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ARTICLE

How and Why Do Judges Cite Academics? Evidence from the Singapore High Court

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Abstract

Legal academics were once thought to be parasitic on the work of judges, so much so that citing academic work was said to weaken a judgment's authority. Recent times have however seen prominent academics appointed to the highest courts, and judicial engagement with academic materials appears to have increased. In this light, this article empirically studies academic citation practices in the Singapore High Court. Using a dataset of 2,772 first-instance High Court judgments, we show that citation counts have indeed increased over time. This increase was distributed across most legal areas, and was not limited to, though more pronounced in, judgments authored by judges with post-graduate law degrees. Books, not journal articles, have consistently accounted for the bulk of the court's citations. The study sheds new statistical light on the evolving relationship between judges and academics, particularly in the context of an Asian, first-instance court.

The common law doctrine of precedent compels judges to cite relevant case authorities in their judgments. Accordingly, lawyers are professionally obliged to present all relevant cases to the court,¹ and judges are bound by precedent from higher courts. This does not, however, apply to citations of *academic* materials. Thus, every academic citation reflects a conscious judgment on the citer's part that the cited material is worth express mention. Judicial citations to academic material thereby encode valuable insights on judicial choices and philosophies. They illuminate, in particular, the dynamic relationship between the judiciary and legal academia, a subject that has received significant attention from both judges and academics.² The number of court citations an academic has garnered may be tracked as an indicator of the quality and impact of their work. How and why judges cite academics could therefore shape academic career trajectories. It has also been argued that a judge who would 'consistently cite more authority than [their] colleagues is simply a more industrious citer than they, and vice-versa'.³

It is therefore unsurprising that scholarship on judicial academic citation practices may be traced as far back as to Merryman's seminal works.⁴ There remains, however, a dearth of focused empirical

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¹See eg, Legal Profession (Professional Conduct) Rules 2015 (Singapore), r 9(3)(a).

²See the section immediately following this for a literature review.

³John Henry Merryman, 'Towards a Theory of Citations: An Empirical Study of the Citation Practice of the California Supreme Court in 1950, 1960, and 1970' (1978) 50 Southern California Law Review 381, 419.

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research on similar practices in Asian courts. Prior work primarily examines US appellate courts⁵ – institutions which may be influenced by a level of politicisation and partisanship not reproduced in Asia.⁶ Likewise, empirical evidence suggests there exists a ‘politics of citation’ in the European Court of Justice, in that judges there prefer citing judgments from judges appointed by states with similar views on European Integration.⁷

In this light, this article examines the Singapore High Court’s (High Court) citation of academic materials as a case study of how an Asian (and predominantly)⁸ first-instance court uses such materials in its decision-making process. The High Court represents a useful setting for studying the judge-academic relationship in Asia for two reasons: first, this setting provides more generalisable insights on Asian legal thinking than American or European case studies. Like many other Asian common law jurisdictions, Singapore law developed from English common law, and its legal officers were historically trained in the English legal tradition. In terms of *case* citations, Singapore courts continue to significantly reference English law.⁹ Second, focusing on the High Court allows us to build on prior empirical work on citation practices in the Singapore Court of Appeal (Court of Appeal),¹⁰ allowing fruitful comparisons to be drawn.

More specifically, this study aspires to two goals: the first is to provide a factual account of how a first-instance court cites academic materials through an empirical study of its practices. In other words, *how* such a court cites academic materials. We examine various aspects of the High Court’s academic citation practices, particularly the average number of academic materials cited per case as well as trends over time across legal subjects, and by the judges’ educational backgrounds. If the High Court is, as it surely is, an important legal institution of Singapore, then the authorities which it cites certainly deserve investigation. Moreover, several scholars have argued that court citations are a form of inter-court – and by extension, judiciary-academia – communication.¹¹ If so, it is important to understand the kind of ‘language’ that judges use.¹² Finally, the description of how the High Court cites academic materials should be of interest to members of the legal profession, be they practitioners interested to know which academic materials to cite in submissions (if at all), or academics who desire to know how they may better assist the courts.

The second goal is to explain *why* first-instance courts cite academic materials *in the manner they do*, taking into account their characteristics. First-instance courts differ from appellate courts

⁴John Henry Merryman, ‘The Authority of Authority: What the California Supreme Court Cited in 1950’ (1954) 6 Stanford Law Review 613; John Henry Merryman, ‘Towards a Theory of Citations: An Empirical Study of the Citation Practice of the California Supreme Court in 1950, 1960, and 1970’ (1978) 50 Southern California Law Review 381.

⁵William M Landes & Richard A Posner, ‘Legal Precedent: A Theoretical and Empirical Analysis’ (1976) 19 Journal of Law and Economics 249. See also William M Landes, Lawrence Lessig & Michael E Solimine, ‘Judicial Influence: A Citation Analysis of Federal Courts of Appeals Judges’ (1998) 27 Journal of Legal Studies 271; Stephen J Choi & Mitu G Gulati, ‘Ranking Judges According to Citation Bias (As a Means to Reduce Bias)’ (2007) 82 Notre Dame Law Review 1279.

⁶A statistical model supplied only with six political and ideological factors correctly predicted 75% of the US Supreme Court’s affirm/reverse decisions. A team of legal experts predicting the same cases using conventional legal analysis were 59.1% accurate. Theodore W Ruger et al, ‘The Supreme Court Forecasting Project: Legal and Political Science Approaches to Predicting Supreme Court Decisionmaking’ (2004) 104 Columbia Law Review 1150. Network scientists have also shown that US Supreme Court justices tend to vote in blocks. See Roger Guimerà & Marta Sales-Pardo, ‘Justice Blocks and Predictability of U.S. Supreme Court Votes’ (2011) 6 Public Library of Science One e27188.

⁷Jens Frankenreiter, ‘The Politics of Citations at the ECJ – Policy Preferences of E.U. Member State Governments and the Citation Behavior of Judges at the European Court of Justice’ (2017) 14 Journal of Empirical Legal Studies 813.

⁸Geoffrey Wilson, ‘English Legal Scholarship’ (1987) 50 Modern Law Review 818.

⁹Andrew Phang, Yihan Goh & Jerrold Soh, ‘The Development of Singapore Law: A Bicentennial Retrospective’ (2020) 32 Singapore Academy of Law Journal 804, 832.

¹⁰Cheah Wui Ling & Goh Yihan, ‘An Empirical Study on the Singapore Court of Appeal’s Citation of Academic Works: Reflections on the Relationship between Singapore’s Judiciary and Academia’ (2017) 29 Singapore Academy of Law Journal 75

¹¹See eg, Gregory Caldeira, ‘The Transmission of Legal Precedent: A Study of State Supreme Courts’ (1985) 79 American Political Science Review 179.

¹²Russell Smyth, ‘What do Intermediate Appellate Courts Cite? A Quantitative Study of the Citation Practice of Australian State Supreme Courts’ (1999) 21 Adelaide Law Review 51, 53.

in several respects. First, being bound to the law as laid down by higher courts, first-instance courts do not usually develop the law but simply apply established law. Second, and relatedly, the role of first-instance courts is primarily to decide the facts as gleaned from the evidence presented. Conceivably, this would mean that such courts have less interest in developing the law. Third, first-instance courts are usually staffed by a single judge and face a higher caseload compared to appellate courts. As such, one might expect first-instance courts – or more precisely, the judges presiding over them – to have less time and resources to develop the law through an examination of academic materials.

To achieve these two goals, this article will be structured along four parts. First, we set the theoretical and institutional background by examining the nature of academic materials, the (evolving) role of the legal academic, and the theory underlying why courts – and first-instance courts in particular – rely on academic work. The next part then sets the context for our empirical inquiry by explaining the dataset and how it was gathered. The third part opens with a statistical overview of the dataset before delving into our empirical results proper. Four key observations are made. Specifically, that: (1) academic citations by the High Court have significantly increased over time, particularly after 2003; (2) books rather than journal articles have consistently formed the majority of the court's academic citations; (3) the general increase in academic citations was distributed across a broad range of legal subject matters; and (4) judges with doctorates tend to cite significantly more academic materials than other judges, including those holding a Master of Laws (LLM) and/or equivalent degrees. Finally, we discuss and situate our findings in the context of the literature.

Legal and Institutional Context

The Nature of Academic Materials

To understand why courts generally cite academic materials, it is necessary to consider the question from two angles, the first of which is to examine the development and nature of academic materials. The broader evolution of legal academia has contributed immensely to the availability and usefulness of academic materials. This gave rise to a research culture in the English law schools in the 1960s and 1970s,¹³ and a concurrent reinterpretation by academics of their primary role as researchers instead of just teachers. Thus, after the post-Robbins expansion of universities in the 1960s – which Bridge believed to be the ‘true beginning of an English academic legal tradition’¹⁴ – legal academics started to view themselves in a better light and believed that they can make viable contributions to the legal profession. More specifically, they saw that they could make an active contribution to the development of the law itself. Together, these reasons promoted a culture of research within legal academia.

While the general picture is that law academics are now more engaged in research than before, this broad development must be considered together with other more nuanced developments. First, in contrast to some civilian jurisdictions like Germany, legal academics in the common law world still do not see themselves as a collective body that represents a source of law, albeit an informal one.¹⁵ Indeed, German law professors have generally held a higher status than even judges, who are usually appointed directly from university.¹⁶ In that system, it has been the German law professors who have shaped the ideas behind German law and drafted the civil codes over many centuries.¹⁷ Returning to the common law system, the practical implication of academics not seeing

¹³Geoffrey Wilson, ‘English Legal Scholarship’ (1987) 50 *Modern Law Review* 818.

¹⁴John Bridge, ‘The Academic Lawyer: Mere Working Mason or Architect?’ (1975) 91 *Law Quarterly Review* 488, 493.

¹⁵Alexandra Braun, ‘Judges and Academics: Features of a Partnership’, in James Lee (ed), *From House of Lords to Supreme Court: Judges, Jurists and the Process of Judging* (Hart Publishing 2011).

¹⁶Susan Kiefel CJ, ‘The Academy and the Courts: What Do They Mean to Each Other Today?’ (2020) 44 *Melbourne University Law Review* 447, 449.

¹⁷*ibid* 449. However, even within civilian jurisdictions, there are differences. Thus, the stricter separation of powers in France mean that the courts should only be seen as enforcing the law, not expounding it. This has led to the exclusion of the citation of any secondary materials from the text of judgments.

themselves as a collective source of law is that whether academic works are referred to by courts is, to a large extent,¹⁸ dependent on whether practitioners, who function as the conduit between judges and academics, refer to such work in their arguments.

