Drawing Statistical Relationships Using The Justice Index

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1 Introduction

NCAJ's Justice Index (JI) is an online tool that tracks different states' strategies to ensure meaningful access to justice. Using numerous different indicators for attorney access, self-representation, language access and disability access, JI creates a composite score that enables stakeholders to easily compare between states.

JI has already proven to be a useful tool for ensuring state accountability and transparency. More broadly, however, the tool holds promise because it provides a quantitative measure of access to justice – a concept that is notoriously hard-to-quantify. Therefore, JI enables and invites new quantitative research in the field.

Of course, JI isn't perfect – the data could be comprehensive and the scoring system could be refined. Our hope is that new analysis will not only provide insight about access to justice nationally, but may also highlight areas for future improvements to the tool.

2 Analyzing Partisanship

Using JI's composite scores, we can easily begin to compare the justice index with other publicly available data on different states. As an example, we conduct a univariate regression of states' political leanings (measured using the Cook Partisan Voting Index, or PVI) on the Justice Index Composite Scores.

Figure 1 shows a correlation between the justice index and partisan leaning. Indeed, the correlation appears to be significant - of the top 15 scoring states on the Justice Index, only one (Tennessee) leans right, according to PVI. One state in this group (Wisconsin) has a PVI of 0, meaning it does not lean left or right. The other 13 are all considered to vote democratic on average. Of the bottom 20 scoring states on the Justice Index, 17 are republican-leaning states, and only 2 (Nevada and Vermont) lean democratic. one (Pennsylvania) is said to not have a partisan leaning.

The results of this regression technique should not be interpreted as a causal relationship between left-leaning politics and access to justice. Instead, they indicate that more left leaning states correlate statistically with higher JI scores. There may be a variety of explanations for why this is the case. For instance, a

significant indicator used by the JI score is the number of civil-legal aid attorneys per capita of poor people. This means that states with a higher population of poor people will be more likely to score lower on the JI, if there aren't enough civil-legal aid attorneys to compensate. Since Republican States are poorer on average, this might contribute to the correlation we see between JI and partisanship. Of course, many other factors may contribute as well. An open question is whether any aspect of the methodology used to calculate the JI is biased in some way.

From this analysis, we can also take note of outlier states, who's poltiical parties do not align with their Justice Index Score as predicted by the linear regression. Namely, Vermont has a very low Justice Index score compared to most blue states, and Tennessee's JI score is very high compared to other red states. More analysis might reveal what these states are doing differently, and how certain policies may impact Access to Justice more generally.

