cases, who must share their time and can't present individual counter-narratives.

In this paper, we set out to test whether the conventional wisdom is correct that short trials favor patentees. Using the Lex Machina database,⁸ we collected data on every patent trial conducted in the United States between January 1, 2000 and June 30, 2011. We first report outcome statistics, then discuss the role of trial length, and finally the role of jurisdiction in driving outcomes.

I. Outcomes

There were 624 patent trials leading to 679 separate judgments during this period. Overall, patentees won 59.9% of those trials, accused infringers won 32.9%, and 7.2% resulted in split decisions.⁹ We report the data in Table 1.

⁷ See, e.g., Tim Malloy, *Trial Time in the ED Texas – One Size Fits All, Or Does It?* (working paper 2011) (surveying judges and finding significant variation in the time allotted for patent trials, and noting that plaintiffs favor the Eastern District of Texas because of its short trials); Megan Woodhouse, *Shop 'til You Drop: Implementing Federal Rules of Patent Litigation Procedure to Wear Out Forum-Shopping Patent Plaintiffs*, 99 *Geo. L.J.* 227 (2010).

⁸ www.lexmachina.com.

⁹ To win a patent case, a patentee must have a patent claim held valid and infringed. Infringement of a single valid claim was sufficient to count as a patentee win; we did not attempt to make a judgment as to whether the patentee won on most issues or got a large or small damage award.

Table 1: National Trial Outcomes

Variable	Number of Variable Type	Total Number	% of Total Number	Mean Time	Median Time	Standard Deviation
Total Bench	158	624	25.3%	5.74	5	4.22
Total Jury	466	624	74.7%	8.60	8	4.59
Bench for C Win ¹⁰	81	158	51.3%	5.74	5	4.33
Bench For CD Win	67	158	42.4%	5.40	5	4.12
Bench For C;CD Win	10	158	6.3%	8.00	7.5	3.28
Jury Trial for C Win	293	466	62.9%	8.32	7	4.60
Jury Trial for CD Win	138	466	29.6%	8.87	8	4.60
Jury Trial for C;CD Win	35	466	7.5%	9.83	9	4.14

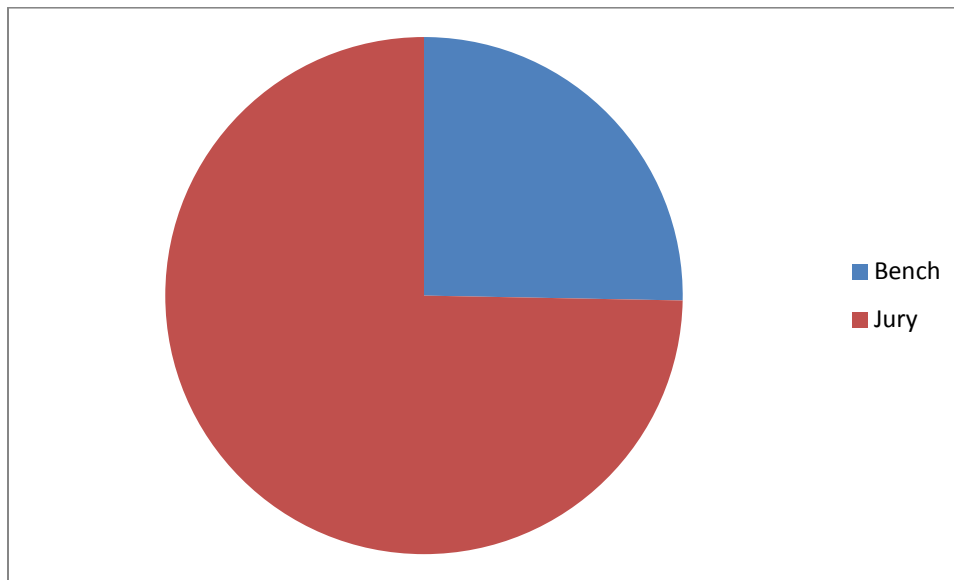
Of those 624 trials, 466, or 74.7%, were tried before juries, the balance before judges.

The mixed decisions (which we count as separate judgments) often involved two parties suing each other for patent infringement; if one party won the whole case, that was a win for that patentee but also a loss for the other patentee. Mixed decisions also frequently involved cases in which multiple patents were asserted by a single party; if one patent was held invalid or not infringed while a claim in a second patent was held valid and infringed, we deemed it a mixed decision.

¹⁰ Throughout this paper we report wins for “Claimants (C)” – patentees – and “Claim Defendants (CD)” – accused infringers. We do this rather than study plaintiff and defendant wins because a significant fraction of patent suits are declaratory judgment actions in which the plaintiff is the accused infringer.

Figure 1

Jury vs. Bench Trials



This number may seem surprisingly low; patentees today virtually always request juries.¹¹ But there are certain circumstances in which juries are not an option, including lawsuits against the government and lawsuits under the Hatch-Waxman Act against generic drug manufacturers seeking only injunctive relief. And indeed as we will see, districts that get more generic pharmaceutical patent cases tend to have more bench trials.

Our findings strongly support the received wisdom that compared to judges, juries favor patentees.¹² Of the 158 bench trials, 51.3% ruled for the patentee, 42.4% for the accused

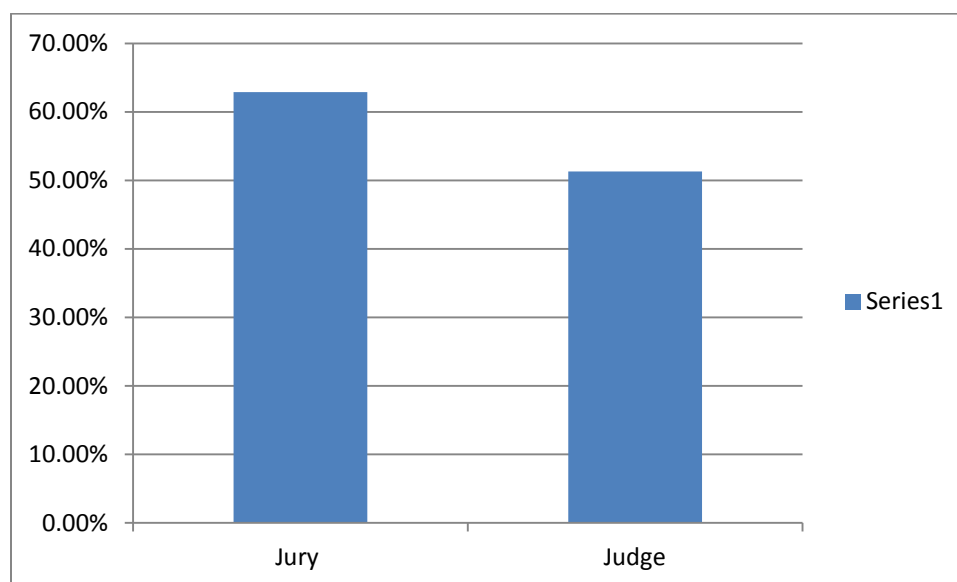
¹¹ That is a very recent development; as recently as 40 years ago less than 5% of patent cases were tried to juries. See John F. Duffy & Mark A. Lemley, *Why Do Juries Decide If Patents Are Valid?* (working paper 2013).