Secondly, the direction of research undertaken by legal academics in the common law world has changed. In more recent times, in England and Wales, successive Research Assessment Exercises have demanded scholarship originality and pulled scholars away from the writing of textbooks to more critical work.¹⁹ Thus, Burrows has observed that research councils and law schools in the UK prefer 'expensive projects that involve empirical research and/or are multi-disciplinary rather than the highly cost-effective largely solitary research ... that typifies research in private law'.²⁰ And, although the assessors later disputed this, UK legal academics believed that doctrinal research was looked at less favourably in the 2015 Research Excellence Framework exercise than empirical or highly theoretical work.²¹ Similarly, in Australia, at a workshop conducted by the Council of Australian Law Deans in 2016, it was observed that the citation of legal academic work in judgments was not sufficiently taken into account by the Australian Research Council.²² The result is that academics increasingly write for other academics in the form of 'bigger picture research', but these, unlike doctrinal work, are seldom useful to judges.²³ Thus, Ulen has observed that academics writing in such 'bigger picture research' areas were more likely writing for each other while legal academics who write in traditional doctrinal scholarship, and who may desire to have an impact on judges and lawyers and ultimately play a role in the development of the law, write predominantly with judges and practitioners in mind.²⁴ Practically, this means that while legal academics may be producing more material than before, a smaller proportion of such research is perceived by judges and lawyers to be of direct relevance to their daily work. More generally, this may not be a problem particular to the legal sphere; a recent opinion piece estimated that the average academic journal article is read in its entirety by just ten people.²⁵

Increased Judicial Engagement with Academic Materials

We turn now to the second angle relevant for answering why courts generally cite academic materials. Across the common law world, judicial attitudes to the usefulness of academic work have generally moved from disdain to engagement.²⁶ Disdain may appear too strong a word, but it should be recalled that, in the 20 years after the Second World War, judges and practitioners saw legal academics as parasitic on the work of judges.²⁷ Legal academics were not seen as contributors to the development of the common law, but rather as 'the critic of the finer points of play'.²⁸ Thus until the 1960s, academic writing was regarded by judges as 'at best, a guide to the current

¹⁸Braun (n 15).

¹⁹Keith Stanton, 'Use of Scholarship by the House of Lords in Tort Cases', in James Lee (ed), *From House of Lords to Supreme Court: Judges, Jurists and the Process of Judging* (Hart Publishing 2011).

²⁰Andrew Burrows, 'Challenges for Private Law in the 21st Century' (Oxford Legal Studies Research Paper 3/2016, 3 Jan 2016) 4 <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2710270> accessed 14 Jun 2021.

²¹ibid.

²²Kiefel CJ (n 16) 457.

²³ibid 457.

²⁴Thomas S Ulen, 'The Unexpected Guest: Law and Economics, Law and Other Cognate Disciplines, and the Future of Legal Scholarship' (2009) 79 Chicago-Kent Law Review 403, 414.

²⁵Asit K Biswas & Julian Kirchherr, 'Prof, No One is Reading You' (The Straits Times, 11 Apr 2015) <<https://www.straitstimes.com/opinion/prof-no-one-is-reading-you>> accessed 7 Apr 2022. Note however that Biswas and Kirchherr do not cite a source for these numbers. The scientific literature on this is mixed. See Mark Ware & Michael Mabe, *The STM Report: An Overview of Scientific and Scholarly Journal Publishing* (International Association of Scientific, Technical and Medical Publishers 2012) 32 <https://www.stm-assoc.org/2012_12_11_STM_Report_2012.pdf> accessed 26 Aug 2021.

²⁶See eg, Kiefel CJ (n 16) 454.

²⁷Jack Beatson, 'Legal Academics: Forgotten Players or Interlopers?', in Andrew Burrows, David Johnston & Reinhard Zimmermann (eds), *Judge and Jurist: Essays in Memory of Lord Rodger of Earlsferry* (Oxford University Press 2013).

²⁸Patrick Devlin, 'Statutory Offences' (1958) 4 Journal of the Society of Public Teachers of Law 206.

state of the authorities, rather than a contribution to the development of the common law'.²⁹ This rather disdainful view of legal academics and their work is echoed by Sir Garfield Barwick's observation that citing academic opinion lessens the authority of a judgment.³⁰ Similarly, Murray, a Scottish sheriff-substitute and full-time judge of the lower courts, observed that '[t]he gradations of intellectual ability are infinite, and no one in his sober senses would say that a professor of law has the ability of a Master of the Rolls, or a Lord Chief Justice'.³¹

However, disdain soon turned into improved engagement, made possible by concurrent developments alluded to above, such as the rise of academics as primarily researchers rather than teachers. Thus, in his 1983 Maccabaeian Lecture, Lord Goff stated that the work of judge and jurist is different but complementary and that 'today it is the fusion of their work which begets the tough adaptable system which is called the common law'.³² Memorably, in the landmark case of *Spiliada Maritime Corp v Cansulex Ltd*,³³ Lord Goff described jurists as 'pilgrims with [judges] on the endless road to unattainable perfection'.³⁴ Similarly, in 1997, Birks was able to speak of the 'rise of juristic literature to a law-making partnership with the judgments of the court'. That partnership, according to Birks, can be seen from the fact that the law library 'is nowadays not written only by its judges but also by its jurists'.³⁵ More recently, in 2020, Chief Justice Susan Kiefel of the High Court of Australia wrote that academic opinion is a 'valuable resource'.³⁶ However, she also cautioned that, in order for academic materials to be helpful to the judge, the author must appreciate the constraints the judge is under. These constraints not only include time, but also the institutional constraint of the judge to develop the law in an incremental fashion.³⁷ It is thus apposite to consider the reasons for the judicial citation of academic materials.

Reasons for Judicial Citation of Academic Materials

Smyth suggested that there are at least six overlapping reasons for the judicial citation of academic materials.³⁸ The first of these reasons is convenience. In this sense, academic materials such as textbooks or journal articles may highlight cases that judges may find useful to adopt.³⁹ Moreover, as judgments around the common law world are becoming increasingly comparative, judges may find it convenient also to refer to foreign journal articles.⁴⁰ For example, after 1972 in the UK, judges needed to be more familiar with continental jurists who were influential on matters of European Community Law. After 2000, familiarity with continental jurists' works on the Strasbourg Human Rights Court also became necessary.⁴¹ Concurrently with comparative law in the European sense, English judges also become more comparative in their approach. For example, in *Henderson v Merrett Syndicates Ltd*,⁴² Lord Goff examined other jurisdictions' views of concurrent liability in tort and contract and decided that there was nothing undesirable about it in

²⁹Beatson (n 27).

³⁰Russell Smyth, 'Academic Writing and the Courts: A Quantitative Study of the Influence of Legal and Non-legal Periodicals in the High Court' (1998) 17 University of Tasmania Law Review 164.

³¹C de B Murray 1950 SLT 1, 2, cited by Kenneth Reid, 'The Third Branch of the Profession', in Hector MacQueen & William Wilson (eds), *Scots Law into the 21st Century: Essays in Honour of WA Wilson* (Sweet and Maxwell 1996).

³²Robert Goff, 'The Search for Principle' (Maccabaeian Lecture in Jurisprudence (5 May 1983), The British Academy 1984).
³³[1987] AC 460.

³⁴*Spiliada Maritime Corp v Cansulex Ltd* [1987] AC 460, 488.

³⁵Peter Birks, 'The Academic and the Practitioner' (1998) 18 Legal Studies 387, 399.

³⁶Kiefel CJ (n 16) 454.

³⁷*ibid* 456.

³⁸Russell Smyth, 'Other Than 'Accepted Sources of Law': A Quantitative Study of Secondary Source Citations in the High Court' (1999) 22 University of New South Wales Law Journal 19, 22.

³⁹*ibid* 22.

⁴⁰*ibid* 22.

⁴¹Beatson (n 27).

⁴²[1995] 2 AC 145.

jurisdictions that adopted concurrence.⁴³ This has led to academic materials on different jurisdictions becoming more relevant than before.

Secondly, judges may cite academic materials to chart the development of legal principle.⁴⁴ Similarly and thirdly, judges may cite academic materials to discuss how earlier cases were decided.⁴⁵ This reason has gained prominence because a key reason against the citation of academic materials has now been rejected – that academic opinions of the law were not formed ‘on the anvil of adversarial argument’⁴⁶ and hence not, in the words of Megarry J, put through a ‘purifying ordeal’.⁴⁷ However, as Beatson LJ has explained, this reason is no longer persuasive because, first, it was based on the misconception that judges cannot test the validity of the academic view by questioning the lawyers and, second, it is no longer true that academics write in isolation, with no knowledge of the practical aspects of the law.⁴⁸

Fourthly, judges may draw support from respected academics to provide further justification for their interpretation of the law.⁴⁹ Therefore, the fact that judges placed greater emphasis on the development of the common law meant that they were likely to not shy away from interpretative questions in new areas and turn to academic material to assist in their writing of decisions. In a related vein, the fact that judges are today aware of the clear demarcation between the judicial and legislative powers means that they are less likely to develop the law when this might encroach upon the legislative power. But equally, it may mean that judges will pay more heed to the development of the common law. Indeed, Lord Neuberger described as ‘hopeless’ the reason that courts should not cite academics just because they may write to influence the outcome of a case.⁵⁰ On the contrary, most academic doctrinal scholarship are aimed at ensuring the development of the law is rational and principled. To that extent, it may be said that academics are interested in ‘influencing’ the court, but not in a negative way. Thus, Sir John Smith attributed great importance to his role as the commentary writer in the *Criminal Law Review* because ‘the Review’s message gets through’ to the profession and the judges.⁵¹ The same has likewise been demonstrated with the notes section of the *Law Quarterly Review*, which has been highly influential in developing the common law.⁵² Stanton in particular suggests that the modern law of private nuisance had developed out of Newark’s seminal 1949 article⁵³ in the *Law Quarterly Review*.⁵⁴

Fifthly, judges may cite academic materials because they have been approved as correctly stating the law.⁵⁵ Finally, judges may cite academic materials from outside the law to draw upon, among others, social science support for their decisions.⁵⁶

Taking a step back, these reasons for citing academic materials should be considered together with the first angle discussed earlier. Even as judges may cite academic materials for the six reasons that Smyth offers, this is conditioned on academic materials being *useful* to the courts in the first

⁴³*Henderson v Merrett Syndicates Ltd* [1995] 2 AC 145, 184.

⁴⁴Smyth, ‘Other Than ‘Accepted Sources of Law?’ (n 38) 23.

⁴⁵*ibid* 23.

⁴⁶Beatson (n 27).

⁴⁷*Cordell v Second Clanfield Properties Ltd* [1969] 2 Ch 9, 16.

⁴⁸Beatson (n 27).

⁴⁹Russell Smyth, ‘Other Than ‘Accepted Sources of Law?’ (n 38) 23.

⁵⁰Lord Neuberger, ‘Judges and Professors – Ships Passing in the Night?’ (Lecture at the Max Planck Institute, Hamburg, 9 Jul 2012) <<http://www.judiciary.gov.uk/Resources/JCO/Documents/Speeches/mr-speech-hamburg-lecture-09072012>> accessed 14 Jun 2021.

⁵¹John Smith, ‘An Academic Lawyer and Reform’ (1981) 1 Legal Studies 119, 120–121.

⁵²Neil Duxbury, ‘When We Were Young: Notes in the Law Quarterly Review’ (2000) 116 Law Quarterly Review 474.