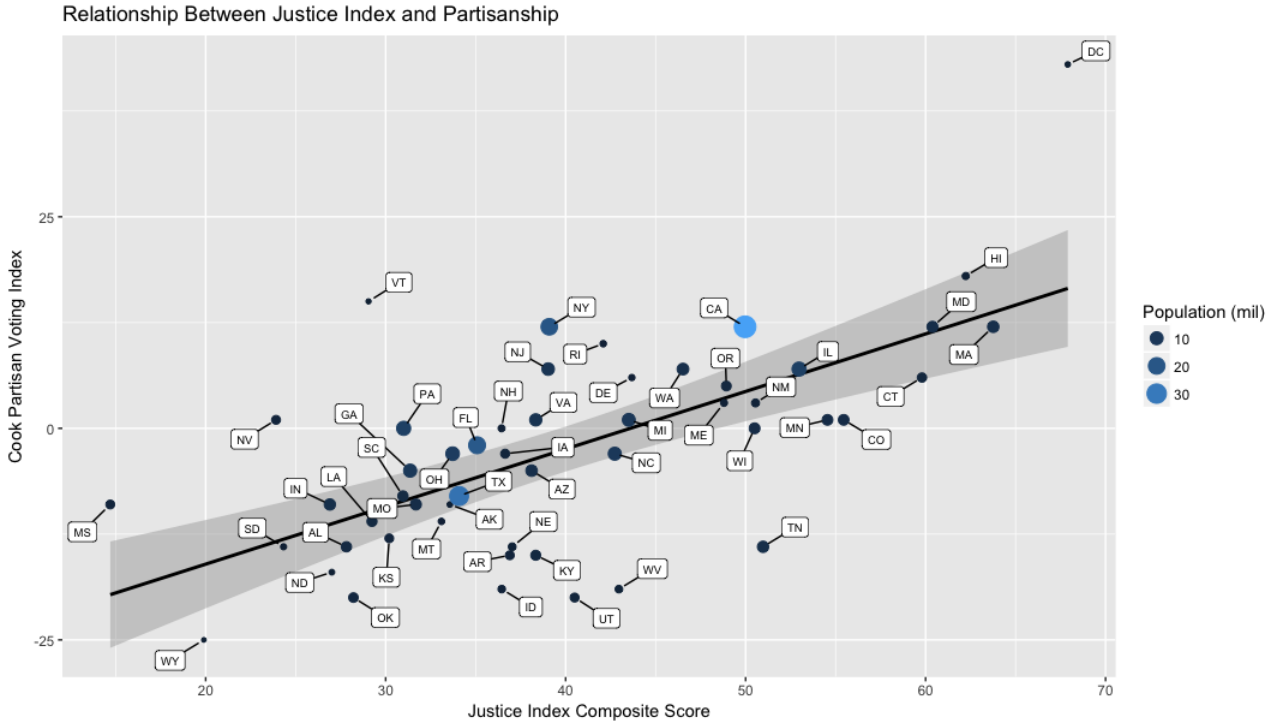

Figure 1: Plot of JI Composite Score versus Cook PVI. Negative PVI numbers correspond to highly republican states, whereas positive PVI numbers correspond to democratic states.

3 Multivariate Regression

Including economic, political and demographic data in our statistical model can improve its accuracy. Additionally, by accounting for more variables, we can pinpoint more precisely the relationship between

partisanship and Justice Index scores.

Figure 2 provides the output from a multivariate regression of Justice Index on numerous data indicators that we believe may play a role in access to justice. Importantly, the JI only provides state-wide data, so our analysis has 51 observations, corresponding to the 50 states and Washington, D.C. Still, despite limited sample size, we find statistically significant correlations between two variables tested and the Justice Index.

Importantly, partisanship still seems to hold a significant correlation with the JI scores. The regression result implies that each additional point on the Cook PVI scale is associated with a 0.56-point increase in the JI, holding all other variables equal. Across states with the same level of economic inequality, population level, rate of urban living, and percent non-white, a difference in political leaning will still be associated with a significant change in JI.

The other variable with statistically significant relationship to JI is percent urban. According to our model, a one percentage point increase in urban living in a state is associated with a 0.244-point increase in the Justice Index, holding all other variables equal. Like our partisanship result, we can interpret the statistical relationship in a number of ways. Perhaps civil-legal aid lawyers are likely to conglomerate in cities, so attorney access is higher. Perhaps language and disability access is a higher priority for states with large numbers of urban courts, to provide for their populations.

4 Main Takeaways

- The Justice Index provides a valuable tool to quantify and compare various states' measures to provide access to justice.
- Further quantitative research may help provide insight both about access to justice and about the index itself, and may highlight areas for the JI to improve.
- A simple look at JI and state partisanship reveals a notable correlation between higher JI scores and left-leaning states. This does not imply a causal relationship.
- Controlling for various other economic, political and demographic data, we still see a statistically significant correlation between the JI composite score and more left-leaning states.
- Another significant relationship was found between a state's proportion of urban living and higher Justice Index scores. This may have to do with the number of lawyers and civil-legal aid groups in urban areas.

Regression Results

	Dependent variable:
	Composite JI
Cook PVI	0.563^{***}
	(0.131)
Gini Coefficient	-7.683
	(76.479)
Population (millions)	-0.147
	(0.202)
Percent Urban	0.244^{**}
	(0.120)
Percent Minority	-0.104
	(0.112)
Constant	30.782
	(35.164)
Observations	51
R^2	0.477
Adjusted R^2	0.419
Residual Std. Error	9.032 (df = 45)
F Statistic	8.203^{***} (df = 5; 45)
Note:	*p<0.1; **p<0.05; ***p<0.01

Figure 2: Multivariate regression results describing the relationship between various state-dependent data on the Composite Justice Index (JI).