



## Computer & Communications Industry Association (CCIA) Preliminary Study Evaluating Katznelson (2021) Claims Regarding Purported Relationship Between PTAB Judge Bonus Awards and Decisions in AIA Trials July 28, 2022

### 1. Introduction

In a recent paper (Katznelson (2021)), Ron D. Katznelson claims that PTAB judges' bonus awards create incentives to grant institution in AIA trials and cancel patents in final written decisions, citing to analysis of FY 2016 AIA trial data.<sup>1</sup> However, Katznelson (2021)'s key findings are not statistically significant and utilize both a questionable model specification and flawed data that depart significantly from the determinants of bonus awards described in relevant PTO documents, called "PTAB PAPs" in Katznelson (2021).

When the correct FY 2016 data is used in model specifications more consistent with the underlying documentation, the results are highly statistically significant and involve no difference in bonus awards based on the direction of any AIA trial decisions. Properly specified models show that production—the total count of decisions each PTAB judge is involved in—better predict a PTAB judge's bonus award in FY 2016, with a particular emphasis on decision authorship rather than panel membership.

### 2. Katznelson (2021) Utilizes an Ex Ante Questionable Model Specification and Data

Both the model specification and the data used in Katznelson (2021) are ex ante questionable and inconsistent with both underlying PTO documentation and common sense.

Katznelson (2021) utilizes a model specification that groups together any FY 2016 AIA trial decisions that grant institution to any claim or cancel any patent. As of FY 2016, "mixed" decisions were possible for both institution decisions (e.g., granting institution to one claim while denying institution to several other claims) and final written decisions (e.g., canceling one patent claim while upholding several other patent claims). Under the Katznelson (2021) model specification, mixed outcomes, many of which were predominantly favorable to the patent holder, are treated as indistinguishable from entirely adverse outcomes, such as granting institution to all claims or canceling all patent claims.

In addition, Katznelson (2021)'s model specification is not supported by any official PTO documentation, such as PTAB PAPs, indicating the factors that contribute to bonus levels in FY 2016. The PTAB PAPs are summarized in Katznelson (2021) and provide no place for the direction of AIA trial rulings to influence bonus levels. Rather, the PTABs indicate that "production," as measured by total "decisional units" for which a judge receives credit, are weighted at 35% of the critical performance elements that determine bonus awards for ordinary administrative patent judges, and less than 35% for all other categories of patent judges. Katznelson (2021) does not purport to include any data covering the other determinants of bonus awards, which represent at least 65% of the critical performance elements determining the bonus award.

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<sup>1</sup> Katznelson, Ron D. "The Pecuniary Interests of PTAB Judges-Empirical Analysis Relating Bonus Awards to Decisions in AIA Trials." Available at SSRN 3871108 (2021).



The decisional units are proportional to the total number of institution decisions and final written decisions for which a PTAB judge receives credit, with some slight weighting differences for different types of matters.

As acknowledged by Katznelson (2021) in footnote 59, “[b]y default, the authoring Judge is assigned the entire amount of credit due for a decision[,]” which supports the use of data assigning credit to PTAB judges based on which judges authored decisions, not a model based on simple panel membership. Despite quoting to underlying PTO sources indicating that authoring judges receive all decisional unit credit due for a decision by default, Katznelson (2021) states that the Katznelson (2021) “study’s dataset counts a panel decision for an APJ on the panel whether or not he/she appears as the presiding judge (or author) on the decision.” In other words, Katznelson (2021)’s model uses data that assumes an equal division of decisional units among panel members, despite a default practice to the contrary that reflects the disproportionate share of work performed by the author of a decision.

In short, Katznelson (2021) utilizes a model specification that groups together distinct outcome types in a tendentious manner (aggregating adverse and mixed AIA trial decisions into a single variable), utilizing a dataset that implicitly assumes PTAB judges serving on a panel receive equal decisional unit credit for each decision, despite a default assumption to the contrary. Moreover, Katznelson (2021) never compares its questionable model specification against a simple model based on decision counts, which would be more consistent with the underlying PTO documentation.

### 3. Kaztnelson (2021) Regression Results Are Not Statistically Significant

The key results of Katznelson (2021) that dominate its abstract are the product of a regression analysis buried in Appendix A, on Table 7. The regression analysis shows that none of the independent variables of interest included in the model specification are statistically significant at the standard 0.05 level. The p-value for each independent variable, which reflects the probability that the actual result or one more extreme could have been the result of random chance, is reported as quite high for the two independent variables of particular interest, which purport to measure the difference between bonus awards for different decision directions at the institution decision and final written decision level: 0.41 and 0.204, respectively.

However, the text below the table of results mentions that the regression results table reports *one-tail p-values*, a non-standard presentation of results that ignores any possibility of a result in the other direction. When standard two-sided p-values are produced for the same model and data, they indicate that there is a more than 80% likelihood the result for the former could be due to random chance, and a more than 40% likelihood the result for the latter could be due to random chance.

No objective analyst would take seriously regression coefficients with p-values so extraordinarily high.