⁵³FH Newark, ‘The Boundaries of Nuisance’ (1949) 65 Law Quarterly Review 480.

⁵⁴Keith Stanton, ‘Use of Scholarship by the House of Lords in Tort Cases’, in James Lee (ed), *From House of Lords to Supreme Court: Judges, Jurists and the Process of Judging* (Hart Publishing 2011).

⁵⁵Smyth, ‘Other Than ‘Accepted Sources of Law?’ (n 38) 24.

⁵⁶*ibid* 24.

place. If academics no longer write for the courts, then these six reasons, premised as they are on the usefulness of academic materials in the first place, will no longer be valid.

Why do First-Instance Courts Cite Academic Materials?

Having considered why courts in general cite academic materials, we turn to the specific question considered in this article, which is how and why *first-instance* courts cite academic materials. It is first necessary to describe briefly the workings of the High Court. The Singapore judiciary, which is headed by the Chief Justice, consists of the judges and judicial officers of the Supreme Court of Singapore (Supreme Court) and the Singapore State Courts (State Courts). Singapore has a two-tier court system. The first tier comprises the State Courts, which consist of the District Courts, the Magistrates' Courts, and various specialised courts. Collectively, these courts are responsible for about 90 per cent of the Singapore's overall caseload.⁵⁷ While it would be interesting to study the academic citation practices of the State Courts as almost all cases would be decided at first-instance, the sheer volume of cases these courts generate, as well as the general lack of written judgments, present formidable hurdles to such a study. For this reason, we focused our study on the second tier of the Singapore court system, that is, the Supreme Court, which comprises the Court of Appeal and the High Court. Both courts hear criminal and civil cases in excess of the State Courts' authority. The Court of Appeal is the highest court of the land and its decisions are not subject to any further appeal. The High Court has since been restructured into two divisions with effect from 2 January 2021, namely, the General Division and the Appellate Division.⁵⁸ While it would be interesting to see how the respective Divisions differ in their citation of academic materials in the future, this article will consider the High Court as a single entity, ie, that of a (predominantly) first-instance court. Our dataset, described later, extends up until 2017.

The courts administer justice in Singapore through the interpretation and application of statutory laws passed by the Singapore Parliament. While it is generally true that the courts develop the common law on the basis of cases before them, the extent to which different levels of court do so will differ due to their different characteristics. We had alluded above to three key characteristics that a first-instance court like the High Court possesses, namely, first, that they are bound by the law as laid down by higher courts; second, that their role is primarily to decide the facts; and third, that these courts are subject to higher time pressures than even the appellate courts.

On the first characteristic, it is clear that the High Court is bound by the Court of Appeal's decisions under the principle of vertical *stare decisis*. The principles of vertical *stare decisis* are straightforward enough.⁵⁹ Indeed, more recently in 2020, the High Court in *Ong Ming Johnson v Attorney-General* made it plain that it was bound by vertical *stare decisis* to apply the decisions of the Court of Appeal.⁶⁰ In that case, the Court considered whether to follow the Canadian approach⁶¹ of subordinating the doctrine of *stare decisis* to their Constitution, the implication being that a lower court can ignore the holding of a higher court if not to do so would compel it to uphold an unconstitutional law. In the end, the Court declined to adopt the Canadian approach as it would lead to great uncertainty given that the ordinary citizen could no longer tell what the prevailing law is. There is, however, no horizontal *stare decisis* as between decisions emanating

⁵⁷Singapore Courts, 'Role and structure of the State Courts' <<https://www.judiciary.gov.sg/who-we-are/role-structure-state-courts>> accessed 1 Apr 2022.

⁵⁸Singapore Courts, 'Media Release: Structural reforms to the High Court and appointment of Judges of the Appellate Division from 2 January 2021' (18 Dec 2020) <<https://www.judiciary.gov.sg/news-and-resources/news/news-details/media-release-structural-reforms-to-the-high-court-and-appointment-of-judges-of-the-appellate-division-from-2-january-2021>> accessed 1 April 2022.

⁵⁹See generally, *Leong Sze Hian v Lee Hsien Loong* [2019] 2 SLR 591 paras 6–7.

⁶⁰[2020] SGHC 63 para 143.

⁶¹*Canada (Attorney General) v Bedford* [2013] 3 SCR 1101.

from the High Court.⁶² It is not difficult to envision how this first characteristic may affect the High Court's citation of academic materials. Given that the High Court is mandated to apply the law as laid down by the Court of Appeal, it will seldom cite academic materials to develop the law, since there are fewer opportunities for it to do so.

On the second characteristic, where the High Court decides matters at first-instance, its primary function is to gather the facts as revealed by the evidence. Lord Neuberger has pointed out that the trial judge's primary role is making findings of fact and exercising discretion, making decisions on costs, managing cases, and making other procedural decisions.⁶³ This naturally limits the time and opportunities that first-instance courts have to deal with broader matters concerning the development of law. In a study of the citation patterns of intermediate appellate courts in Australia, Smyth found that such courts (comprising the Australian State Supreme Courts in his study) cited far fewer legal periodicals than the High Court of Australia.⁶⁴ He suggests that this is because the subject matter of periodicals may be 'too theoretical' and thus not relevant to cases before their state courts.⁶⁵ This reason was also supported by the experience of US state courts: for example, as Judge Judith Kaye of the New York Court of Appeals remarked, 'prominent law reviews are generally dedicated to abstract, theoretical subjects, ... and less and less to practice and professional issues, and to the grist of state court dockets'.⁶⁶ Finally, first-instance judges, who are required to decide cases across a wide spectrum of cases, necessarily have the specialist academic expertise to develop the law as academics do.⁶⁷ All these suggest that the High Court should cite correspondingly fewer academic materials.

Finally, as to the third characteristic, the High Court may generally be said to have a higher workload than the Court of Appeal. While there are more High Court judges than there are Court of Appeal judges, there have been disproportionately more cases before the High Court. In 2019, there were 7,912 civil originating processes before the High Court, compared to 236 appeals before the Court of Appeal.⁶⁸ Thus, even with the assistance of counsel and law clerks, it may be said that the High Court operates under such tight time constraints that there is simply less time to develop the law. Kiefel CJ has opined that, even from her perspective as the Chief Justice of the High Court of Australia, judges work under time pressure and hence cannot refine their opinions by referencing too many academic materials.⁶⁹

Empirical Methodology

Research Questions

The preceding theoretical discussion foregrounds three propositions regarding the evolving relationship between judges and academics. First, while civil law courts have traditionally held academic work in high regard, it was not until relatively recently that common law courts began to see academia in a similar light. Second, academics have gradually transitioned from *teaching* about case judgments to producing *research* meant to influence them. Third, judges cite a range of academic works for a range of reasons, including convenience, authority, and developing law, though today's courts appear more willing to participate in judicial lawmaking.

⁶²Wong Hong Toy v PP [1985–1986] SLR(R) 656 para 11; Attorney-General v Shadrake Alan [2011] 2 SLR 445.

⁶³Lord Neuberger, 'Some thoughts on the post-LASPO civil judge's role before and during trial' (Address to the Manchester Law Society and Northern Circuit Commercial Bar Association, 22 Jan 2015) para 5 <<https://www.supremecourt.uk/docs/speech-150122.pdf>> accessed 7 Apr 2022.

⁶⁴Smyth, 'What do Intermediate Appellate Courts Cite?' (n 12) 69.

⁶⁵ibid 69.

⁶⁶ibid 69, citing Judith Kaye, 'One Judge's View of Academic Law Review Writing' (1989) 39 Journal of Legal Education 313, 319.

⁶⁷Kiefel CJ (n 16) 455.

⁶⁸Singapore Courts, 'One Judiciary Annual Report 2019' <https://www.judiciary.gov.sg/docs/default-source/publication-docs/one_judiciary_annual_report_2019.pdf?sfvrsn=7184ac95_4> accessed 1 Apr 2022.

⁶⁹Kiefel CJ (n 16) 455.

If these propositions are true, we should expect to see that the frequency of court academic citations have increased over time, even after adjusting for the number and length of judgments published per year. It follows that observing the latter provides suggestive empirical evidence of the former. However, our theoretical survey also highlights other forces militating *against* an observable increase in academic citations by the courts, such as the even more recent trend of academics moving from writing for judges to writing for each other. Further, other legal systemic changes, such as the rise of electronic legal research databases, may also influence how easily (and thus how frequently) judges may rely on academic work.⁷⁰ It is thus difficult to determine *a priori* whether judicial academic citations should have increased over the years and, if so, the exact reason(s) why.

To tease out the precise interplay between these multivariate trends, this article conducts a close empirical analysis of academic citations by the High Court over time. We examine whether the High Court has been more likely to cite certain *types* of academic material (eg, textbooks, which are more likely to simply review the law) over others (eg, journal articles, which are more likely to dive into theoretical issues), and further correlates citation frequencies against case subject matter and judge characteristics. We consider the following questions in particular:

1. Has the High Court cited more academic material over time?
2. What kind of material(s) does the court cite? In particular, are books more likely to be cited than periodicals?
3. Which subjects are more likely to cite academic materials?
4. Do judges with more academic background tend to cite more academic materials?

It bears emphasis that the above statements are merely research questions that presently are neither supported nor contradicted. Each statement's truth value is to be established in light of the data.

The Data

The dataset covers all reported decisions of the High Court and its equivalents⁷¹ handed down between 1 January 2000 and 31 December 2017 (by decision date, both dates inclusive; hereinafter, the 'study period').⁷² This yields a total sample size of 2,772 decisions. For each decision, we extracted a list of legal academic citations⁷³ made in the decision text. For each citation, we then identified whether that citation was to a book, journal article, or other type(s) of academic materials. While it would have been more complete to examine all the High Court decisions from Singapore's independence to the present, this was infeasible in light of the constraints of the present project. Instead, we have chosen a period that spans almost two decades and, importantly, covers the tenure of three Chief Justices, each of whom represents a different period of Singapore's legal history. We hope that this will provide a sufficient snapshot over a sustained period of time with which to examine the propositions put forth above.

⁷⁰Richard Posner, 'An Economic Analysis of the Use of Citations in the Law' (2000) 2 American Law and Economics Review 381, 383–386.

⁷¹These include *only* judgments identified by LawNet as originating from the High Court of Singapore, the High Court of Singapore (Family Division), and the Court of Three Judges.

⁷²A 2017 end date was adopted for primarily practical reasons: because data collection for this work began in (late) 2018, and given the typical lags between a court's decision the judgment publication, only a 2017 cut-off would let us to capture a full year's worth of judgments.

⁷³Given the focus on the relationship between legal academia and the judiciary, 'academic citations' as used here broadly excludes professional publications, committee reports, command papers, the Halsbury's volumes, encyclopaedias, dictionaries, though it is acknowledged that many are written or co-written by legal academics. It further excludes all non-legal materials, including non-legal academic journals (such as medical texts sometimes referenced in medical cases).

