Correlation versus Causality: Further Thoughts on the Law Review/Law School Liaison

Ronen Perry, University of Haifa
Response

Correlation versus Causality: Further Thoughts on the Law Review/Law School Liaison

DR. RONEN PERRY, LL.D∗

I. INTRODUCTION

The American law review—one of the pillars of American legal scholarship—is indeed a remarkable phenomenon that merits a multifaceted meticulous examination. Even though I have hitherto focused on assessing the relative value of American law reviews, I certainly hope to extend my research on this scholastic marvel in the coming years.

The purpose of this Essay, however, is much narrower. Its raison d'être is my unease with Professor Alfred Brophy’s elaboration of my initial study of the high mathematical correlation between law review quality, as manifested in citation-based measures, and law school reputation. Given my prior interest in the relative value of American law reviews, I have used this correlation as a means to explain some of the variance in quality among law reviews.1 Brophy’s empirical findings

∗ Faculty of Law, University of Haifa. LL.D. summa cum laude (Hebrew University, 2000), LL.M. studies completed with distinction (Hebrew University, 1997), LL.B. magna cum laude (Tel Aviv University, 1996). I am grateful to Jim Chen, John Doyle, and Ariel Porat for their helpful comments. Law review rankings used in this Essay encompass only American general-interest student-edited journals. Rankings by frequency of citation and by impact factor were compiled using the Washington & Lee database. See Washington & Lee Law School, Law Journals: Submissions and Rankings, http://lawlib.wlu.edu/LJ/ (last visited Oct. 14, 2006) [hereinafter Submissions and Rankings Database]. The complex ranking is taken from my second article, The Relative Value of American Law Reviews, published in this issue. See Perry, Refinement and Implementation, infra note 1.

overlap mine, yet the extent of his analysis, as well as his interpretation and utilization of the law review/law school relationship are clearly different. First, he uses more variables to examine additional aspects of this relationship. Second, he offers a different causal explanation for the correlation between law review quality and law school reputation. Third, he draws on this correlation to promote a new method for the assessment of law school reputation, and advocates various techniques that law schools may employ to improve their rankings.

This Essay touches on the three components of Brophy’s analysis. Part II discusses the various causal explanations for the correlation between law review quality and law school reputation, and endeavors to show that the second variable is usually the cause rather than the effect of the first. It also criticizes Brophy’s accounts of marked “anomalies” between law school ranking and law review ranking, and the relatively poor correlation between law review citations and law school reputation for lower school-tiers.

Part III takes the law review/law school correlation analysis two steps farther. First, it shows that the correlation between law review quality and law school peer assessment score is not linear, as previously implied, but rather polynomial. Second, it shows that a similar polynomial correlation exists between law review quality and the 75th percentile of incoming students’ LSAT scores, and associates this finding with the law review quality/law school peer assessment relationship.

Part IV examines Brophy’s noteworthy proposal to base the ranking of law schools, at least in part, on the frequency of citation of their flagship journals. The search for new law school ranking methods is highly commendable in view of the continuing dissatisfaction with the U.S. News & World Report annual law school ranking. However, I am not sure that Brophy’s concrete proposal is much better than the one it aims to replace. Lastly, this Essay criticizes Brophy’s advocacy of various techniques that law reviews may use to attract citations and improve their ranks.


II. INTERPRETING CORRELATION

A. The Correlation between Law Review Academic Citations and Law School Reputation

In my first article on the relative value of American law reviews I found a high correlation between the positions of the top-100 law schools in the *U.S. News* ranking and the rankings of their general-interest law reviews by citation frequency and by impact factor alike. In my second article I showed an even higher correlation between the rankings of the top-100 law schools and the ranking of their law reviews by a complex citation-based method, and between these schools’ overall scores in the *U.S. News* ranking and their law reviews’ final scores. Accordingly, Brophy’s empirical findings are not themselves novel. His first innovation lies in the interpretation of these findings. He suggests that the relative success of a general-interest law review (measured by citations) has a considerable effect on the respective law school’s reputation. In his words:

The findings suggest that law reviews are schools’ ambassadors to the rest of the legal academy. Much of what people at other schools know about a school’s academic orientation may come from the articles and notes published in the school’s law journals. Thus, those schools seeking to advance in reputation may want to pay attention to their law reviews.

Although Brophy subsequently qualifies his causal inference, it remains quite vigorous: law review success—in terms of citation frequency—considerably affects law school reputation. I admit to articulating a comparable insight in the past. However, Brophy’s assertion is much stronger than my own. I merely stated that “[a] prestigious law review may enhance the respective school’s reputation.” Brophy practically insists that the frequency of citation of a specific law review is one of the primary factors by which the legal academy evaluates the scholarly reputation of the relevant school. Put differently, one of the prime reasons for the correlation between citation-based law review

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6 Brophy, supra note 2, at 55.
7 See also id. at 55–56 (“[A]s citations increase, [and] as faculty see articles cited more frequently, they may have increasing respect for the schools associated with them. . . . So schools on the move may want to pay increasing attention to their reviews.”).
8 Perry, *A Critical Appraisal*, supra note 1, ¶ 8; see also Perry, *Refinement and Implementation*, supra note 1, at 3 (“The reputation of a flagship journal may impinge on the respective school’s reputation . . . .”).
ranking and law school ranking is that the former strongly affects the latter. In my view, this is hyperbole.