¹² Prior evidence to the same effect includes John R. Allison & Mark A. Lemley, *Empirical Evidence on the Validity of Litigated Patents*, 26 *AIPLA Q.J.* 185 (1998) (finding that patentees win on validity 55% of the time in bench trials and 67% before juries); Kimberly A. Moore, *Judges, Juries, and Patent Cases – An Empirical Peek Inside the Black Box*, 99 *Mich. L. Rev.* 365 (2000) (finding a similar disparity).

infringer, and 6.3% were split decisions. By contrast, of the 466 jury trials, 62.9% ruled for the patentee, 29.6% for the accused infringer, and 7.5% were split decisions. We report the data in Table 1.

Figure 2

Win Rate By Decisionmaker



The results are robust in the multivariate regressions. We report the various regressions in Appendix A.¹³ Jury trials are strongly correlated with rulings for patentees (coefficient of -.249, $p=0.005$).¹⁴ When we exclude mixed verdicts from the results (which we think is the

¹³ We used linear probability models in the regressions.

¹⁴ In our regression analysis, patentee wins are coded as a 1 and accused infringer wins as a 3 (mixed outcomes are coded as a 2). So a negative coefficient in the regression reflects a greater likelihood of patentee win, but in assessing magnitude of the effects, bear in mind that the range is from 1 to 3, not 0 to 1.

preferable approach, since mixed verdicts are rulings both for and against patentees) the findings are even stronger (coefficient of $-.269$, $p=0.007$).¹⁵

One possible explanation is that there is something different about bench trials. There are two types of cases where a party cannot request a bench trial: generic pharmaceutical patent disputes in which only an injunction, not damages, are at issue, and proceedings against the U.S. in the Court of Claims.¹⁶ If patentees are systematically less likely to win those types of cases, the judge-jury disparity may be an artifact of these limitations. To test this, we re-ran our numbers excluding the pharmaceutical and ANDA cases. Not only did the disparity not disappear, it grew stronger: the coefficient grew to $-.429$ ($p=0.000$).

Patentees, then, are right to want jury trials.

Nor does it appear to matter how sophisticated the jury pool is about patents. To get at this question, we constructed a measure of patent-intensity by district based on the number of patents issued per capita to residents of that district.¹⁷ The most patent-intensive district is the Northern District of California, with 5.5 patents in force per thousand residents. The least patent-intensive is the District of Hawaii, with 0.3 patents per thousand residents. Among the five most popular litigation districts, the Northern District of California ranked first, with 5.5

¹⁵ We did not include other variables of possible interest in the multivariate regressions, such as technology category and the characteristics of individual patents, because the small number of trials would have prevented the results from having any possible predictive power.

¹⁶ 28 U.S.C. §1498.

¹⁷ We constructed this measure based on raw data collected by Michael Meehan. See Michael Meehan, *Untapped Inventive Potential in U.S. Communities*, available at http://works.bepress.com/michael_meehan/2/. Meehan collected data on patents by Metropolitan Statistical Measurement Area. We then converted MSMA data into judicial district, which in some cases required estimation of residents on each side of a district boundary, and determined the population of each district.

patents per thousand; the District of Massachusetts ranked 9th, with 2.3 patents per thousand; the District of Delaware ranked 17th, with 1.9 patents per thousand; the Central District of California ranked 43rd, with 1.2 patents per thousand; and the Eastern District of Texas ranked 73rd, with 0.6 patents per thousand.¹⁸ Nonetheless, the patent sophistication of the jury pool had no statistically significant effect on trial outcomes.¹⁹

II. Trial Times

On average, patent trials take approximately eight court days, though the actual trial times range from a low of one day to a high of 44 days.²⁰ But how long a trial takes is heavily dependent on whether or not the trial involves a jury. Jury trials took an average of 8.60 days (and a median of 8 days), compared with an average of 5.74 days and a median of 5 days for bench trials.²¹ We present the data in Table 1.

Contrary to the conventional wisdom, however, the length of trial had no effect on outcome. Indeed, the trial times were virtually identical for patentee wins and accused

¹⁸ We report the full results in Appendix C. The fact that we have district fixed effects for five of the 60 districts that had at least one patent trial in our data set creates some risk of multicollinearity with district-based patents-per-thousand measure.

¹⁹ This may cast some doubt on the efficacy of proposals to allow district jury specialization. *See, e.g.,* Jeanne C. Fromer, *Patentography*, 85 *N.Y.U. L. Rev.* 1444 (2010).

²⁰ Trial events result in daily docket entries, so we can use Lex Machina to measure the number of days actually in trial, skipping days in which the court is dark or hearing other matters. We did not attempt to determine the number of hours of trial in any given day.

²¹ One possible explanation for this is that the docket reports for jury trials include the time the jury spends in deliberation, while judges do not devote trial days to deliberation, instead writing their opinions at some later time. We don't have a simple way to back out jury deliberation time, but we are skeptical that juries deliberate for an average of three days after a five-day presentation of evidence. So jury deliberation time is at most a partial explanation for this disparity.

infringer wins. Patentee wins took 7.76 days on average (and a median of 7 days), while accused infringer wins took 7.74 days (and a median of 7 days). Needless to say, this difference was not statistically significant even when no other complicating factors were included. It is not merely a failure to reject the null hypothesis out of statistical caution; our results suggest that there is simply no real relationship between trial time and outcome.

Split decisions took longer: 9.42 days on average, and a median of 9 days. This is not too surprising, since those cases are by definition likely to be more complicated, as they tend to involve multiple patents or patent owners on both sides.