The practical data collection process was led by a data analytics firm with prior experience with similar projects.⁷⁴ To illustrate the dataset's reliability and also point out certain flaws, we now provide an overview of the firm's data extraction process.

Given the number of decisions involved, it was expedient to adopt a partially automated approach to extracting the academic references. After initial experiments with rules-based extraction approaches, it was determined that a machine learning approach was more practical.⁷⁵ This was primarily because, even though the Singapore Law Reports consistently followed the same citation style guide, there remained significant variation in the way academic citations were made in the reported judgments that made identifying the beginning and end of a citation using pre-determined rules difficult.⁷⁶ Thus, a machine learning process was used instead. To begin with, a random sample of 200 decisions were first manually annotated by legally-trained annotators and subjected to random checks by the first-named author. The annotators were told to identify only *full* citations, being citations that contain all or substantially all the bibliographic information prescribed by the Singapore Academic of Law style guide for when a source is first cited. Resultantly, the trained model would be tuned towards extracting only full citations, instead of partial citations such as short references to previously cited works. This decision was made after manually reviewing a sample of judgments to study when courts tended to produce full versus partial references. Typically, though not always, short references are used to refer back to similar portions and propositions in the originally cited source. Meanwhile, full citations tended to occur, other than when an entirely new source is cited, only if the court was referring to a substantially *different* section of previously cited work (eg, a different chapter of the same book). It was thought that only the latter type of citations should count as new, distinct references to academic work. Thus, multiple citations to the same work are counted multiple times if, and only as many times as, they appear as *full* citations.

The manually annotated cases formed a seed training set for a machine learning model⁷⁷ which the firm developed for this project following standard machine learning practices.⁷⁸ The trained model was then used to annotate the remaining decisions.

⁷⁴The first-named author is a co-founder of the firm and personally worked on the data collection. The second-named author worked closely with the firm throughout the process. The first-named author's interests in the firm, as well as the firm's engagement for this research project, pre-dates the first-named author's involvement in authoring this article and indeed their appointment to academia. The firm has worked on data collection for projects such as Hans Tjio, 'An Empirical Look at the Consequences of Oppression in Singapore' (2017) 17 *Journal of Corporate Law Studies* 405; Hans Tjio, 'Restructuring the Bond Market in Singapore' (2019) 14 *Capital Markets Law Journal* 16; Simon Chesterman, 'Do Better Lawyers Win More Often? Measures of Advocate Quality and Their Impact in Singapore's Supreme Court' (2020) 15 *Asian Journal of Comparative Law* 250.

⁷⁵Rules-based extraction of legal citations remains a research problem. Some issues, relevant literature, and proposed approaches are outlined in Akshita Gheewala, Chris Turner & Jean-Rémi de Maistre, 'Automatic Extraction of Legal Citations using Natural Language Processing' (15th International Conference on Web Information Systems and Technologies, Austria, Sep 2019) 202–209.

⁷⁶For instance, consider the following paragraph from *Spandek Engineering (S) Pte Ltd v Defence Science & Technology Agency* [2007] 4 SLR(R) 100 para 67:

In relation to the reasons traditionally given as justification for a different approach, Robby Bernstein points out in *Economic Loss* (Sweet & Maxwell, 2nd Ed, 1998) (at p 21) that it is important to note that it is not anything inherent in the type of the damage itself that necessitates a different approach...

(italics in original)

It is far from trivial to devise a rule capable of identifying where the citation begins (and ends). In particular, the bridging words 'points out in' mean that a program which treats the style guide as an absolute rule would fail to extract this citation.

⁷⁷The model's architecture and inputs closely follow that of Jason Chiu & Eric Nichols, 'Named Entity Recognition with Bidirectional LSTM-CNNs' (2016) 4 *Transactions of the Association for Computational Linguistics* 357. Scholars interested to replicate the data construction process will find this paper instructive. Scholars interested to replicate only our analysis should contact the first-named author for the raw dataset.

⁷⁸Specifically, half the dataset (100 cases) was set aside as a holdout set. The remaining 100 cases were sub-divided into training (80% of the data) and cross-validation sets (the other 20%). The model was trained solely using the training set, and model hyper-parameters were then tweaked until it achieved satisfactory scores on the cross-validation set. In particular, the data vendor adjusted only the learning rate as well as and the number of epochs the model was trained for. The tuned model

As with all machine learning approaches, however, raw results are not perfect. In the context of this project, there are three types of data extraction errors. First, false negatives occur when references are missed. False negatives can be *partial*, as when the model only identifies *part* of a full reference (say, the author name only), or *complete*, as when the model misses all parts of a reference. *Partial* false negatives notably do not cause errors in citation *counts*, but may cause citation types to be misclassified because an algorithm (described below) was used to that effect. Second, false positives occur when non-reference text is misidentified as a reference. Unlike false negatives, false positives will bias citation counts upwards. Third, delineation errors occur when two or more references in a string citation are misidentified as one.⁷⁹

The raw results of the automatic annotation were thus subject to further post-processing. This involved the first-named author manually inspecting the distribution of references identified by the model and formulating general rules to improve and validate the data. To reduce false positives, putative references shorter than 30 characters were manually inspected; any one not manifestly a reference was removed. References containing words alluding to court filings or medical/scientific texts were also manually inspected and removed if necessary.⁸⁰ Next, to reduce delineation errors, all references containing semi-colons (the official punctuation mark prescribed by the Singapore Academy of Law style guide for string citations) were split along the semi-colons into multiple references. This was done only after confirming that most if not all of the correct references did not contain semi-colons. Finally, a series of regular expressions and text-based rules were used to determine, for each extracted citation, whether that citation was to a book, journal, collection, or other source.⁸¹

The dataset of academic references thus comprises manually annotated data on 200 decisions as well as automatically annotated (but partially-manually validated) data on a further 2,572 decisions.

One concern that may be raised in light of our partially automated data extraction process is whether citations from certain time periods are less/more likely to be extracted/missed by the machine learning model. If citations from certain periods are systematically over- or under-counted, any observations on how citation practices have changed over *time* would be biased. This concern is mitigated in at least three ways. First, because the training set was randomly sampled across the entire dataset, the model would have been trained, cross-validated, and evaluated against case texts from *across* the entire study period. Second, because citation formats in Singapore Law Reports have always followed the same style guide,

was then trained on the full training set of 100 cases and used to extract citations from the holdout set. After confirming the model's satisfactory performance, Thereafter, the model was re-trained on the entire set of 200 cases before being used to annotate the remaining 2,572 cases.

⁷⁹For specialists and interested observers, the specific accuracy metrics are as follows. The final model used for annotating the 2,552 residual cases successfully detected at least 50% or more of the characters in 116 of all 142 references (81.69%) present in the holdout test set. Of the characters identified by the model as belonging within academic references, 10765 were correctly identified as such while 1481 were wrongly identified. This translates to a character level precision, recall, and F1 score of 87.91%, 84.07%, and 85.94% respectively. Precision measures how likely the model's *positive* predictions are correct, recall measures how likely the model successfully identifies positives (to see how recall differs from precision, notice that a trivial way to identify all positives is to identify *everything* as positive, but this would lead to very poor precision), while the F1 score is an average between precision and recall.

⁸⁰The list of words was devised from studying the extracted references. For court filings, the words are 'notes', 'bundle', 'affidavit', 'pleading', 'exhibit', 'form', 'plaintiff', 'defendant', 'respondent', 'appellant', and 'petitioner'. For scientific texts, the words are 'neurology', 'psychology', 'psychological', 'psychiatric', 'medical', 'clinical', 'neurosurgery', 'surgical', 'surgery', 'pathology', 'oncology', 'cancer', 'biology', 'disease', 'mental', 'medicine', 'medical', 'diagnosis', 'treatment', 'pharmacology', 'toxicology', 'trauma', 'microsurgical', 'urology', 'fracture', 'fractures', 'lymphatic', 'testis', 'orthopaedic', 'accountancy', 'architecture'. Note that these words may over-inclusively flag out legal academic references to medical law texts.

⁸¹The full algorithm used is rather involved, and interested readers are welcome to obtain its source code by contacting the first-named author. Briefly, the algorithm first tests if the citation is to a journal by searching for the specific year-volume-journal-page format that only journal citations have. Failing which, it tests if the citation is to a collection by looking for an article or chapter citation expressed as appearing 'in' another title. Further failing which, it attempts to identify book citations by searching for the title-publisher-and-editor-in-brackets format unique to books, taking reference from a manually compiled list of legal publishers (eg. Sweet & Maxwell, Hart Publishing, etc). A citation not fulfilling any of the above is classified as 'other'.

we do not expect significant shifts in the textual content of citations over time.⁸² Likewise, we do not expect shifts in the textual content of non-citation text in reported judgments over the study period. Thus, a model that primarily looks at textual features to extract citations should not treat different periods differently. By contrast, had our study period begun from 1965 instead of 2000, this would have been a significant concern. Third, when we manually-reviewed the outputs of the machine learning model, we did not identify any significant differences in error rates across time. Of course, these three factors do not necessarily guarantee that the extraction model was completely time-unbiased. However, they provide us sufficient confidence to proceed with the analysis, particularly considering the impracticality of a fully manual annotation process.

The citations data was then linked to automatically extracted meta-data on each decision, including decision date, coram, subject matter, and the number of local and foreign case citations. For these variables, an approach similar to that adopted by a recent empirical work on Singapore law was adopted.⁸³ Note that, compared to Cheah and Goh's prior study on academic references in the Singapore Court of Appeal,⁸⁴ our larger dataset covers a wider range of subjects. These were, likewise, manually mapped to a set of specified subject categories.⁸⁵ A minor refinement is that cases spanning multiple subjects count towards *each* of these areas. Finally, the highest legal degree of each judge appearing in at least one case in the dataset was obtained by manual research.

Results

To provide statistical context for subsequent analysis, Table 1 presents summary statistics for the dataset.

Table 1. Statistical Summary of Dataset

1. No. of Judgments (Total N=2772)	Mean	SD ⁸⁶	Min	Max
Per Year	154	24.45	119	213
Per Narrow Subject ⁸⁷	146.64	144.08	9	617
Per Judge	61.60	66.52	1	263
2. Judgment Attributes	Mean	SD ⁸⁸	Min	Max
Word Count	7869.16	6680.33	187	93842
Academic Citations	1.28	2.10	0	15
Local Case Citations	5.35	5.68	0	63
Foreign Case Citations	4.68	6.32	0	66
Narrow Subjects Per Judgment ⁸⁹	1.47	0.73	0	7
3. Judges' Education	No Data	LLB	LLM	PhD ⁹⁰
Number of Judges	3	12	27	2
Judgments Per Group	100	854	1743	75

Note: Non-whole numbers are rounded to two decimal places for easier interpretation.

⁸²The current authoritative version of the Singapore Academy of Law Style Guidance dates back to 2004, which is close to the beginning of our study period.

⁸³Phang, Goh & Soh (n 9).

⁸⁴Cheah & Goh (n 10) 112–115.

⁸⁵See Annex A for a tabulation of how the raw subject areas were mapped over.