One ought to be very careful in interpreting correlations. The fact that two variables are highly correlated does not mean that one affects the other. Correlation does not imply causation, as Brophy himself observes. A correlation coefficient—given as a value between −1 and 1—is a symmetrical mathematical relationship between two things. A correlation of 0 means the two things are unrelated. When only one value is given it is impossible to predict the other. A correlation of −1 or 1 means the two things are completely related: the first always predicts the second, and vice versa. Causality, on the other hand, is an asymmetrical physical (or philosophical) relationship between two things. Something causes something else if there is a chain of events leading from the first (the “cause”) to the second (the “effect”). The concept of causation thus implies timing: one thing happens, and another thing follows.

When two variables (X, Y) are correlated there are three possible causal explanations: (1) the first variable affects the second (X ⇒ Y); (2) the second variable affects the first (Y ⇒ X); or (3) a third, unobserved, variable affects both the first and the second (Z ⇒ X, Z ⇒ Y). This may be termed “common response.” For example, emphysema is correlated with heart disease, but neither is the cause of the other. Rather, they are both causally related to smoking. In cases of common response to an unobserved variable trying to explain correlation as a causal relation (X ⇒ Y or Y ⇒ X) may be nonsensical. For example, ice cream sales and the number of shark attacks on swimmers are correlated. Clearly, they are not causally related. The correlation may be explained by a third variable, namely average temperature.

The existence and direction of a causal relation may sometimes be evident. For example, the frequency of forest fires (X) and average

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10 Brophy, supra note 2, at 55.


temperatures (Y) are positively correlated. Apparently, hot weather causes fires (Y⇒X), and not the reverse. Occasionally causation is bidirectional (X⇔Y). For example, the number of chickens is correlated with the number of eggs. Chickens lay eggs and eggs hatch chickens. Similarly, economic status is usually correlated with education. The poor cannot acquire good education, so economic status affects education. Good education provides more and better opportunities to gain income, so education affects economic status. Still, in other cases it is impossible to say with certainty whether a causal nexus exists.

What, then, is the most plausible causal explanation for the correlation between law school and law review rankings? Brophy states that in the current context, causation—not only correlation—is symmetrical, and implies that the causal impact is significant both ways. In other words, law review success and law school reputation are almost like chickens and eggs. In my opinion, he overstates the importance of law review citation rate for law school reputation.

As mentioned before, causation implies timing. So according to Brophy’s hypothesis, a significant and consistent change in law review citation frequency should be followed by a corresponding change in law school reputation. Specifically, if a certain journal’s citation frequency changed significantly and consistently from 2002 to 2005, the respective law school’s reputation should have changed correspondingly from 2002 to the end of 2005. To test this proposition, I sought general-interest law reviews that satisfy two requirements. First, each must have improved or deteriorated significantly from 2002 to 2005. Presumably, a significant change in law review citation is more likely to affect law school reputation. Second, each must be associated with a school that ranked among the top-100 in the 2004 and/or 2007 editions of the U.S. News ranking (based on data collected in late 2002 and late 2005 respectively). That way, changes in law school reputation are easily discerned.

13 Brophy, supra note 2, at 55 (“The arrows of influence probably point both ways.”).
14 See supra notes 6–7 and accompanying text.
15 See Brophy, supra note 2, at 55 (“[A]s citations increase, as faculty see articles cited more frequently, they may have increasing respect for the schools associated with them.”). In light of this hypothesis, one may wonder why Brophy limits his analysis to flagship journals. If citations actually have an effect on law school reputation it seems that the cumulative number of citations of all journals associated with each school, not only the citations of the flagship journal, should impact the school’s reputation.
16 The U.S. News ranking for year \( x \) (e.g. 2007) is published in year \( x-1 \) (e.g. 2006), and based on data collected in year \( x-2 \) (e.g. 2005). Consequently, things that happen in \( x \), \( x-1 \) or even in the end of \( x-2 \) cannot affect the U.S. News ranking for year \( x \). See Law Methodology, U.S. NEWS & WORLD REPORT, AMERICA’S BEST GRADUATE SCHOOLS 2007 (2006), available at http://www.usnews.com/usnews/edu/grad/rankings/about/07law_meth_brief.php.
If Brophy’s hypothesis were correct, a significant and consistent increase in a journal’s citation frequency should be followed by a corresponding increase in law school reputation. However, as can be seen in Table 1 below, this does not seem to be the case.\textsuperscript{17}