While as noted above bench trials are significantly shorter than jury trials, both bench and jury trials are approximately the same length in patentee wins and accused infringer wins. Patentee wins in bench trials took slightly longer than accused infringer wins (mean of 5.74 days compared to 5.40 days for accused infringer wins), and patentee wins in jury trials took slightly less time (8.32 days compared to 8.87 days for accused infringer wins), but the differences are not statistically significant even when only trial length and bench v. jury are included.²² We present the results in Table 1.

Trial length can also be affected by the characteristics of particular trials. Trials with multiple patents, multiple defendants, or both can render a trial more complex and hence

²² To avoid possible collinearity between the jury trial and trial length variables, we ran these numbers including both sets and specific to jury trials and found no significant difference in the results.

longer. Accordingly, we included those in our multivariate regression, but they didn't change the significance of any of the trial outcome results.²³

III. Choice of Forum

A significant number of the 624 patent trials were held in just five districts: the Eastern District of Texas (77 trials), the District of Delaware (110 trials), the Northern District of California (33 trials), the Central District of California (25 trials), and the District of Massachusetts (28 trials). Together, those districts held more than 40% of the patent trials in the last ten years.

Different districts vary in the length of their trials, the percentage of bench trials, and in the outcomes of those trials. In the Eastern District of Texas, the vast majority of trials are before juries (72 out of 77 trials). Both bench and jury trials took well less time than average: 6.18 days for jury trials and 3.6 days for bench trials. Patentees won 1 of the 5 bench trials in the Eastern District of Texas, accused infringers won 3, and one case was a split decision. But because of the small number of cases these percentages don't seem particularly meaningful. Patentees won 70.8% of jury trials, accused infringers won 25%, and 4.2% were split decisions. We report the results in Table 2.

²³ We ran the regressions using actual trial length. We also ran the regressions using quartiles to control for heteroskedasticity in trial lengths, but the results were similar.

Table 2: Trial Outcomes in the Eastern District of Texas

Variable	Total Number of Variable Type	Total Number	% of Total Number	Mean Time	Median Time	Standard Deviation
Total Bench	5	77	6.5%	3.60	3	1.62
Total Jury	72	77	93.5%	6.18	6	2.12
Bench for C Win	1	5	20.0%	3.00	3	0.00
Bench For CD Win	3	5	60.0%	3.00	2	1.41
Bench For C;CD Win	1	5	20.0%	6.00	6	0.00
Jury Trial for C Win	51	72	70.8%	6.14	6	1.78
Jury Trial for CD Win	18	72	25.0%	6.11	5	2.86
Jury Trial for C;CD Win	3	72	4.2%	7.33	7	2.05

In the Northern District of California, 27 out of 33 trials were before juries. The bench trials were somewhat shorter than average, at 5.5 days, but jury trials in the Northern District of California took much longer: 12.7 days on average. Patentees won 2 of 6 bench trials in the Northern District of California, accused infringers won 3, and one case was a split decision. Again, because of the small number of cases these bench trial percentages don't seem particularly meaningful. Juries were far less favorable to patentees than in the Eastern District of Texas. In the Northern District of California, patentees won 44.4% of jury trials, accused infringers won 48.1%, and 7.4% were split decisions. We report the results in Table 3.

Table 3: Trial Outcomes in the Northern District of California

Variable	Total Number of Variable Type	Total Number	% of Total Number	Mean Time	Median Time	Standard Deviation
Total Bench	6	33	18.2%	5.50	4.5	3.15
Total Jury	27	33	81.8%	12.67	12	4.28
Bench for C Win	2	6	33.3%	7.00	7	5.00
Bench For CD Win	3	6	50.0%	4.33	4	0.47
Bench For C;CD Win	1	6	16.7%	6.00	6	0.00
Jury Trial for C Win	12	27	44.4%	13.75	12	5.46
Jury Trial for CD Win	13	27	48.1%	11.46	11	2.65
Jury Trial for C;CD Win	2	27	7.4%	14.00	14	2.00

In the Central District of California, 21 out of 25 trials were before juries. The bench trials were substantially shorter than average, at 3.75 days, and jury trials in the Central District of California took slightly less than average: a mean of 8.24 days. Patentees won 2 of 4 bench trials in the Northern District of California and accused infringers won 2. These numbers are too small to draw any meaningful conclusions about bench trials. Juries were generally favorable to patentees, though not quite as favorable as in the Eastern District of Texas. In the Central District of California, patentees won 66.7% of jury trials, accused infringers won 28.6%, and 4.8% were split decisions. We report the results in Table 4.

Table 4: Trial Outcomes in the Central District of California

Variable	Total Number of Variable Type	Total Number	% of Total Number	Mean Time	Median Time	Standard Deviation
Total Bench	4	25	16.0%	3.75	4	1.30
Total Jury	21	25	84.0%	8.24	7	5.00
Bench for C Win	2	4	50.0%	2.50	2.5	0.50
Bench For CD Win	2	4	50.0%	5.00	5	0.00
Bench For C;CD Win	0	4	0.0%	0.00	0	0.00
Jury Trial for C Win	14	21	66.7%	7.00	6.5	3.14
Jury Trial for CD Win	6	21	28.6%	8.50	7.5	4.43
Jury Trial for C;CD Win	1	21	4.8%	24.00	24	0.00

In the District of Delaware, 70 out of 110 trials (or 63.6%) were before juries, a far lower percentage than in the other districts we investigated. This is likely an artifact of the larger percentage of generic pharmaceutical patent cases in Delaware; as noted above, those cases are not tried to juries. The bench trials in Delaware were somewhat shorter than average, at 5.08 days, as were jury trials, at 7.96 days on average. Patentees won 57.5% of bench trials in the District of Delaware, accused infringers won 37.5%, and 5% were split decisions. Juries were somewhat less favorable to patentees than in the Eastern District of Texas. In Delaware, patentees won 55.7% of jury trials, accused infringers won 22.9%, and 21.4% were split decisions. Delaware was the only district of the five we broke out in which judges ruled for

patentees at a higher rate than juries, though the large number of split jury decisions may be a partial explanation. We report the results in Table 5.