⁸⁶Standard deviation.

⁸⁷Statistics in this row were calculated excluding subjects assigned to 'Others'.

⁸⁸Standard deviation.

⁸⁹Statistics here were calculated including the 'Other' subjects. Only two judgments in the dataset were not assigned any subjects. Both were procedural, one-paragraph-long judgments: *Kempinski Hotels SA v PT Prima International Development* [2011] 4 SLR 669; *Kempinski Hotels SA v PT Prima International Development* [2011] 4 SLR 670.

⁹⁰This excludes two judges who hold honorary doctorates.

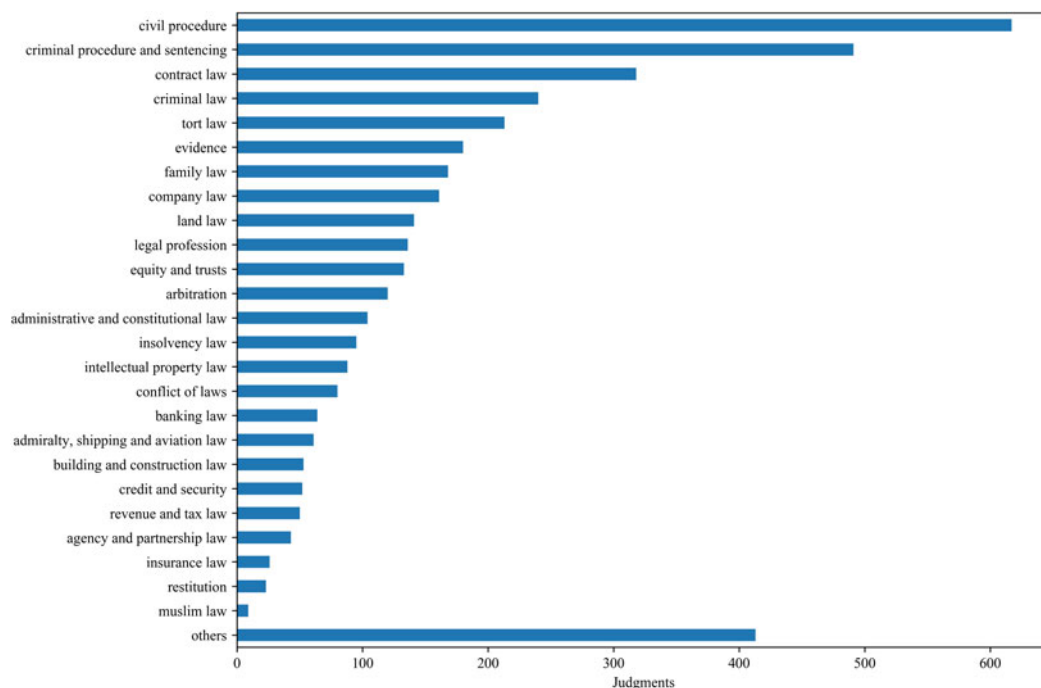


Figure 1. Frequency of Subject Areas

Judgment Distribution

Focusing first on section 1 of the Table, we observe an average of 154.00, 146.64, and 61.60 judgments per year, subject, and judge respectively. While the number of judgments over time is relatively stable about the average, there is substantial variation across subjects and judges. In both latter cases the standard deviation exceeds the mean. This is not an obstacle to statistical analysis per se, but it is worth noting that the least frequent subjects and judges only occur a few times in the dataset. The least frequent subject occurs only nine times, the least frequent judge only once. Subsequent analyses may not generalise to these rare subjects and judges. Nonetheless, there remain sufficient data for us to comment on the *average* and indeed the most frequent subjects and judges.

To make this clearer, Figures 1 and 2 plot the frequency distribution for each variable. Both present skewed distributions, with the most frequent occurring exponentially more often than the least. The most common subjects tend to be the most broad-reaching (eg, civil and criminal procedure, and contracts) while the least common tend to be more specialised (eg, insurance, restitution, and Muslim law).

The skew in judge frequencies is also to be expected since the length of judicial appointments differ. Most do not span the entire study period.⁹¹ Nonetheless, there is sizeable data on the majority of the judges involved. Most (71.11 per cent) have at least 15 judgments in the dataset; and slightly over half (51.11 per cent) have at least 37 judgments. At any rate, in the subsequent analysis we do not focus on the characteristics of *individual* judges,⁹² only groups thereof (based on post-graduate educational background).

⁹¹Only four judges had at least one judgment per year for the entire 17-year period.

⁹²Except to a limited extent in analysis below that examines whether certain individual judges are driving results for their education group.

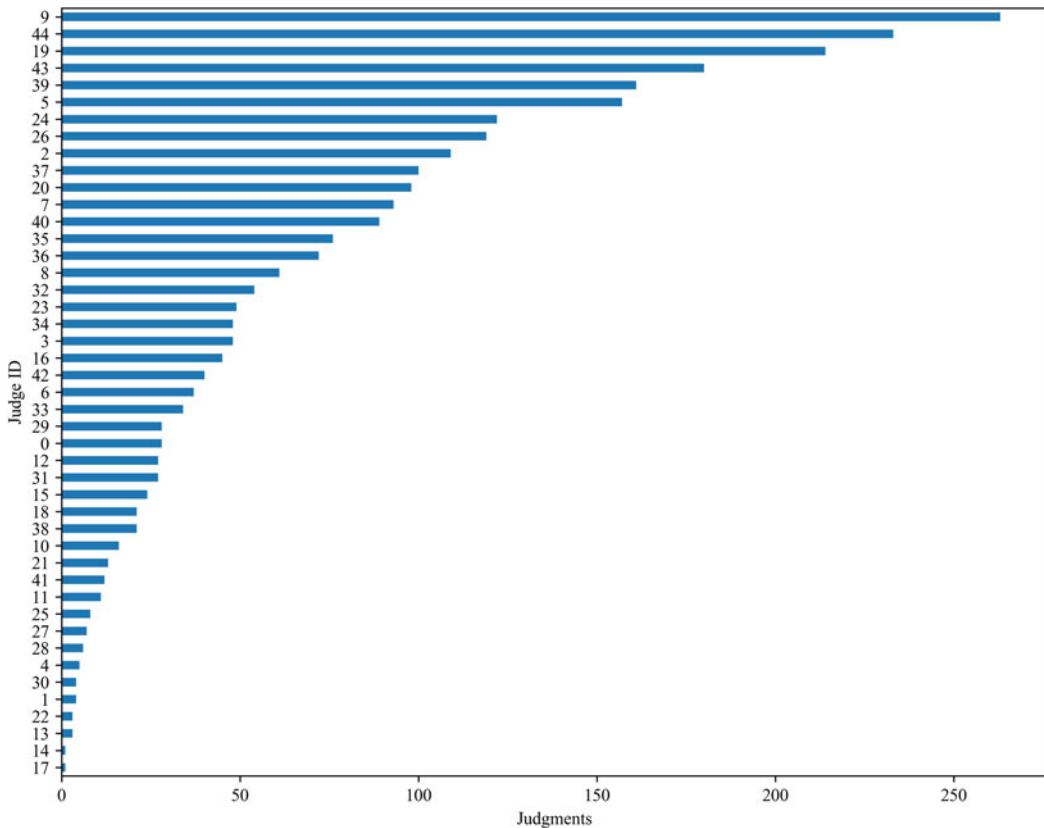


Figure 2. Frequency of Judge Appearances. To avoid indirectly presenting a league table of judges we present judge ID numbers here rather than their names.

Judgment Attributes

Section 2 of Table 1 further demonstrates that the average judgment spans 7,869.19 words, covers issues across 1.47 subjects, and cites 5.35 local cases, 4.68 foreign cases, and 1.28 academic materials. It is worth noting that judgments have gotten significantly longer over the years. The average length has roughly doubled, as Figure 3 illustrates.

As with judgment frequencies, there is substantial variation about these averages, reinforcing the logical intuition that judgments, each of which covers different factual and legal issues, should be more different than alike. The longest judgment spans nearly a hundred thousand words,⁹³ while the shortest had fewer than two hundred.⁹⁴ Likewise, standard deviations for case and academic citation frequencies exceed their averages. A number of judgments have zero foreign, local, or academic citations (699 (25.21 per cent), 385 (13.89 per cent), and 1428 (51.11 per cent) respectively). On the other end of the spectrum, five judgments⁹⁵ shared the top spot for the highest number of academic citations (15 citations), and are landmark cases in their respective areas.

⁹³This was *Public Prosecutor v Lam Leng Hung and Ors* [2017] 4 SLR 474, a significant litigation involving criminal breach of trust by the leaders of one of Singapore's largest churches. Multiple defendants and senior counsel were involved. Three judges sat on the High Court coram.

⁹⁴This was *Kempinski Hotels SA v PT Prima International Development* [2011] 4 SLR 669. See also (n 89) above.

⁹⁵*AEL and others v Cheo Yeoh & Associates LLC and another* [2014] 3 SLR 1231; *Giant Light Metal Technology (Kunshan) Co Ltd v Aksa Far East Pte Ltd* [2014] 2 SLR 545; *Goi Wang Firn (Ni Wanfen) and others v Chee Kow Ngee Sing (Pte) Ltd*

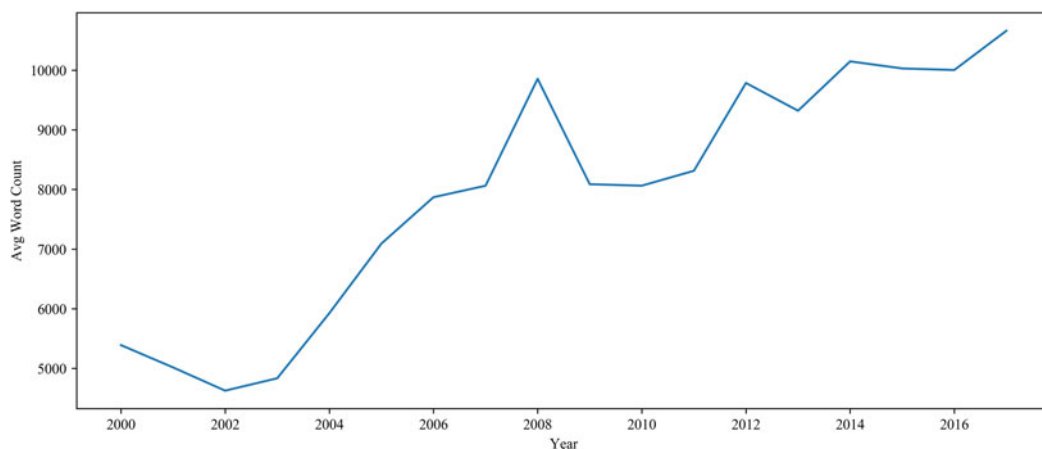


Figure 3. Average Judgment Word Count Over Time

In terms of citations to *case law*, the reported High Court judgment citing the most local precedent was *Vasentha d/o Joseph v Public Prosecutor*⁹⁶ (63 citations); for foreign precedent, it was *Skandinaviska Enskilda Banken AB (Publ), Singapore Branch v Asia Pacific Breweries (Singapore) Pte Ltd*⁹⁷ (66 citations). Thus, consistent with the earlier point that judges are not obliged cite academic material – even if relevant – the High Court was noticeably more likely to cite both local and foreign cases than academic materials. It is nonetheless noteworthy that nearly half (49.89 per cent) of all High Court judgments cite at least one academic work.