### Table 1: Best Performers (Journals)

<table>
<thead>
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<tr>
<td>Lewis &amp; Clark</td>
<td>149</td>
<td>100</td>
<td>+49</td>
<td>69</td>
<td>77</td>
<td>−8</td>
<td>No</td>
</tr>
<tr>
<td>George Mason</td>
<td>106</td>
<td>70</td>
<td>+36</td>
<td>40</td>
<td>37</td>
<td>+3</td>
<td>No</td>
</tr>
<tr>
<td>Alabama</td>
<td>87</td>
<td>55</td>
<td>+32</td>
<td>45</td>
<td>43</td>
<td>+2</td>
<td>No</td>
</tr>
<tr>
<td>Florida</td>
<td>81</td>
<td>53</td>
<td>+28</td>
<td>45</td>
<td>41</td>
<td>+4</td>
<td>No</td>
</tr>
<tr>
<td>Indiana Indian.</td>
<td>77</td>
<td>51</td>
<td>+26</td>
<td>64</td>
<td>77</td>
<td>−13</td>
<td>No</td>
</tr>
<tr>
<td>Boston College</td>
<td>60</td>
<td>36</td>
<td>+24</td>
<td>22</td>
<td>27</td>
<td>−5</td>
<td>No</td>
</tr>
<tr>
<td>Brandeis</td>
<td>143</td>
<td>119</td>
<td>+24</td>
<td>69</td>
<td>3rd tier</td>
<td>−32*</td>
<td>No</td>
</tr>
<tr>
<td>Hawaii</td>
<td>156</td>
<td>140</td>
<td>+16</td>
<td>86</td>
<td>93</td>
<td>−7</td>
<td>No</td>
</tr>
<tr>
<td>St. John’s</td>
<td>92</td>
<td>77</td>
<td>+15</td>
<td>69</td>
<td>80</td>
<td>−10</td>
<td>No</td>
</tr>
<tr>
<td>Syracuse</td>
<td>117</td>
<td>103</td>
<td>+14</td>
<td>97</td>
<td>3rd tier</td>
<td>−4</td>
<td>No</td>
</tr>
<tr>
<td>Illinois</td>
<td>40</td>
<td>27</td>
<td>+13</td>
<td>25</td>
<td>27</td>
<td>−2</td>
<td>No</td>
</tr>
<tr>
<td>Chicago-Kent</td>
<td>41</td>
<td>28</td>
<td>+13</td>
<td>69</td>
<td>60</td>
<td>+9</td>
<td>Yes</td>
</tr>
<tr>
<td>DePaul</td>
<td>52</td>
<td>41</td>
<td>+11</td>
<td>3rd tier</td>
<td>80</td>
<td>+21*</td>
<td>Yes</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>139</td>
<td>129</td>
<td>+10</td>
<td>58</td>
<td>80</td>
<td>−22</td>
<td>No</td>
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<tr>
<td>Villanova</td>
<td>58</td>
<td>48</td>
<td>+10</td>
<td>69</td>
<td>60</td>
<td>+9</td>
<td>Yes</td>
</tr>
<tr>
<td>Nebraska</td>
<td>107</td>
<td>97</td>
<td>+10</td>
<td>64</td>
<td>70</td>
<td>−6</td>
<td>No</td>
</tr>
<tr>
<td>Mississippi</td>
<td>158</td>
<td>148</td>
<td>+10</td>
<td>89</td>
<td>97</td>
<td>−8</td>
<td>No</td>
</tr>
</tbody>
</table>

Similarly, if Brophy’s hypothesis were correct a significant and consistent decrease in a journal’s citation frequency should be followed by a corresponding decrease in law school reputation. Table 2 reveals a different reality.\textsuperscript{18}

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\textsuperscript{17} As stated above, the table does not include law reviews associated with schools that did not rank among the top-100 in the 2004 and/or 2007 edition of the \textit{U.S. News} ranking. So it is worth mentioning that in most cases third-tier and fourth-tier schools did not move to a higher tier following a significant increase in their law reviews’ citation rates. The following schools remained in the third-tier despite an improvement in their law reviews’ rankings by frequency of citation (the numbers in parentheses indicate the changes in citation-ranks): Michigan State (54), Akron (28), Arkansas–Little Rock (25), Drake (22), Loyola (22), Maine (17), Washburn (15), Hofstra (13), Idaho (10). The following remained in the fourth-tier despite a significant increase in law review ranking by frequency of citation: Capital (22), New England (14), Widener (13), California Western (11), Regent (10), Tulsa (10), Whittier (10). Two schools (William Mitchell and Chapman) dropped from the third-tier to the fourth despite a significant rise in their law reviews’ citation ranking. Only one school (UMKC) climbed from the fourth-tier to the third following an improvement in law review citation.

\textsuperscript{18} The following schools remained in the third-tier despite a significant deterioration in their law reviews’ ranking by frequency of citation (the numbers in parentheses indicate the changes in citation-ranks): Montana (−43), Memphis (−39), Cumberland (−34), Duquesne (−32), Creighton (−19), Albany (−18), North Dakota (−14), Stetson (−14), Southwestern (−13), Howard (−11), Pace (−11), Vermont (−10). Texas Tech climbed from the fourth-tier to the third despite a clear deterioration of its flagship
Moreover, if law review citations actually affected law school reputation, we could expect lower ranked schools whose flagship journals consistently rank high by frequency of citation to improve their ranking. However, anecdotal evidence at odds with this prediction is readily available. Most notably, the *Fordham Law Review* which has been ranked among the top-10 law reviews by frequency of citation since 2002, has been unable to pull the Fordham Law School up from its traditional position in the *U.S. News* ranking (around thirty). Similarly, the *Cardozo Law Review*, ranked 25th–26th by frequency of citation between 2002 and 2005, did not help the Cardozo School of Law leap into the top-50.

If Brophy’s hypothesis were correct, we could also expect highly ranked schools whose flagship journals consistently rank much lower by frequency of citation ultimately to fall in the *U.S. News* ranking. Here too we have contrary evidence. For example, the George Washington University Law School retained and even improved its place among the top-25 law schools although its flagship journal ranked 47th between 2002 and 2004, and 42nd in 2005. Similarly, the Brigham Young University Law School retained its place among the top-35 schools while its law review ranked in the range of 56–66.