Table 5: Trial Outcomes in the District of Delaware

Variable	Total Number of Variable Type	Total Number	% of Total Number	Mean Time	Median Time	Standard Deviation
Total Bench	40	110	36.4%	5.08	5	1.84
Total Jury	70	110	63.6%	7.96	8	2.86
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Bench for C Win	23	40	57.5%	5.09	5	1.69
Bench For CD Win	15	40	37.5%	4.60	5	1.58
Bench For C;CD Win	2	40	5.0%	8.50	8.5	1.50
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Jury Trial for C Win	39	70	55.7%	7.82	8	2.85
Jury Trial for CD Win	16	70	22.9%	8.19	8	3.11
Jury Trial for C;CD Win	15	70	21.4%	8.07	8	2.57

In the District of Massachusetts, 23 out of 28 trials were before juries. Both the bench and jury trials were substantially longer than average, at a mean of 7.80 days and 11.04 days, respectively. Patentees won 1 of 5 bench trials in the District of Massachusetts and accused infringers won 3; the final case was a split decision. But because of the small number of cases these percentages aren't meaningful. Juries were slightly less favorable to patentees than in the country as a whole. In the District of Massachusetts, patentees won 56.5% of jury trials, accused infringers won 39.1%, and 4.3% were split decisions. We report the results in Table 6.

Table 6: Trial Outcomes in the District of Massachusetts

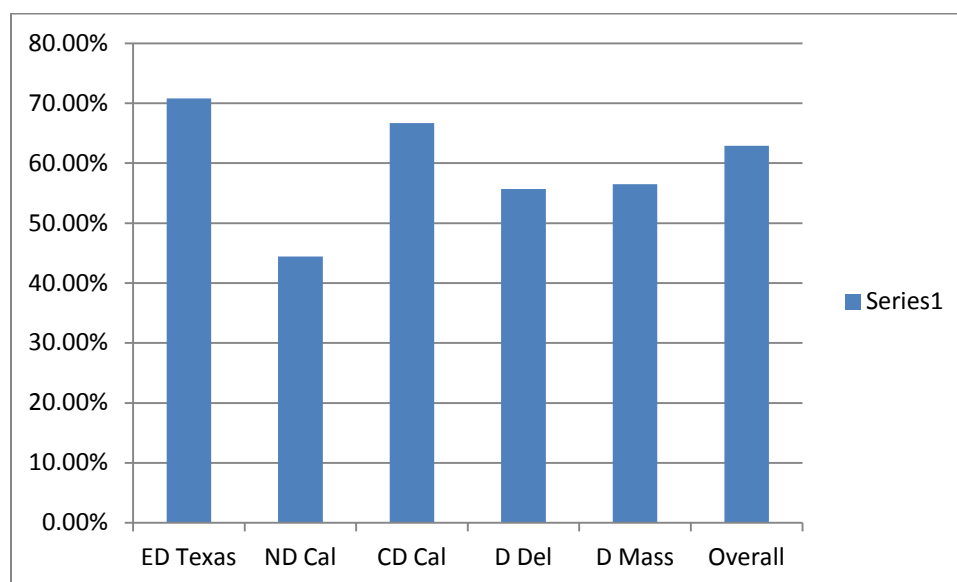
Variable	Total Number of Variable Type	Total Number	% of Total Number	Mean Time	Median Time	Standard Deviation
Total Bench	5	28	17.9%	7.80	5	5.64
Total Jury	23	28	82.1%	11.04	9	8.38
Bench for C Win	1	5	20.0%	3.00	3	0.00
Bench For CD Win	3	5	60.0%	7.67	5	6.02
Bench For C;CD Win	1	5	20.0%	13.00	13	0.00
Jury Trial for C Win	13	23	56.5%	12.85	9	9.92
Jury Trial for CD Win	9	23	39.1%	8.44	6	5.08
Jury Trial for C;CD Win	1	23	4.3%	11.00	11	0.00

The results show some substantial differences in trial outcomes by district, though the magnitude of those differences is smaller than some may have expected. In particular, the conventional wisdom that juries in the Eastern District of Texas always vote for patentees is not true. While juries in that district do find for patentees more often than average (70.8% compared to 62.9% overall), the difference is not huge, and as the multiple regression analysis in the Appendix shows, it is not statistically significant once we consider other factors (such as the number of patents, the number of defendants, whether a judge or a jury decided the issue, whether there were non-patent issues in the case, and whether the case resulted in a split decision. Similarly, while the Northern District of California seems to have a much lower jury win rate (44.4%, compared to 62.9% overall), the effects are not statistically significant in the

overall regression analysis, in part because of the small number of jury trials in the Northern District of California.

Figure 3

Jury Trial Win Rate By District



While the evidence shows some differences that are in line with conventional wisdom—patentees win more often before juries in the Eastern District of Texas and the District of Delaware than in the Northern District of California—it does not support the conclusion that the district in which a case is litigated significantly affects the likelihood that the jury will find for the patentee.²⁴

IV. Predicting the Length of Patent Trials

So far we have been trying (and failing) to predict the outcome of patent trials based on the length of those trials or their location. In this section, we reverse the process, and look at

²⁴ For discussion of technology-specific clustering of cases and how the jury pool in particular districts might affect it, see Jeanne C. Fromer, *Patentography*, 85 *N.Y.U. L. Rev.* 1444 (2010).

the determinants of trial time. Here, by contrast, we find abundant and strongly significant evidence of relationships. The fact that a trial is before a jury is a significant predictor of a long trial; all other things being equal, trying a case before a jury adds 3.04 days to the length of the trial ($p < 0.001$). The fact that a case is more complex also predicts a longer trial; adding an additional patent to the case adds 0.83 days holding other variables constant ($p < 0.001$), while adding an additional defendant to the case adds 0.38 days, all other things equal ($p = 0.012$). Adding non-patent issues to the case, by contrast, doesn't have a statistically significant effect. We report the results in Appendix B.

This evidence suggests it is likely that trial times will get shorter now that the America Invents Act of 2011 eliminated joinder of multiple defendants in a single case,²⁵ since the number of defendants per case is likely to drop significantly, simplifying each trial.²⁶

The district of choice also affects the length of trials. Conducting a trial in the Eastern District of Texas, the Central District of California, or the District of Delaware is significantly correlated with a shorter trial ($p < 0.001$, $p < 0.001$, and $p = 0.013$, respectively).²⁷ Conducting a trial in the Northern District of California is not significantly correlated with a longer trial ($p = 0.437$). The Northern District of California and the District of Massachusetts do, however, take longer on average than districts other than the five we broke out for analysis. Those

²⁵ 35 U.S.C. § 299.