Judgment word counts, case, and academic citations are positively correlated with one another, as shown by the Pearson correlation coefficient matrix presented in Figure 4.

Logically, the more words a judgment contains, the more likely it is to cite any type of material. Positive associations between foreign, local, and academic material were likewise unsurprising since they shared underlying causes such as the complexity of the case and the citing tendencies of the authoring judge. But we might also expect each of these citation types to compete against and substitute for one another, in the sense that citing one type of material may obviate citing another. In particular, in 2008 the Supreme Court issued a Practice Direction stating that, ‘where there are in existence local judgments which are directly relevant to the issue, such judgments should be cited in precedent to foreign judgments’.⁹⁸ Thus local case citations have a competing advantage in this metaphorical market, particularly after 2008. Some evidence of this may be gleaned from how correlations between local and foreign/academic citations (at 0.31 and 0.38 respectively) are noticeably lower than the other correlations.⁹⁹

Finally, section 3 of Table 1 demonstrates that most High Court judges held LLMs (or equivalent). Only two judges held PhDs (though a further two held honorary doctorates). The analysis below should be read in this light.

Having outlined the dataset generally, we now turn towards answering our specific research questions.

[2015] 1 SLR 1049; *Public Prosecutor v Low Kok Heng* [2007] 4 SLR(R) 183; *Wu Yang Construction Group Ltd v Zhejiang Jinyi Group Co, Ltd and others* [2006] 4 SLR(R) 451.

⁹⁶[2015] 5 SLR 122.

⁹⁷[2009] 4 SLR(R) 788.

⁹⁸Supreme Court Practice Direction No 1 of 2008.

⁹⁹If these correlations were calculated using cases decided on and after 2009 only, all values remain the same except for the same two which fall to 0.29 and 0.33 respectively.

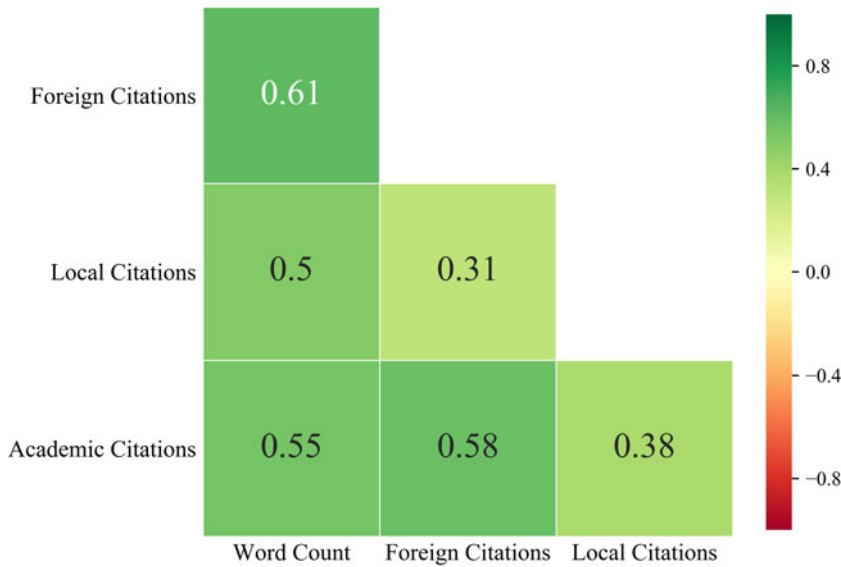


Figure 4. Correlations between Judgment Length, Foreign Case Citations, Local Case Citations, and Academic Material Citations (both Foreign and Local)

Q1: Has the Number of Academic Citations Increased?

Recall from our theoretical discussion above that how often judges *rely* on academic materials may be taken as an indicator for how judges *regard* them. Thus, the generally improving relationship between the courts and academia that prior literature identifies should manifest in more academic work cited in judgments.

The data confirms this in the context of the High Court. Figure 5 plots the yearly average number of academic citations per judgment *per thousand words*. Point estimates for the mean are represented by the darker circles and trend line. 95 per cent confidence intervals¹⁰⁰ for each year's average are represented by the light error bands.

Thus, even controlling for the general increase in judgment length over the study period, there has been a significant increase in academic citations over years. The dotted line drawn at the manually-specified value of 0.105 citations per 1,000 words perfectly separates the intervals for years before 2003 and after 2005 (both years exclusive). This points to a statistically significant difference, before and after the same period, in the per word likelihood that the High Court cited academic materials.

The period of 2003–2006 thus appears to be a significant transition period for High Court citation practices. This could be attributed to a new generation of judges being appointed in that period. These include VK Rajah JA (as he later became, appointed as judicial commissioner in 2004), Andrew Phang JA (appointed as judicial commissioner in 2005), Sundaresh Menon CJ (appointed as judicial commissioner in 2006), and Chan Sek Keong CJ (as he then was, appointed in 2006). The same period also saw veteran judges including GP Selvam J, MPH Rubin J, and Lai Kew Chai J publishing their last High Court judgments in our dataset (in 2001, 2005, and 2006 respectively).

Further, those years saw significant developments in Singapore's legal academy. In this period, the National University of Singapore (NUS) Faculty of Law – Singapore's only law school then – achieved a number of significant international milestones, such as making several significant

¹⁰⁰These are calculated by bootstrapping following the default provided by the Seaborn Python package. See Michael Waskom, 'Seaborn: Statistical Data Visualization', (2021) 6 Journal of Open Source Software 3021.

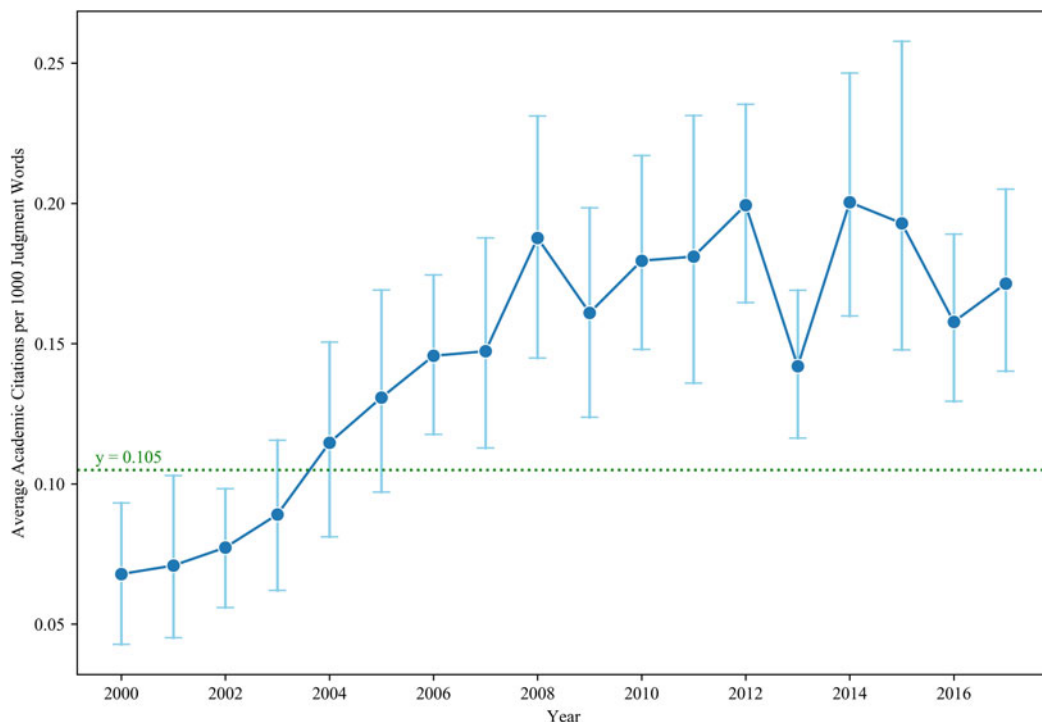


Figure 5. Average Citations per 1,000 Judgment Words Over Time

international hires and becoming recognised as ‘Asia’s Global Law School’.¹⁰¹ These developments transformed the NUS Faculty of Law into a world-class law school with far-reaching research impact. In 2007, Singapore’s second law school, the Singapore Management University School of Law, now known as the Yong Pung How School of Law, was founded. It too began to contribute to research which the courts could use. Amongst other things, these developments both reflected and effected the increases in the quality and quantity of Singapore legal scholarship.

Notably, a similar rise for foreign and local case citations occurred in this time, as Figure 6 illustrates.

Thus, across the entire period, local citations rose most sharply, outstripping foreign citations in 2011, and reaching an average of 10.23 per judgment in 2017. By contrast, both foreign and academic citation averages remained relatively stable after 2006. Note that while the increase in academic citations appears slight relative to that for both local and foreign cases, since the authoritative *nature* of precedents and academic work differs, we should be slow to compare their citation counts on the same scale. Figure 6 merely presents them together to illustrate their parallel increases.

Q2: What Kind of Materials are Cited?

Figure 7 plots the yearly total number of academic citations by material type. Evidently, citations of books account for most of the increase in academic citations per judgment described above. Total citations to books increased more than five-fold over the study period, from 43 in 2000 to 224 in 2017. On its own scale, however, the increase in journal citations was also noteworthy, recording a ten-fold increase from only two in 2000 to 20 in 2017.

¹⁰¹National University of Singapore Faculty of Law, ‘History & Milestones’ (1 May 2009) <<https://law.nus.edu.sg/about-us/history-milestones/>> accessed 30 Aug 2021.