In conclusion, it seems that law review citations make no notable impact on law school reputation. Apparently, the correlation between these two variables is not the result of a common response to an unobserved variable.\(^\text{19}\) So the only logical conclusion is that law school

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\(^{19}\) I believe that the most important determinants of law school reputation do not directly affect law review success. They usually affect citations indirectly by altering schools’ reputations, and thereby changing the incentives of potential authors, students and readers.
reputation is usually the cause whereas law review success is the effect. This logical inference is also theoretically sound. We may expect a better law school to publish a better law review for at least four cumulative reasons.20

Two of these reasons concern authors’ incentives at the pre-contractual stage. First, a school’s reputation as reflected in the U.S. News ranking might have a considerable effect on the number of submissions to its journals, so the editors have a larger assortment of articles to choose from.21 Second, a higher law school reputation increases the probability that an author to whom a publication offer has been extended will accept it; the risk of losing high-quality articles is lower.22

An interesting question is whether authors base their submission and publication decisions on law schools’ reputation among academics (as represented by peer assessment scores), overall scores in the U.S. News rankings, or rank ordering. I assume that initially, in the absence of a comprehensive ranking, submission and publication decisions were affected by a subjective, commonsense evaluation of law schools’ reputations. However, it is quite sensible to assume that those decisions gradually became contingent on the U.S. News ultimate ranking. As stated by Caron and Gely a while ago, “The U.S. News & World Report annual law school rankings are the 800-pound gorilla of legal education.”23 They have a great impact on all aspects of legal education. Law schools use every measure reasonably available to protect and improve their U.S. News rankings.24 They increasingly circulate promotional materials,25 use various techniques to raise the median of incoming students’ LSAT scores, etc.26 The U.S. News ultimate rankings are also a key factor in students’ choices of law schools, and affect the job prospects of each school’s graduates.27 They have been thoroughly and recurrently discussed in the

21 Id. at 30.
22 Id. Law school reputation is not the sole factor taken into account by authors. Other relevant factors include law review reputation (and rank, where available), publishing schedules, the ability to reach a certain audience through a specific medium, etc. Yet law school reputation is clearly a dominant consideration. See id.
23 Caron & Gely, supra note 3, at 4.
26 Henderson & Morriss, supra note 24, at 202; Alex M. Johnson, Jr., The Destruction of the Holistic Approach to Admissions: The Pernicious Effect of Ranking, 81 Ind. L.J. 309, 349–54 (2006); Rapoport, supra note 25, at 374.
legal literature, both favorably and critically. Given their tremendous impact on legal academia, there is no reason to believe that they do not directly affect submission and publication decisions.

However, the practical value of the above is relatively limited. To start with, it has been argued that the *U.S. News* rank ordering is so influential that it actually affects law school reputations among law professors (which are then manifested in peer assessment scores). In that case, deciding whether authors are influenced by the *U.S. News* rankings or by peer assessments is futile. Either way, it is the final ranking that sets the tone. Moreover, even if rankings had no impact on peer assessment it would not matter much whether authors used rank ordering, overall scores or peer assessments because the three variables are very highly correlated.

The other two reasons for the strong impact of law school reputation on law review success concern editorial proficiency. First, a more reputable school usually enrolls students whose entry credentials are better. Assuming entry credentials can predict academic aptitudes, we might expect a more skilful screening and editing process by student-editors in more reputable schools. Second, in many cases faculty members are involved in the publication process. Presumably, better schools have better faculty to assist student-editors.

So far, I have supported my proposition (law school reputation is usually the cause rather than the effect of law review success) with a logical deduction and a theoretical argument. Regrettably, the validity of my assertion cannot also be tested empirically. That is so because until

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31 The relevant linear correlation coefficients are −0.929 (ranks/overall scores); −0.907 (ranks/peer assessment scores); 0.974 (overall scores/peer assessment scores).
2003 *U.S. News* provided an ordinal ranking of only the top-50 law schools. Few significant changes occurred and endured in that list during the last decade.\(^{32}\) Most changes were trivial or temporary. True, in the last few years *U.S. News* has published an ordinal ranking of the top-100 schools. However, a significant and consistent change in law school reputation might need a few years to translate into a corresponding change in law review success. Assume authors sense a significant change in a school’s reputation in a certain year, and that this affects their submission and publication decisions immediately. Articles accepted for publication that year might be published a year later, and it may take them three to four years to garner any citations. So the effect of a significant and consistent change in the recent *U.S. News* rankings on law review success will become visible only in the future. The very few significant and consistent changes in the top-50 list during the last decade, along with subsequent changes in law review citation frequencies, are listed below. Naturally, these figures have a very limited value.

**Table 3: Visible Changes in Law School Reputation**

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</tr>
</thead>
<tbody>
<tr>
<td>George Mason</td>
<td>2nd tier</td>
<td>47, 40</td>
<td>106</td>
<td>70</td>
<td>+36</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Alabama</td>
<td>2nd tier</td>
<td>47, 45</td>
<td>87</td>
<td>55</td>
<td>+32</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Cincinnati</td>
<td>50, 43</td>
<td>2nd tier</td>
<td>49</td>
<td>43</td>
<td>+6</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Houston</td>
<td>49, 50</td>
<td>2nd tier</td>
<td>43</td>
<td>37</td>
<td>+6</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Arizona State</td>
<td>44, 44</td>
<td>2nd tier</td>
<td>56</td>
<td>59</td>
<td>-3</td>
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</tr>
<tr>
<td>Tennessee</td>
<td>42, 48</td>
<td>2nd tier</td>
<td>80</td>
<td>87</td>
<td>-7</td>
<td>Yes</td>
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</tr>
</tbody>
</table>

B. *Under-Valued and Over-Valued Schools*

In his article, Brophy details major discrepancies between the *U.S. News* law school rankings and law review rankings by frequency of citation. He labels them “anomalies” and contends that schools whose journals’ ranks by frequency of citation are much higher or much lower than their *U.S. News* rankings are under-valued or over-valued respectively.\(^{33}\) In his view, Fordham, Cardozo, Houston, Miami and Colorado are under-valued.\(^{34}\) He suggests that they “may have developed


\(^{33}\) Brophy, *supra* note 2, at 53–54.