²⁶ See, e.g., James Pistorino & Susan Crane, *2011 Trends in Patent Case Filings: Eastern District of Texas Continues to Lead Until America Invents Act Is Signed* (working paper 2012) (documenting a significant drop in the number of defendants per case since the AIA took effect in September 2011).

²⁷ Differentials were quite substantial (trials took 4.82 fewer days in the Eastern District of Texas holding other variables constant, 3.26 fewer days in the District of Delaware, and 2.84 fewer days in the Central District of California than in the District of Massachusetts).

remaining districts were associated with trials that were 2.07 days shorter, all else equal ($p=0.013$).

Curiously, the number of patents per thousand people in the jury pool was significantly correlated with a longer trial ($p<0.001$).²⁸ It is not clear what explains this result; it might be a function of longer trial times in the Northern District of California and the District of Massachusetts, both of which rank high on the patent-intensity list. Or it could be that an unobserved variable explains both results. Perhaps the sorts of trials conducted in those higher-tech districts tend to involve more complex technology – and hence to be longer – than trials in other districts. To test the strength of this relationship, we ran a version of the regression that omitted the Northern District of California and the Eastern District of Texas. The significance of the patents-per-thousand measure disappeared ($p=0.363$), while the other predictors remained significant. That suggests that the effect is an artifact of something particular about one or both of those districts.

V. Conclusion

Short trials don't benefit patentees, as the conventional wisdom suggests. Indeed, trial length seems to have no effect on outcomes at all. There are some predictors of success – juries rule for patentees more than judges, and juries in some districts appear to be more likely to find for patentees than are others. But the interdistrict results are not statistically significant, and in any event are much more modest than most people suspect. We think this is

²⁸ The significance of the effect disappeared when we added district dummy variables, however, as did the significance of the individual district effects, though that is likely the result of colinearity.

an encouraging sign; some of the anxiety around Eastern District of Texas and Delaware juries seems unwarranted.

Predictors of trial length may be significant in light of the absence of any evidence that trial length affects outcomes. If the length of a trial doesn't skew outcomes, one might reasonably argue that long trials are a waste of party and judicial resources. Far from a rush to judgment, a quick patent trial may produce the same outcome more quickly and cheaply.

Appendix A

Regressions with outcome as dependent variable from the data set using two outcomes and splitting C/CD into both C AND CD: C=1 CD=3²⁹

Jury trial = 1; bench trial = 0

Descriptive stats:

. summarize

Variable	Obs	Mean	Std. Dev.	Min	Max
__caseid	669	7.18e+07	2.91e+08	11	2.00e+09
districtec~r	0				
district_c~	669	4.366218	2.002721	1	6
edtx	669	.1210762	.3264599	0	1
ddel	669	.1898356	.3924644	0	1
cdcal	669	.038864	.1934153	0	1
ndcal	669	.0538117	.2258145	0	1
dmass	669	.044843	.2071141	0	1
dother	669	.5515695	.4977056	0	1
trial_len~h	669	7.977578	4.650778	1	44
trial_len~	669	2.657698	1.105656	1	4
jury_trial	669	.7488789	.4339825	0	1
__patents~l	669	1.982063	1.615691	1	14
__patents~	669	2.168909	1.297114	1	4
__patents_1	669	.4663677	.4992409	0	1
__plaintif~	669	1.313901	.6856972	1	8
__defenda~l	669	1.606876	1.077539	1	11
__defenda~	669	1.859492	1.186748	1	4
__defenda~l	669	.3587444	.4799909	0	1
prevailing~	669	1.747384	.9682906	1	3
additional~	669	.0523169	.2228319	0	1

. regress prevailing_party_in_trial trial_length

Source	SS	df	MS	Number of obs =	669
Model	.067418808	1	.067418808	F(1, 667) =	0.07
Residual	626.240503	667	.93889131	Prob > F =	0.7888
Total	626.307922	668	.93758671	R-squared =	0.0001
				Adj R-squared =	-0.0014
				Root MSE =	.96896

prevailing~	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
trial_len~h	.0021601	.0080611	0.27	0.789	-.0136681 .0179883
_cons	1.730152	.0744241	23.25	0.000	1.584018 1.876285

. regress prevailing_party_in_trial trial_length jury_trial

²⁹ We ran separate regressions treating split decisions as a half-decision for each party, as a full decision for each party, and excluding split decisions entirely. The results were not meaningfully different. We have chosen to report here the regression that treats split decisions as both patentee and accused infringer wins; the number of observations is larger than 624 in this regression because each split decision was processed twice

Source	SS	df	MS	Number of obs =	669
Model	7.34523299	2	3.67261649	F(2, 666) =	3.95
Residual	618.962689	666	.929373407	Prob > F =	0.0197
Total	626.307922	668	.93758671	R-squared =	0.0117
				Adj R-squared =	0.0088
				Root MSE =	.96404

prevaling~	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
trial_len~h	.0082529	.0083104	0.99	0.321	-.0080649	.0245706
jury_trial	-.249219	.0890586	-2.80	0.005	-.4240884	-.0743496
_cons	1.868181	.0889704	21.00	0.000	1.693485	2.042877

. regress prevailing_party_in_trial trial_length jury_trial __patents_in_trial

Source	SS	df	MS	Number of obs =	669
Model	8.32555858	3	2.77518619	F(3, 665) =	2.99
Residual	617.982364	665	.929296788	Prob > F =	0.0306
Total	626.307922	668	.93758671	R-squared =	0.0133
				Adj R-squared =	0.0088
				Root MSE =	.964

prevaling~	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
trial_len~h	.0058215	.0086407	0.67	0.501	-.0111448	.0227878
jury_trial	-.2404299	.0894651	-2.69	0.007	-.416098	-.0647618
__patents~l	.0246593	.0240089	1.03	0.305	-.0224831	.0718018
_cons	1.832119	.0956443	19.16	0.000	1.644318	2.01992

. regress prevailing_party_in_trial trial_length jury_trial __patents_in_trial edtx ddel cdc

> ndcal dmass dother __plaintiffs_in_trial __defendants_in_trial additional_issues