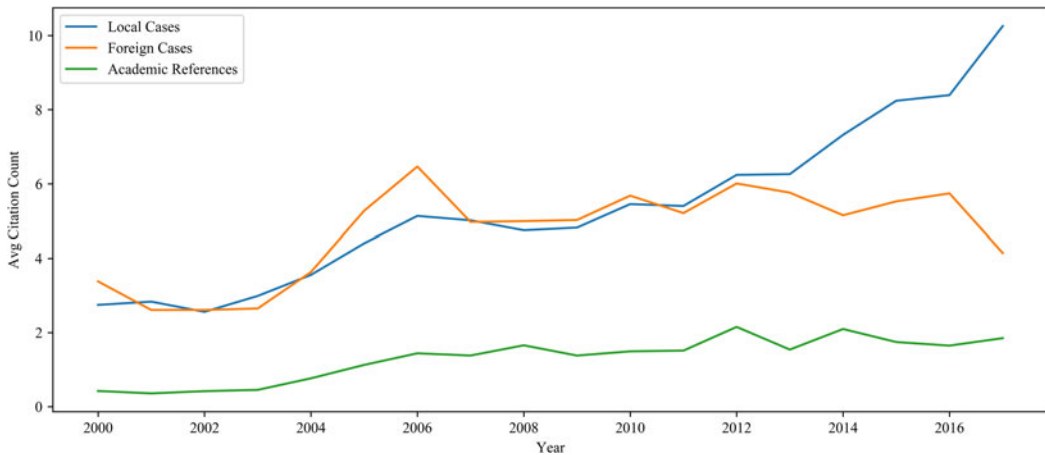


Figure 6. Average Local, Foreign, and Academic Citations Over Time

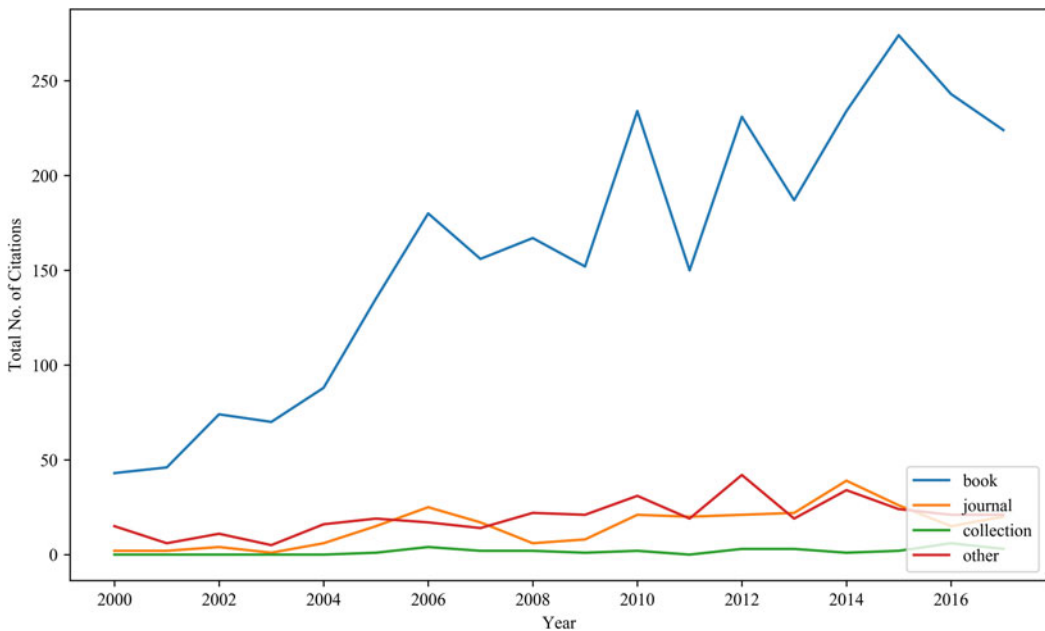


Figure 7. Total Citations by Material Type Over Time

The Figure also suggests that book citations comprise a majority of High Court academic citations. To illustrate this more clearly, Figure 8 charts the relative proportion of citation types over the years. Book citations have at minimum comprised 71.67 per cent of all academic citations (in 2000), and the proportion has remained consistently at or above 80.00 per cent thereafter.

To the extent that books are more likely than periodicals and other academic materials to comprise *expositions* of prevailing law rather than *arguments* for reform, it is unsurprising that the High Court is (about four times) more likely to cite the former. Generally speaking, textbooks are more likely to be targeted at *practitioners* (with some being popularly called ‘practitioners’ texts’), while journal articles are often (though of course not always) targeted at other academics, and aimed

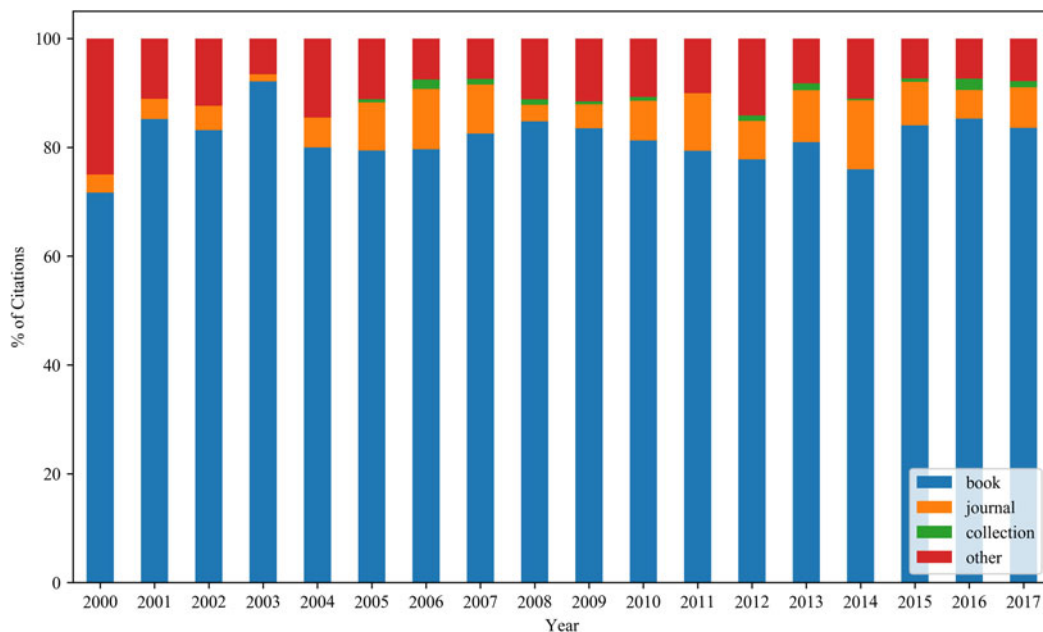


Figure 8. Percentage Citations by Material Type Over Time

towards making theoretical rather than practical contributions to the field.¹⁰² Indeed, textbooks often contain direct propositions of law that are more amenable to be used by the courts in the case at hand.

Further, as mentioned above, the High Court is primarily a first instance (fact-finding) court rather than an appellate (law-making) one. Thus, textbooks were often cited to support foundational propositions of law. This can be evidenced by exact counts of how and how often *textbooks* in particular are cited. Table 2 below presents *approximate*¹⁰³ counts for citations to selected textbooks based on exact, case-sensitive string matches with the raw machine-extracted citations. The textbooks searched for are an expanded set from the list of highly-cited publications identified in prior work.¹⁰⁴ To study how far the observed increase in academic references may have simply been driven by more textbooks being published and citable, rather than any real change in judicial attitudes regarding academic materials, we further present the publication years of each of these highly-cited textbooks.

Table 2 shows that most of the textbooks highly-cited by the High Court had already been in print before the study period. Thus, while the rise of electronic media as well as growth in the

¹⁰²Future work could more specifically study how far practitioners' versus academic-oriented texts may be treated differently by the courts, if at all. The present study's scope precludes detailed examination into how texts may be separated into practitioner versus academic-oriented. As the line is not always clear, this was not something which we were confident leaving to a machine learning algorithm to perform.

¹⁰³These counts are approximate for two reasons. First, because we retrieved citation strings verbatim, there were often subtle differences between different citations to the same book. For example, Walter Woon, *Walter Woon on Company Law* (Tan Cheng Han gen ed, rev 3rd edn, Sweet & Maxwell 2009) is also referenced as 'Walter Woon's Company Law' and 'Walter Woon's book Company Law'. These counts represent only the number of *exact* matches for the phrases in its left column name and may thus undercount the true number of citations. Second, recall the limitations in the automated citation extraction process explained above. It is possible to obtain exact counts manually, but this would be impractical and indeed undo the cost savings achieved by automating citation extraction in the first place.

¹⁰⁴Lee Zhe Xu et al, 'The Use of Academic Scholarship in Singapore Supreme Court Judgments: 2005–2014' (2015) 33 Singapore Law Review 25, 43.

Table 2. Approximate Citation Counts for Selected Works

Phrase Alternative Phrases	Exact Matches	Publication Date ¹⁰⁵
Chitty on Contract	110	1826 ¹⁰⁶
Singapore Civil Procedure	104	2003 ¹⁰⁷
Singapore Court Practice	79	1999 ¹⁰⁸
Woon on Company Law	44	1988 ¹⁰⁹
McGregor on Damages	39	Before 1961 ¹¹⁰
Clerk & Lindsell on Tort Clerk and Lindsell on Tort	30 6	Before 1921 ¹¹¹
The Law of Torts in Singapore	32	2011 ¹¹²
The Law of Restitution ¹¹³ The Law of Unjust Enrichment	24 5	1966 ¹¹⁴
Bennion on Statutory Interpretation	28	1984 ¹¹⁵
Principles of Singapore Land Law	25	1994 ¹¹⁶
Ethics and Professional Responsibility: A Code for the Advocate and Solicitor	24	2007 ¹¹⁷
Evidence and the Litigation Process	18	1992 ¹¹⁸
Law of Intellectual Property of Singapore	17	2008 ¹¹⁹
Dicey, Morris and Collins on The Conflict of Laws Dicey, Morris & Collins on The Conflict of Laws A Digest of the Law of England with Reference to the Conflict of Laws	13 3	1896 ¹²⁰
Sentencing and Criminal Justice ¹²¹	15	1992 ¹²²
Principles of Civil Procedure	13	2013 ¹²³
Elements of Land Law	10	1987 ¹²⁴

¹⁰⁵ As many books are long-running titles, and titles may have changed over the years, the date of first publication is not always clear. Where these are not readily available, we have offered approximate dates based on the oldest available authoritative source. In any event, the key consideration is simply whether these titles were in circulation before 2000. Sources published after 2000 are bolded.

¹⁰⁶ National Library of Australia Catalog, 'Chitty's Treatise on the law of contracts' <<https://catalogue.nla.gov.au/Record/790024>> accessed 12 Aug 2021.

¹⁰⁷ WorldCat, 'Singapore civil procedure' <https://www.worldcat.org/title/singapore-civil-procedure/oclc/68570531&referer=brief_results> accessed 12 Aug 2021.

¹⁰⁸ Chen Siyuan & Eunice Chua Hui Han, Civil Procedure in Singapore (2nd edn, Wolters Kluwer 2018) 46 fn 177.

¹⁰⁹ National Library Board Singapore Catalog, 'Company Law / Walter Woon' <<https://www.nlb.gov.sg/biblio/10401082>> accessed 12 Aug 2021.

¹¹⁰We could not find an exact date of first publication, but the twelfth edition was published in 1961, significantly pre-dating the start of our analysis period. WorldCat, 'Mayne and McGregor on Damages' <<https://www.worldcat.org/title/mayne-and-mcgregor-on-damages/oclc/1598489>> accessed 12 Aug 2021.

¹¹¹National Library of Australia Catalog, 'The law of torts / by J.F. Clerk and W.H.B. Lindsell' <<https://catalogue.nla.gov.au/Record/853853?lookfor=clerk%20and%20lindsell&offset=7&-max=8>> accessed 12 Aug 2021.

¹¹²Singapore Management University Institutional Knowledge Database, 'The Law of Torts in Singapore' <https://ink.library.smu.edu.sg/sol_research/1590/> accessed 12 Aug 2021.