\(^{34}\) Id. at 54, Table 8.
a stronger intellectual culture than their ranking suggests,” and that the “stronger-than-predicted performances [of their law reviews] may also indicate that those faculties are particularly scholarly.”

As explained in detail in my previous articles, citation frequency cannot serve as the sole measure for journal quality. Assuming that journal quality may be used as a proxy for law school quality, we must use a more subtle measure of the former to learn about the latter. Indeed, if my complex law review ranking method were used some of the anomalies identified by Brophy would disappear. The *Fordham Law Review* would rank 22nd (only five places higher than the school’s 2006 *U.S. News* rank), the *Cardozo Law Review* would rank 48th (ten places higher than the school’s rank), and the *University of Miami Law Review* would rank 80th (only seven places below the school’s rank).

Now, assuming Brophy’s analysis of under-valued schools is accepted, his discussion of what seem to be over-valued schools is somewhat perplexing. If higher-than-expected citation ranks of law reviews indicate that the schools with which they are associated are stronger than their rankings suggest, lower-than-expected citation ranks must indicate the opposite. Yet Brophy maintains that in several cases, such as the *George Washington University Law Review* and the *Washington University Law Quarterly*, the respective schools “are so highly regarded that it is difficult to have a similarly high citation rank.” This statement is not only inconsistent with his analysis of under-valued schools, but it also goes against what we know about other reputable schools. Most “highly regarded” schools in fact produce highly ranked law reviews. Except for the two journals mentioned by Brophy, all flagship journals of the top-25 schools in the 2006 *U.S. News* ranking are ranked among the top-30 in my law review ranking, and among the top-30 by frequency of citation and by impact factor. So it is not that difficult for a reputable school to maintain a successful journal.

C. **Lower Correlation in Lower School Tiers**

Brophy notes that the correlation between law school peer assessment scores and law review citations is lower for schools ranked 52–100 than it

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35 Id.
37 Brophy, *supra* note 2, at 54.
39 Brophy also argues that these two anomalous journals may consistently select articles in developing areas or in esoteric areas, which may not garner citations. This argument, however, is unconvincing. Without appropriate empirical evidence one cannot assume that the subject-matter distribution in these journals is so different from the subject-matter distribution in other general-interest law reviews.
is for the top-51, and that it is much lower for third and fourth tier schools. He puts forward three explanations for this. First, “at several points there is a bunching in terms of citations,” so a few additional citations (that may be a product of mere chance) can move a journal up or down in rank dramatically. Second, the quantity and quality of articles that journals in lower ranked schools publish are probably subject to greater control by the faculty than is peer assessment. Third, the peer assessment scores for third and fourth tier schools may be wrong.

I would suggest a different explanation that complies with my causal hypothesis. Law review success is determined to a great extent by school reputation. Two related things occur as we go down the school rankings. First, the gaps between schools’ reputations get smaller. The differences in attractiveness between the respective law reviews must also become smaller, so the relative success of each journal is more affected by randomness. Second, the lower we go the higher are the fluctuations in schools’ reputational ranks. Put differently, the gaps between law schools become less certain, making potential law review contributors less concerned about them in making their submission and publication decisions.

For example, the gap in peer assessment rank between Yale (1) and Cornell (11) in the 2006 edition of the U.S. News ranking is exactly the same as the gap between Penn State (100) and McGeorge (110). But although authors might strongly prefer publishing in the Yale Law Journal to publishing in the Cornell Law Review, they may be completely indifferent to the choice between the Penn State Law Review and the McGeorge Law Review. The reason, in my view, is quite simple. The gap between Yale and Cornell’s peer assessments (0.6 on a 1–5 scale) is not only much wider than the gap between Penn State and McGeorge (0.1), but is also much more certain.

III. REFINEMENT OF THE CORRELATION ANALYSIS

In my original work I verified the correlation between law school reputation and law review quality. However, I used only U.S. News rank ordering and overall scores as indicia of law school reputation. This restricted my analysis to the top-100 law schools, leaving third and fourth tier schools unexplored. Brophy enhanced my initial analysis by calculating the linear correlation coefficient between law school peer assessment scores (as provided by U.S. News) and law review citations.

40 Brophy, supra note 2, at 49.
41 Id. at 51.
42 Id.
43 See supra notes 4–5 and accompanying text.
Peer assessment scores, as opposed to rank ordering and overall scores, are available for all ABA accredited law schools, making Brophy’s analysis of the law review/law school liaison more comprehensive. Moreover, since peer assessment scores are the best predictors of overall scores, Brophy’s figures provide a good approximation of what the relation between law review quality and law schools’ overall scores would have been, had all schools been actually ranked.

In this part I take the law review/law school correlation analysis two steps farther. First, I contend that the correlation between law review quality (hereinafter \( y \)) and law school peer assessment score (hereinafter \( x \)) is not linear as previously implied, but rather polynomial. I show that the correlation is very well fit by a second-order polynomial \( y=ax^2+bx+c \), and endeavor to explain this form. Second, I show that a similar polynomial correlation exists between law review quality and the 75th percentile of incoming students’ LSAT scores, and associate this finding with the law review quality/law school peer assessment relationship.