Source	SS	df	MS	Number of obs =	669
Model	14.5490892	11	1.32264447	F(11, 657) =	1.42
Residual	611.758833	657	.931139776	Prob > F =	0.1588
Total	626.307922	668	.93758671	R-squared =	0.0232
				Adj R-squared =	0.0069
				Root MSE =	.96496

prevaling~	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
trial_len~h	-.0003208	.0091685	-0.03	0.972	-.0183239	.0176823
jury_trial	-.217106	.0924617	-2.35	0.019	-.398662	-.03555
__patents~l	.0274261	.0244632	1.12	0.263	-.0206095	.0754617
edtx	-.0589709	.2191022	-0.27	0.788	-.4891958	.3712541
ddel	-.0023012	.2101053	-0.01	0.991	-.41486	.4102575
cdcal	(dropped)					
ndcal	.3551943	.2506972	1.42	0.157	-.13707	.8474587
dmass	.2102005	.2606164	0.81	0.420	-.3015409	.7219419
dother	.0032854	.1966267	0.02	0.987	-.3828072	.3893779
__plaintif~	.053418	.0558458	0.96	0.339	-.0562398	.1630758
__defenda~l	-.0084891	.035005	-0.24	0.808	-.0772242	.060246
additional~	.0479934	.1691918	0.28	0.777	-.2842286	.3802153
_cons	1.776339	.2252098	7.89	0.000	1.334121	2.218556

```
. regress prevailing_party_in_trial jury_trial edtx ddel cdcal ndcal dmass dother
__plaintif
> fs_in_trial additional_issues trial_length_quartile_ __patents_quartile_
__defendants_quart
> ile_
```

Source	SS	df	MS	Number of obs =	669
Model	14.8323317	11	1.34839379	F(11, 657) =	1.45
Residual	611.475591	657	.930708662	Prob > F =	0.1466
Total	626.307922	668	.93758671	R-squared =	0.0237
				Adj R-squared =	0.0073
				Root MSE =	.96473

prevaling~	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
jury_trial	-.2370499	.0938834	-2.52	0.012	-.4213977	-.0527022
edtx	-.0591904	.2184353	-0.27	0.786	-.4881059	.369725
ddel	-.0086152	.2101201	-0.04	0.967	-.4212032	.4039727
cdcal	(dropped)					
ndcal	.3351314	.2509773	1.34	0.182	-.157683	.8279457
dmass	.2123572	.2603434	0.82	0.415	-.2988482	.7235626
dother	.0005423	.1968305	0.00	0.998	-.3859504	.3870349
__plaintif~	.0572742	.0554537	1.03	0.302	-.0516138	.1661621
additional~	.0491457	.1696762	0.29	0.772	-.2840273	.3823188

Regressions Omitting District Dummies But Including Patent Intensity

```
. regress prevailing_party_in_trial trial_length jury_trial __patents_in_trial
__defendants_in_t
> rial additional_issues patents_per_thousand_people
```

Source	SS	df	MS	Number of obs =	669
Model	10.7812888	6	1.79688146	F(6, 662) =	1.93
Residual	615.526633	662	.92979854	Prob > F =	0.0733
Total	626.307922	668	.93758671	R-squared =	0.0172
				Adj R-squared =	0.0083
				Root MSE =	.96426

prevaling~	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
trial_len~h	.0028521	.0089021	0.32	0.749	-.0146276 .0203318
jury_trial	-.2278377	.0902234	-2.53	0.012	-.4049963 -.0506791
__patents~l	.0275462	.0241051	1.14	0.254	-.0197855 .074878
__defenda~l	-.0069157	.0348787	-0.20	0.843	-.0754019 .0615704
additional~	.0334596	.168087	0.20	0.842	-.2965883 .3635074
patents_pe~	.0557953	.0347711	1.60	0.109	-.0124796 .1240702
_cons	1.754362	.1230094	14.26	0.000	1.512826 1.995898

```
. regress prevailing_party_in_trial trial_length jury_trial __patents_in_trial
__plaintiffs_in_tri
> al __defendants_in_trial additional_issues patents_per_thousand_people
```

Source	SS	df	MS	Number of obs =	669
Model	11.6887109	7	1.66981585	F(7, 661) =	1.80
Residual	614.619211	661	.929832392	Prob > F =	0.0853
Total	626.307922	668	.93758671	R-squared =	0.0187
				Adj R-squared =	0.0083
				Root MSE =	.96428

prevaling~	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
trial_len~h	.0020016	.0089438	0.22	0.823	-.01556 .0195633
jury_trial	-.2160602	.0910093	-2.37	0.018	-.3947625 -.037358
__patents~l	.0259666	.0241586	1.07	0.283	-.0214701 .0734034
__plaintif~	.0547899	.0554623	0.99	0.324	-.0541136 .1636934
__defenda~l	-.0088168	.0349324	-0.25	0.801	-.0774085 .059775
additional~	.0397401	.1682102	0.24	0.813	-.2905507 .3700308
patents_pe~	.0576487	.0348223	1.66	0.098	-.0107269 .1260244
_cons	1.683018	.1426448	11.80	0.000	1.402927 1.96311

```
. regress prevailing_party_in_trial jury_trial __plaintiffs_in_trial additional_issues
patents_p
> er_thousand_people trial_length__quartile_ __patents__quartile_
__defendants__quartile_
```

Source	SS	df	MS	Number of obs =	669
Model	11.935029	7	1.70500415	F(7, 661) =	1.83
Residual	614.372893	661	.929459748	Prob > F =	0.0780
Total	626.307922	668	.93758671	R-squared =	0.0191
				Adj R-squared =	0.0087
				Root MSE =	.96408

prevaling~	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
jury_trial	-.2317575	.0924892	-2.51	0.012	-.4133656	-.0501495
__plaintif~	.0592926	.0550335	1.08	0.282	-.0487689	.167354
additional~	.0410023	.1688328	0.24	0.808	-.290511	.3725156
patents_pe~	.055087	.0347801	1.58	0.114	-.0132058	.1233797
trial_len~_	.0168431	.0378376	0.45	0.656	-.0574533	.0911395
__patents~_	.0302969	.0299484	1.01	0.312	-.0285085	.0891024
__defenda~_	.0118745	.0316896	0.37	0.708	-.0503498	.0740989
__cons	1.613896	.1542296	10.46	0.000	1.311057	1.916735

Appendix B

Regressions with trial length as dependent variable

```
. regress trial_length jury_trial __patents_in_trial __defendants_in_trial
```