### 4. Checking Katznelson (2021) Results Using Independent Data

CCIA collected FY 2016 AIA trial decisions, using Unified Patents data, and collected FY 2016 PTAB judge bonus information from federalpay.org, the same source cited by Katznelson (2021). Significant manual review was required, consistent with the first sentence of the Katznelson (2021) Data and Methods section. In addition, CCIA



counted both the number of decisions a judge authored, as well as the less relevant measure used by Katznelson (2021), panel membership.

While case and judge counts were similar across the Katznelson (2021) and CCIA (2022) data, regression results differed slightly when Katznelson (2021) models were replicated.

For example, replicating the key regression of Katznelson (2021), found in Table 7 in Appendix A, CCIA found a slightly negative (-\$17) coefficient on the d Inst. Grants - Denials variable, suggesting slightly lower bonus awards for decisions granting institution than for decisions denying institution. By contrast, Katznelson (2021) found a slightly positive value, (\$46). However, similar to the Katznelson (2021) results, the p-value (reported using standard two-sided p-values) was extraordinarily high (0.93), suggesting that this result was most likely due to random chance. This was also the logical interpretation of the original Katznelson (2021) result, which had a two-sided p-value of (0.82).

Based on the replication, it seems likely that there is no significant difference in PTAB judge bonus awards for institution decisions or final written decisions based on direction. Two-sided p-values in both the original analysis and the replication analysis were both above 80% for institution decisions, and were above 40% for final written decisions. Given that institution decisions directly determine how many full AIA trials will occur and thus determine total work for PTAB judges, one would expect a biased compensation scheme based on Katznelson (2021) logic to focus on rewarding decisions to grant institution and not reward decisions to deny institution. Instead, institution decisions are consistent with a balanced, pure “production” measure—all that counts is how many decisions a judge is involved with. If anything, CCIA’s regression results suggest a very slight penalty for decisions to grant institution over decisions to deny institution, the opposite of what a biased system in the narrative of Katznelson (2021) would produce.

CCIA ran regressions based on pure production models, consistent with the PTAB PAPs and the results above. The first model considered used panel membership data, akin to Katznelson (2021), and used total institution decisions and total final written decisions as the independent variables. The results were highly statistically significant for both independent variables, with a comparable R-squared to the key model of Katznelson (2021), which by contrast had all insignificant p-values for its independent variables. A noteworthy takeaway is that using the panel data, both the total count of institution decisions and the total count of final written decisions were statistically significant predictors of bonus awards, unlike the directional measures used in Katznelson (2021).

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	9574.46	1528.74	6.263	5.99e-09 ***
InstTotalPanel	223.30	59.15	3.775	0.000249 ***
FwdTotalPanel	213.63	83.43	2.561	0.011676 *

Residual standard error: 9007 on 121 degrees of freedom  
Multiple R-squared: 0.4044, Adjusted R-squared: 0.3945  
F-statistic: 41.07 on 2 and 121 DF, p-value: 2.434e-14

When the regression was run again, but using authorship data rather than panel membership data, the results were even more statistically significant for the independent variables. The model was once again as predictive as the Katznelson (2021) model, but with statistically significant results for each independent variable. The key takeaway is that using the authorship data suggested by the PTO documentation, both the total count of



institution decisions authored and the total count of final written decisions authored were highly statistically significant predictors of bonus awards, unlike the directional measures used in Katznelson (2021).

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	7814.2	1806.6	4.325	3.15e-05 ***
InstTotalAuthor	697.7	161.7	4.314	3.29e-05 ***
FwdTotalAuthor	905.2	185.1	4.891	3.12e-06 ***

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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 9074 on 121 degrees of freedom  
Multiple R-squared: 0.3954, Adjusted R-squared: 0.3854  
F-statistic: 39.56 on 2 and 121 DF, p-value: 6.024e-14

CCIA also considered a regression with both authorship count data and non-author panel membership count data. This result found that only authorship counts were statistically significant, which was consistent with the acknowledged default for decisional unit credit. Once more, the overall model is as predictive, if not slightly moreso, than Katznelson (2021), and has statistically significant results.

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	8017.39	1800.19	4.454	1.92e-05 ***
InstTotalAuthor	460.72	199.88	2.305	0.0229 *
InstTotalPanelExclAuthor	128.90	95.38	1.352	0.1791
FwdTotalAuthor	573.57	228.18	2.514	0.0133 *
FwdTotalPanelExclAuthor	122.52	123.78	0.990	0.3242

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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 8918 on 119 degrees of freedom  
Multiple R-squared: 0.4257, Adjusted R-squared: 0.4064  
F-statistic: 22.06 on 4 and 119 DF, p-value: 1.224e-13

## 5. Conclusion

Katznelson (2021) arrives at a mistaken conclusion by ignoring the extraordinarily statistically insignificant p-values of its regression results. Moreover, Katznelson (2021) utilizes a flawed model specification as well as flawed data, both of which are inconsistent with cited PTO documentation.

Both the FY 2016 data and the relevant PTO documents are consistent with the conclusion that direction of AIA trial decisions plays no role in FY 2016 PTAB judge bonus awards. Total production, measured internally under PTAB PAPs in decisional units and in both Katznelson (2021) and this paper in decision counts, is a significant



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predictor of bonus awards. Moreover, consistent with the underlying PTO documentation, authorship rather than panel membership appears to be a better predictor of PTAB judge bonus awards.