The linear correlation coefficient between law review citation frequency in 1998–2005 and law school peer assessment score in the 2006 edition of the *U.S. News* ranking, published in 2005, is 0.897 (\( R^2=0.805 \)). The linear correlation coefficient between law review impact factor and law school peer assessment is 0.906 (\( R^2=0.821 \)). In another article published in this volume I propose a novel ranking method for general-interest law reviews, based on a judicious weighting of citation frequency and impact factor. The linear correlation coefficient between law review final score under the proposed method and law school peer assessment score is 0.922 (\( R^2=0.850 \)).

Despite the very high linear correlation coefficients, it appears that the relationship between the relative value of law reviews—as manifested in citation-based measures—and law school peer assessment scores may be described more accurately as a polynomial correlation. Figure 1 illustrates the relationship between law review citation frequency (\( y_1 \)) and law school peer assessment score (\( x \)). The following quadratic equation provides a rough representation of this relationship: 

\[
y_1=363.46x^2-952.68x+903.33 \\
(R^2=0.879).
\]

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44 The correlation coefficient between the two variables for the top-100 law schools is 0.974.
45 Cf. Brophy, supra note 2, at 50.
46 Perry, *Refinement and Implementation*, supra note 1, at Part III.
Figure 1: Correlation between Law School Peer Assessment Score and Law Review Citation Frequency

\[ y = 363.46x^2 - 952.68x + 903.33 \]
\[ R^2 = 0.8785 \]

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Figure 2 shows the correlation between law review impact factor \((y_2)\) and peer assessment score \((x)\). An approximate representation of the relationship between these variables is \( y_2 = 0.5576x^2 - 0.4885x + 0.8031 \) \((R^2=0.853)\).

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Finally, Figure 3 shows the correlation between law review final score \((y_3)\) and law school peer assessment score \((x)\), which is very well fit by this polynomial: \( y_3 = 5.3661x^2 - 8.9682x + 10.258 \) \((R^2=0.897)\). The correlation here is indeed exceptionally high.
A possible explanation for this correlation may be that peer assessment has a double impact on law review citation. For example, it may be argued that peer assessment affects authors’ submission strategies and publication decisions on the one hand, while shaping users’ reading and citation practices on the other. In the pre-publishing stage a school’s reputation among academics (as reflected in its peer assessment score) may have a considerable effect on the number of submissions to its journals, and on the likelihood that an author to whom a publication offer has been extended will actually accept it. In the post-publishing stage a school’s reputation may affect scholars’ willingness to read articles published by its journals and cite them. Law professors might “base their reading strategies on law schools’ reputation rather than journals’ actual achievements, assuming that journals of more prestigious schools will always publish better papers.” Moreover, by citing articles published in journals of more reputable schools authors may attempt to exploit such a reputation to make their manuscripts seem more impressive.

An alternative explanation calls for the introduction of another variable into the equation, namely the 75th percentile of incoming students’ LSAT scores (hereinafter “top students’ entry credentials”). Hitherto, neither Brophy nor I examined the relationship between law review quality, as reflected in citation-based measures, and top students’ entry credentials. As can be seen in Figures 4–6 below, the relationship between these two variables is also polynomial.

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47 Perry, Refinement and Implementation, supra note 1, at 31.
48 Id. at 32–33.
Figure 4: Correlation between the 75th Percentile of Students' LSAT Scores and Law Review Citation Frequency

\[ y = 11.402x^2 - 3504.4x + 269524 \]
\[ R^2 = 0.8571 \]

Figure 5: Correlation between the 75th Percentile of Students' LSAT Scores and Law Review Impact Factor

\[ y = 0.0188x^2 - 5.6529x + 426.18 \]
\[ R^2 = 0.7943 \]

Figure 6: Correlation between the 75th Percentile of Students' LSAT Scores and Law Review Final Score

\[ y = 0.1752x^2 - 53.212x + 4047.6 \]
\[ R^2 = 0.8487 \]
Presumably, the success of any journal has something to do with the qualifications of its editors. In America, a general-interest law review associated with a specific school is usually edited by that school’s finest students. Thus, if LSAT scores actually foretell law school performance, and if law school performance corresponds to editorial aptitudes, a higher 75th percentile of incoming students’ LSAT scores at a certain school may indicate a more skillful screening and editing process by its flagship journal.49 This theory may account for some correlation between law review quality and top students’ entry credentials.50 However, it does not explain the polynomial relationship.

There are at least two possible explanations for the polynomial correlation. First, it may be argued that top students’ entry credentials have no effect on the quality of law reviews after all. According to this view, even if LSAT scores predicted law school performance (which is clearly open to question),51 law school performance could not predict the quality of law review editing. Many scholars assert that even students with excellent credentials are not qualified—after one or two years of law school—to edit an academic periodical.52 Since student-editors spend two


50 True, the data used here is taken from the 2006 edition of the U.S. News ranking. So the 75th percentile of LSAT scores refers to the 2004 entering class. Theoretically, those values could not affect law review citations from 1998 through 2005, because the finest students in the entering class of 2004 could not become law review editors prior to 2005–2006. In practice, however, top students’ entry credentials in 2004 are very highly correlated with top students’ entry credentials in earlier years. For example, the linear correlation coefficient between the 75th percentile of LSAT scores of the 2004 entering class and the 75th percentile of LSAT scores of the 2001 entering class (which may be found in the 2003 edition of the U.S. News ranking, published in 2002) is 0.966.