Source	SS	df	MS	Number of obs =	624
-----+-----				F(3, 620) =	36.63
Model	2049.51076	3	683.170252	Prob > F	= 0.0000
Residual	11563.4876	620	18.6507865	R-squared	= 0.1506
-----+-----				Adj R-squared =	0.1464
Total	13612.9984	623	21.8507197	Root MSE	= 4.3187

trial_len~h	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
-----+-----						
jury_trial	2.91791	.398071	7.33	0.000	2.136179	3.699641
__patents~1	.7974824	.1130367	7.06	0.000	.5755012	1.019464
__defenda~1	.4136399	.1586138	2.61	0.009	.1021546	.7251252
__cons	3.527112	.4813596	7.33	0.000	2.581819	4.472404

```
. regress trial_length jury_trial __patents_in_trial __defendants_in_trial edtx ddel
cdcal nd
```

```
> cal dmass dother additional_issues
```

Source	SS	df	MS	Number of obs =	624
-----+-----				F(9, 614) =	20.50
Model	3145.48955	9	349.498838	Prob > F	= 0.0000
Residual	10467.5089	614	17.04806	R-squared	= 0.2311
-----+-----				Adj R-squared =	0.2198

Total | 13612.9984 623 21.8507197 Root MSE = 4.1289

```
-----+-----
trial_len~h |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-----+-----
jury_trial |      3.0421   .3888019     7.82   0.000     2.278558    3.805643
__patents~1 |     .8294364  .1087359     7.63   0.000     .615897    1.042976
__defenda~1 |     .3818595  .1520433     2.51   0.012     .0832715   .6804474
    edtx |     -4.8225   .9132535    -5.28   0.000    -6.615979   -3.029021
    ddel |     -3.258465  .877902    -3.71   0.000    -4.98252   -1.53441
    cdcal |     -2.840284  1.140161    -2.49   0.013    -5.079373   -.601195
    ndcal |     .8272674   1.06259     0.78   0.437    -1.259484   2.914019
    dmass | (dropped)
    dother |     -2.029112  .8143683    -2.49   0.013    -3.628398   -.4298274
additional~ |     .5970442  .7443868     0.80   0.423    -.8648086   2.058897
    _cons |     5.774669  .8967826     6.44   0.000     4.013536   7.535802
-----+-----
```

```
. regress trial_length__quartile_ jury_trial __patents_in_trial __defendants_in_trial
edtx ddel cdca
> l ndcal dmass dother additional_issues
```

```
-----+-----
Source |      SS       df       MS                Number of obs =      624
-----+-----
Model | 159.729991      9 17.7477768                F( 9, 614) = 18.00
Residual | 605.255586    614  .985758283                Prob > F      = 0.0000
-----+-----
Total | 764.985577    623  1.22790622                R-squared     = 0.2088
                                           Adj R-squared = 0.1972
                                           Root MSE     = .99285
-----+-----
```

trial_len~_	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
jury_trial	.8974448	.0934924	9.60	0.000	.7138413	1.081048
__patents~1	.1507489	.0261469	5.77	0.000	.0994007	.2020972
__defenda~1	.0866565	.0365607	2.37	0.018	.0148572	.1584558
edtx	-.6660263	.2196034	-3.03	0.003	-1.097291	-.2347615
dde1	-.2339763	.2111027	-1.11	0.268	-.6485471	.1805946
cdcal	-.4033284	.2741663	-1.47	0.142	-.9417457	.135089
ndcal	.488929	.2555133	1.91	0.056	-.0128569	.990715
dmass	(dropped)					
dother	-.1099155	.1958252	-0.56	0.575	-.4944839	.2746529
additional~	.0850569	.1789973	0.48	0.635	-.2664643	.436578
_cons	1.697758	.2156428	7.87	0.000	1.274271	2.121245

Repeats of the regressions in Appendix B, but with "patents per thousand people" added as an independent variable

```
. regress trial_length jury_trial __patents_in_trial __defendants_in_trial
patents_per_thousand_pe
> ople
```

Source	SS	df	MS	Number of obs =	624
Model	2624.3169	4	656.079226	F(4, 619) =	36.96
Residual	10988.6815	619	17.7523126	Prob > F =	0.0000
				R-squared =	0.1928
				Adj R-squared =	0.1876
Total	13612.9984	623	21.8507197	Root MSE =	4.2133

trial_len~h	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
jury_trial	3.00058	.3886361	7.72	0.000	2.237375 3.763785
__patents~1	.8047	.1102877	7.30	0.000	.5881167 1.021283
__defenda~1	.4047019	.1547541	2.62	0.009	.1007952 .7086085
patents_pe~	.8746775	.1537145	5.69	0.000	.5728125 1.176543
_cons	1.976835	.5429274	3.64	0.000	.9106321 3.043038

```
. regress trial_length jury_trial __patents_in_trial __defendants_in_trial
patents_per_thousand_
> people edtx ddel cdcal ndcal dmass dother additional_issues
```

Source	SS	df	MS	Number of obs =	624
Model	3158.57381	10	315.857381	F(10, 613) =	18.52
Residual	10454.4246	613	17.0545262	Prob > F =	0.0000
				R-squared =	0.2320
				Adj R-squared =	0.2195
Total	13612.9984	623	21.8507197	Root MSE =	4.1297

trial_len~h	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
jury_trial	3.050881	.3890048	7.84	0.000	2.286937 3.814824
__patents~1	.8356528	.1089879	7.67	0.000	.6216179 1.049688
__defenda~1	.3878576	.1522262	2.55	0.011	.0889094 .6868057
patents_pe~	.3121257	.3563483	0.88	0.381	-.3876858 1.011937
edtx	-1.803608	.9747163	-1.85	0.065	-3.717796 .1105801
ddel	-.6617432	.964104	-0.69	0.493	-2.555091 1.231604
cdcal	(dropped)				
ndcal	2.298423	1.910281	1.20	0.229	-1.453065 6.049912
dmass	2.475019	1.214234	2.04	0.042	.0904562 4.859581
dother	.6969727	.8671899	0.80	0.422	-1.006051 2.399996
additional~	.5905773	.7445646	0.79	0.428	-.8716294 2.052784
_cons	2.54928	1.036234	2.46	0.014	.5142819 4.584278

```
. regress trial_length_quartile jury_trial __patents_in_trial __defendants_in_trial
patents_pe
```