51 A study conducted at the Marquette University Law School found that the LSAT score was a very weak predictor of law school grades; the UGPA was a somewhat better—but definitely inconclusive—predictor of law school performance; and a combination of the two was a better predictor than each alone, but still relatively weak. Jeffrey S. Kinsler, The LSAT Myth, 20 ST. LOUIS U. PUB. L. REV. 393 (2001). An analogous study conducted at the Brigham Young University Law School concluded that entering law “[s]tudents need not feel any sense of deterministic fatalism that lower credentials will consign them to the lower ranks of the class or exclude them from prestigious law review membership.” David A. Thomas, Predicting Law School Academic Performance from LSAT Scores and Undergraduate Grade Point Averages: A Comprehensive Study, 35 ARIZ. ST. L.J. 1007 (2003).

years at most as law review editors, they do not gain sufficient experience in editing. Entry credentials signify at best the potential to learn and practice law, and not actual background in each and every field of legal and interdisciplinary scholarship, which is required to evaluate scholarly manuscripts on various unrelated topics, to select those of best academic quality, and to refine them.

If we assume no impact of top students’ entry credentials on law review quality, the correlation between these two variables may simply mirror the correlation between law review quality and a third variable that (1) correlates with top students’ entry credentials, and (2) has a double impact on law review quality. Law school reputation among academics, as manifested in peer assessment scores, might possess these two attributes: it is highly correlated with top students’ entry credentials (the linear correlation coefficient is 0.912); and it may have a double impact on law review quality.

A more plausible explanation for the polynomial correlation between law review quality and top students’ entry credentials is that the former is affected by the combined force of the latter and law school peer assessment. The exact manner in which the two factors combine is elusive. Nonetheless, given the potential for a double impact of peer assessment on the one hand, and the above-mentioned reservations concerning law students’ editorial skills on the other, it is quite conceivable that top students’ entry credentials are not as significant as peer assessment. Indeed, the linear correlation coefficient between law review final score and a combination of peer assessment score (P) and top students’ entry credentials (L) is very high (0.95) if P and L are combined thus: \[
\left(\frac{P-1}{4}\right)^{1.5} \times \left(\frac{L-120}{60}\right).
\]
Obviously, the combined force theory might also serve as an alternative, more realistic, explanation for the polynomial correlation between law review quality and peer assessment score.

IV. IMPLICATIONS

A. Frequency of Citations as a Substitute for Peer Assessment

In the last part of his article, Brophy puts forward an especially interesting argument. This would be a fair outline: (1) the high correlation between law review citation frequency and law school reputation (echoed in peer assessment scores) for the top-100 schools implies that the former is a fairly accurate gauge of the latter; (2) the low correlation between law review citations and law school reputation for the third and fourth tier schools stems from the inability of raters correctly to

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53 Brophy, supra note 2, at Part III.
assessment, is an important factor in assessing the quality of those schools; (3) given (1) and (2), law review citation frequency should be used as a substitute for subjective peer assessment in law school ranking, at least for lower-end schools on which raters do not have sufficient information. This is clearly an alluring proposal. Still, I do not feel comfortable with it.

First, I do not agree that the low correlation between law review citations and law school peer assessment scores for third and fourth tier schools stems from an inability to evaluate those schools. As explained earlier, I believe that the main reason for the low correlation between the two variables for low-ranked schools is that as we go down the ranking the gaps between schools’ reputations get smaller and less certain, so potential law review contributors are less concerned about them when making their choices. This increases the effect of randomness on law review success. In other words, the lower correlation for lower-end schools is not a problem that has to be solved. It is a natural upshot of the reputational hierarchy in American legal academy.

Second, the formal justification for Brophy’s proposal is that law review citation frequency is highly correlated with law school reputation for the top-100 schools. Yet assuming that the substitute for peer assessment scores should be the best available predictor of law school reputation, my law review ranking method provides an even better gauge. While the correlation coefficient between law review citation frequency and law school peer assessment score for the top-100 schools is 0.9, the correlation coefficient between law review final score and peer assessment score for the same schools is 0.936.54

Third, the substantive justification for Brophy’s proposal is that journals’ quality tells us something of consequence about the schools with which they are associated. A journal’s quality demonstrates the “intellectual engagement” at the respective school. Even if we accept this line of reasoning, we cannot extrapolate schools’ reputations from a dubious proxy of journals’ value, namely citation frequency. Journal quality must be assessed in a more sensible way.

Fourth, as a matter of principle, law schools’ reputations should not be determined by their flagship journals’ quality. A school’s reputation should be determined by the productivity, innovation, and impact of its own faculty,55 whereas the achievements of its law review are attributed mainly to the productivity, innovation, and impact of contributors from other schools.

54 All calculations are based on the 2006 edition of the U.S. News ranking.
55 For law school rankings based on faculty impact, see, e.g., Theodore Eisenberg & Martin T. Wells, Ranking and Explaining the Scholarly Impact of Law Schools, 27 J. LEG. STUD. 373, 388 (1998); for rankings based on productivity, see, e.g., James Lindgren & Daniel Seltzer, The Most Prolific Law Professors and Faculties, 71 Chi.-Kent L. Rev. 781 (1996).
B. Increasing Citation Frequency

Brophy advocates a few techniques that law reviews may utilize to increase their frequency of citation: (1) publish symposia issues; (2) print lectures by distinguished scholars; (3) increase faculty involvement in the review process; and (4) publish more. Since in his view law review citation frequencies may be used to rank law schools, these techniques are actually intended to help law schools improve their positions rather than simply increase the citation rates of their journals. I find three of these suggestions troubling, as they encourage quality-insensitive publication strategies.

Journals that annually dedicate one issue or more to symposia will definitely have an advantage over journals that publish only unsolicited articles; and journals that publish in an all-symposium format will enjoy an advantage over all others because symposia issues may include a substantial number of cross-citations. However, those citations pose a serious dilemma.