Appendix C

District	Total Population	Number of Patents in the 1990s	Number of Patents Cumulative (over all time)	1990s Patents per 10,000 population
CAND Totals:	7388948.00	40832.00	72490.00	55.26
NYWD Totals:	2715695.00	11345.00	23907.00	41.78
IDD Totals:	1112950.00	3694.00	4718.00	33.19
VTD Totals:	359831.00	1092.00	1760.00	30.35
MIED Totals:	6218621.00	16900.00	38882.00	27.18
CTD Totals:	3405565.00	8726.00	23779.00	25.62
MND Totals:	4474754.00	11259.00	22304.00	25.16
NYND Totals:	3155204.00	7336.00	17849.00	23.25
MAD Totals:	6575368.25	15217.75	35488.25	23.14
TXND Totals:	7735042.00	17809.00	32090.00	23.02
COD Totals:	3918709.00	8935.00	17078.00	22.80
PAED Totals:	4350439.20	9325.50	24523.30	21.44
WIED Totals:	2918923.50	5788.00	14155.50	19.83
ILND Totals:	9760932.00	19179.00	53332.00	19.65
CASD Totals:	15318152.00	29717.00	70066.00	19.40
OKND Totals:	935437.00	1813.00	7385.00	19.38
DED Totals:	1705407.50	3277.00	8650.75	19.22
WAWD Totals:	4652017.75	8866.25	17152.25	19.06
OHSD Totals:	5024564.00	9121.25	21971.25	18.15
UTD Totals:	2117076.00	3823.00	7345.00	18.06
LAMD Totals:	699220.00	1183.00	2996.00	16.92
AZD Totals:	4935585.00	8120.00	15325.00	16.45
NYSD Totals:	6718833.00	11002.00	29435.00	16.37
TXSD Totals:	6828439.00	11163.00	26640.00	16.35
OHND Totals:	5431011.67	8798.33	26731.00	16.20
INSD Totals:	3172461.00	5139.00	13209.00	16.20
NJD Totals:	20677307.30	32816.50	91224.95	15.87
INND Totals:	1668179.00	2630.00	7046.00	15.77
ORD Totals:	3206105.25	5043.75	9580.75	15.73
WIWD Totals:	1445683.50	2263.00	4503.50	15.65
NHD Totals:	894665.00	1330.00	2594.00	14.87
NYED Totals:	18309939.00	27051.00	75258.00	14.77
DCD Totals:	1201401.25	1677.25	3850.00	13.96
MIWD Totals:	2862711.00	3900.00	10342.00	13.62
IASD Totals:	1639972.00	2148.00	4837.50	13.10
MDD Totals:	4313179.50	5516.00	12981.25	12.79
IAND Totals:	786645.00	998.00	2751.00	12.69

FLSD Totals:	5646636.00	6973.00	14213.00	12.35
ILCD Totals:	1859278.80	2295.30	6369.00	12.35
NCED Totals:	2750154.00	3316.00	5537.00	12.06
PAWD Totals:	4009223.33	4707.67	15129.00	11.74
NMD Totals:	1711849.00	1987.00	3945.00	11.61
CACD Totals:	4656014.00	5358.00	11136.00	11.51
TNED Totals:	2273632.00	2616.00	6129.00	11.51
GAND Totals:	4842046.00	5424.00	9766.00	11.20
VAED Totals:	5070771.50	5569.50	12843.00	10.98
KYWD Totals:	2310813.50	2534.25	6243.75	10.97
PAMD Totals:	2785507.00	2987.00	7770.00	10.72
RID Totals:	1187247.75	1271.25	2631.75	10.71
MOED Totals:	3117968.70	3186.70	7411.00	10.22
NCMD Totals:	3586107.00	3635.50	7012.00	10.14
OKWD Totals:	1579783.00	1574.00	4429.00	9.96
VAWD Totals:	1450069.00	1403.00	3423.50	9.68
WAED Totals:	1093508.00	1032.00	2424.00	9.44
NCWD Totals:	1858759.00	1742.50	3870.00	9.37
FLND Totals:	1288730.00	1111.00	2422.00	8.62
MTD Totals:	578166.00	465.00	856.00	8.04
SCD Totals:	3415545.00	2723.00	6023.00	7.97
NED Totals:	1048670.50	815.00	1842.50	7.77
KYED Totals:	1014317.50	781.00	1763.00	7.70
TNWD Totals:	1518855.00	1151.00	2204.00	7.58
NVD Totals:	1917027.00	1395.00	2609.00	7.28
FLMD Totals:	8696343.00	6276.00	12817.00	7.22
KAD Totals:	2424276.50	1719.00	4408.00	7.09
WYD Totals:	331612.00	233.00	563.00	7.03
WVSD Totals:	777237.00	537.00	1739.00	6.91
ILSD Totals:	278508.00	190.00	351.00	6.82
ALND Totals:	2454089.00	1576.00	4235.00	6.42
MOWD Totals:	2169280.50	1388.00	3397.00	6.40
MSND Totals:	555587.00	346.00	700.00	6.23
NDD Totals:	351678.00	216.00	519.00	6.14
CAED Totals:	6268054.00	3846.00	8072.00	6.14
TXED Totals:	1561689.00	888.00	2267.00	5.69
LAED Totals:	1684629.00	929.00	2639.00	5.51
AKD Totals:	461020.00	250.00	442.00	5.42
TXWD Totals:	3386373.00	1821.00	3835.00	5.38
TNMD Totals:	1823310.00	912.00	1810.00	5.00
SDD Totals:	513647.00	255.00	622.00	4.96
ALSD Totals:	588816.00	290.00	568.00	4.93
MED Totals:	894980.00	416.00	1028.00	4.65

LAWD Totals:	1755831.00	814.00	2094.00	4.64
WVND Totals:	534023.25	246.75	654.75	4.62
ARWD Totals:	911997.00	408.50	820.50	4.48
MSSD Totals:	1477904.00	591.00	1236.00	4.00
GAMD Totals:	1399105.00	554.00	1244.00	3.96
ALMD Totals:	858602.00	339.00	675.00	3.95
GASD Totals:	1264849.00	476.00	949.00	3.76
ARED Totals:	1194892.00	442.50	998.50	3.70
OKED Totals:	281739.00	99.00	281.00	3.51
HID Totals:	1211390.00	419.00	882.00	3.46