On the one hand, they do not truly represent the journal’s impact on the academic discourse. They simply mirror the exchange of ideas that took place at the conference. The impact that these citations signify is attributable to the conference, not to the ensuing publication. The impact of the symposium issue may be examined only in subsequent publications. More important, taking into account symposium cross-citations may encourage journals to organize as many conferences as possible without a meticulous paper-selection process. The incentive would be fairly strong given the expected benefit, namely numerous citations, and improvement of journal rank, and possibly of school rank.

On the other hand, it is hard to justify a complete discounting of cross-citations in symposium issues because publishing conference proceedings has some additional value: it forces the participants to rethink their arguments in light of the other papers. Cross-citation is not only a matter of courtesy. It also represents the exchange of ideas and the academic dialogue that began at the conference and continued from its conclusion to the submission of the final drafts for publication. Moreover, whenever a journal organizes a symposium it advances the academic discourse. It may be argued that cross-citations in symposium issues reflect a journal’s contribution to the unwritten academic discourse.

56 Brophy, supra note 2, at 57–58.
58 Cf. Perry, A Critical Appraisal, supra note 1, ¶ 102 (discussing the dramatic rise in ranking of Chicago-Kent Law Review after it switched to an all-symposium format).
To conclude, it is unclear whether or not cross-citations in symposium issues ought to be taken into account in assessing the relative value of law reviews. In any event, this dilemma arises only where there is an overlap between the publication period of the issues whose citations are counted and the publication period of the issues in which citations are sought. If there is no overlap, symposium cross-citations are not counted anyway.

Printing distinguished scholars’ lectures might also increase a journal’s frequency of citation. Assuming that a typical author would rather cite prominent scholars to substantiate his or her own arguments, journals that publish articles written by more prominent authors can be expected to attract a higher number of citations. Still, Brophy’s advice encourages law reviews to prefer author prominence to article quality. I admit, however, that any citation-based ranking method, including my own, may create this problematic incentive.

Finally, “other things being equal, a journal with more citable material may be expected to be cited more often than one with less citable material.” This means, however, that journals’ citation frequencies may be insensitive to the average academic quality of the articles they publish. Mediocre journals with high paginations may garner more citations than excellent journals with low paginations. Moreover, a continuous ranking by citation frequency may encourage editors to publish more articles (or more extensive articles) of lesser value, and this in turn, may reduce the average academic quality of each item. The incentive to publish much more just for the sake of garnering more citations is exactly the one I wanted to curb with my complex ranking method.

V. CONCLUSION

This Essay endeavored to deepen our understanding of the correlation between law review rankings and law school rankings, partly in response to Professor Alfred Brophy’s illuminating article in this volume.

Part II discussed Brophy’s interpretation of the above-mentioned correlation. Section A challenged his assumption that law review success—in terms of citation frequency—considerably affects law school reputation. Following a short methodological explanation of the difference

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and the relationship between mathematical correlation and causation, it contended that law school reputation is usually the cause rather than the effect of law review success. It provided some empirical evidence against Brophy’s causal hypothesis, and a theoretical argument supporting my own.

Section B criticized Brophy’s account of marked anomalies between law school ranking and law review ranking by frequency of citation, indicating that even if journal quality could be used as a proxy for law school quality, we should apply a more subtle measure of the former to learn about the latter.

Section C afforded an explanation that complies with my causal hypothesis for the lower correlation between law review citations and law school peer assessment scores in lower school tiers. It maintained that as we go down the school rankings, reputational gaps between law schools are not only smaller, but also less certain. This makes law professors less concerned about them in making their submission and publication decisions.

Part III took the law review/law school correlation analysis two steps farther. First, it demonstrated that the correlation between law review quality and law school peer assessment score is not linear. Rather, this correlation is well fit by a second-order polynomial. A possible explanation for this form may be that peer assessment has a double impact on law review citation. For example, it may be argued that peer assessment affects authors’ submission strategies and publication decisions on the one hand, while shaping users’ reading and citation practices on the other.

Second, Part III showed that a similar polynomial correlation exists between law review quality and the 75th percentile of incoming students’ LSAT scores. If we assume no impact of top students’ entry credentials on law review quality, the correlation between these two variables may simply mirror the correlation between law review quality and a third variable that correlates with top students’ entry credentials, and has a double impact on law review quality, such as law school reputation among academics.

A more plausible explanation for the polynomial correlation between law review success and top students’ entry credentials, and between law review success and law school peer assessment, is that law review success is affected by the combined force of top students’ entry credentials and peer assessment.

Part IV discussed Brophy’s main operative recommendations. Section A examined his proposal to use law review citation frequency as a substitute for subjective peer assessment in law school ranking, at least for lower-end schools on which raters do not have sufficient information. It reiterated that the low correlation between law review citations and law school peer assessment scores for third and fourth tier schools does not
reflect an inability to evaluate those schools; explained that my complex
law review ranking method is not only a better predictor of law school
reputation than citation frequency, but also a more defensible quality
evaluation tool; and maintained that a school’s reputation should be
determined by the accomplishments of its own faculty, whereas the
contents of its law review are usually attributed to others.

Finally, Section B criticized Brophy’s advocacy of various techniques
that law reviews can use to attract citations and improve their ranks,
mainly on the grounds that they may encourage editorial boards to adopt
quality-insensitive publication strategies.

I am quite confident that the interesting debate begun in this volume
will not stop here. In the end, we are all associated with law schools,
reliant on law reviews, and captivated by rankings.