¹¹³This is the old title for Robert Goff & Gareth Jones, *The Law of Unjust Enrichment* (9th edn, Sweet and Maxwell 2016), used for the seventh and earlier editions.

¹¹⁴Jack Beatson, 'Robert Goff' (2019) 18 Biographical Memoirs of Fellows of the British Academy 241, 243.

¹¹⁵Wildy & Sons, 'Bennion on Statutory Interpretation 5th ed' <<https://www.wildy.com/isbn/9781405718684/bennion-on-statutory-interpretation-5th-ed-hardback-lexisnexis-butterworths>> accessed 12 Aug 2021.

¹¹⁶Zhuang-Hui Wu, 'Tan Sook Yee's Principles of Singapore Land Law 3rd ed by Hang Wu Tang, Kelvin F.K. Low' [2010] Singapore Journal of Legal Studies 222, 222.

¹¹⁷BerkeleyLaw Library Catalog, 'Ethics and professional responsibility : a code for the advocate and solicitor / Jeffrey Pinsler' <<https://lawcat.berkeley.edu/record/387422?ln=en>> accessed 12 Aug 2021.

¹¹⁸Disa Sim, 'Evidence, Advocacy and the Litigation Process (2nd ed.) by Jeffrey Pinsler' [2004] Singapore Journal of Legal Studies 254, 254

¹¹⁹WorldCat, 'Law of intellectual property of Singapore' <<https://www.worldcat.org/title/law-of-intellectual-property-of-singapore/oclc/213827855/editions>> accessed 12 Aug 2021.

¹²⁰Martin George, 'Publication: Dicey, Morris & Collins on the Conflict of Laws' (ConflictOfLaws.Net, 14 Oct 2006) <<https://conflictoflaws.net/2006/publication-dicey-morris-collins-on-the-conflict-of-laws/>> accessed 12 Aug 2021.

¹²¹Andrew Ashworth, *Sentencing and Criminal Justice* (9th edn, Cambridge University Press 2018).

¹²²ibid iii.

¹²³WorldCat, 'Principles of civil procedure' <<https://www.worldcat.org/title/principles-of-civil-procedure/oclc/823104365/editions>> accessed 12 Aug 2021.

¹²⁴RJ Smith, 'Elements of Land Law by K. J. Gray' (1990) 10 Oxford Journal of Legal Studies 260, 260.

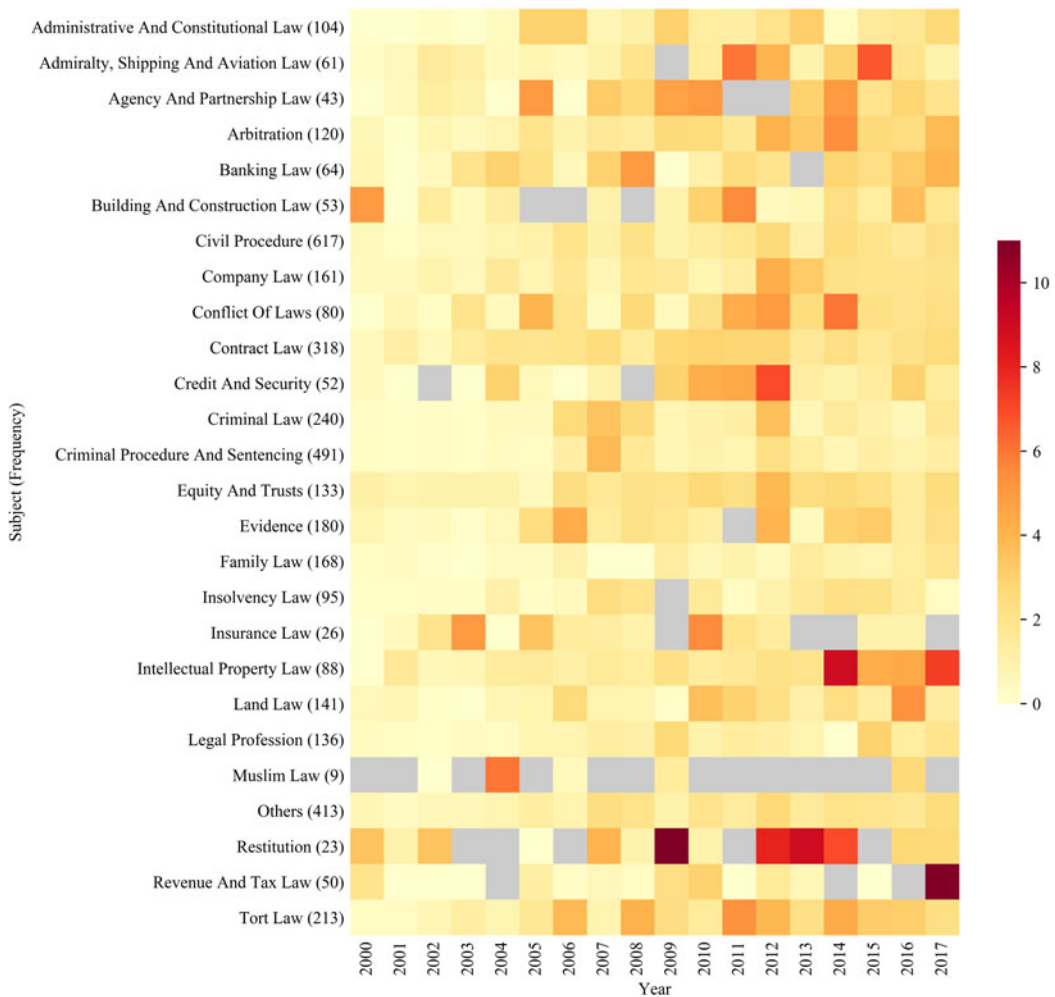


Figure 9. Citation Intensities By Subject Over Time

pool of local academic work may indeed have made accessing and citing relevant academic materials less costly (in both time and effort) for judges, given that many legal classics, including works not listed in Table 2, would have already been in circulation decades before the year 2000, the mere availability of academic material could not have been the sole reason driving the noteworthy increase in academic citations over the study period. Judges are citing more (and more) law textbooks not *only* because there *are* more and more (local) law textbooks. Other forces must be at work here; in light of the theoretical discussion at this article's outset, one of these forces may be the improving relationship between judges and academics.

Q3: Which Subjects Cite More?

Figure 9 presents yearly academic citation averages per judgment across subjects. The more intense the shaded area for the relevant subject-year, the higher the average. Squares are greyed out if there were no published High Court judgments on that subject in that year. When interpreting this Figure, note that judgments often cover more than one subject and that *all* academic citations in

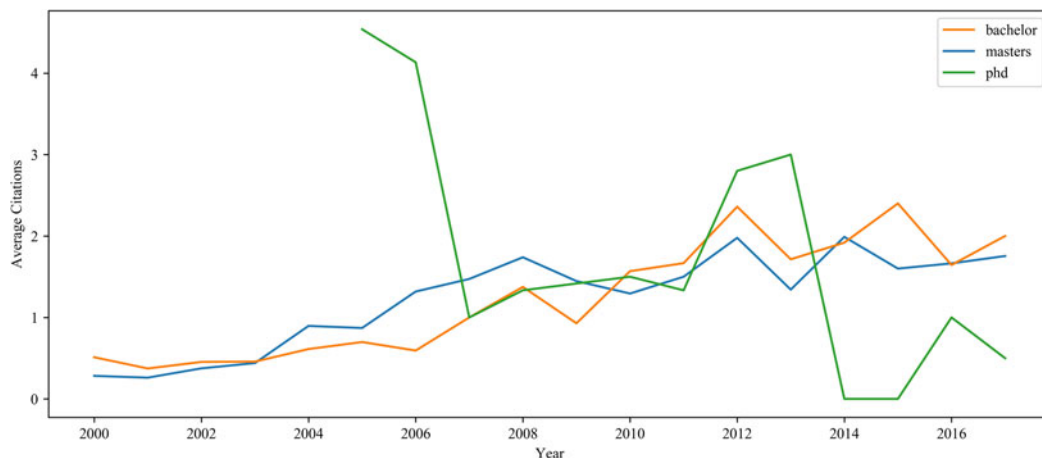


Figure 10. Average Academic Citations by Judge Education Group Over Time

a judgment count towards all of its subject's averages in the relevant year. Recall also from Figure 1 above that more specialised subjects occur less frequently in the dataset, so statistics for these subjects should be interpreted with caution.

The Figure demonstrates that the general increase in academic citations was spread across a number of subjects, and not isolated to a few. This can be broadly seen from how the Figure's right half is darker than its left half. Subjects exhibiting the most visible increases cover both broad and specialised areas, including admiralty, shipping and aviation, agency and partnership, intellectual property, restitution, and tort.

Restitution in particular stands out as an especially academic topic. This should be interpreted with some caution because there were only 23 restitution cases in the dataset. Nonetheless, this empirical observation was consistent with the doctrinal experience that the field of restitution is driven significantly by Goff and Jones' seminal text on the topic.¹²⁵ This text (including its earlier editions) was cited in 13 of these 23 cases.

Q4: Do Judges with More Academic Backgrounds Cite More Academic Work?

Figure 10 charts the average number of citations per case over time by judges based on the terminal, non-honorary, law degree held. Specifically, this means that judges are grouped regardless of when that qualification was obtained. Honorary qualifications are excluded.¹²⁶ Judges whose terminal degrees could not be ascertained were also excluded from the analysis below.¹²⁷ To illustrate,

¹²⁵Robert Goff & Gareth Jones, *The Law of Unjust Enrichment* (9th edn, Sweet and Maxwell 2016).

¹²⁶This by no means diminishes the importance and prestige of honorary qualifications. The intention is merely to sharpen the focus on a judge's academic background. In any event, our dataset records only two judges with honorary degrees. Chan Sek Keong CJ (as he then was) holds doctorates from both NUS (National University of Singapore, 'NUS confers Honorary Doctor of Laws to CJ Chan Sek Keong' (6 Jul 2010) <<https://law1.nus.edu.sg/alumni/news/2010/Today060710.pdf>> accessed 22 Feb 2022) and SMU (Singapore Management University, 'SMU Commencement 2013: Honorary Degree Citation' (25 Jul 2013) <https://news.smu.edu.sg/sites/news.smu.edu.sg/files/wwwsmu/news_room/press_releases/2013/annex_1_smu_commcement_2013_hon_degree_citation-chan_sek_keong_final_pdf.pdf> accessed 31 Mar 2022). LP Thean JA (as he then was) holds an honorary doctorate from the University of Bristol: Law Gazette, 'In Practice – AG's Tribute to LP Thean' <<https://v1.lawgazette.com.sg/2002-7/July02-inprac.htm>> accessed 22 Feb 2022. An alternative analysis (on file) which includes honorary doctorates produces similar results.

¹²⁷We could not definitively identify the terminal degrees of S Rajendran J, Phang Kang Chau J, and Quentin Loh J.

suppose X holds a PhD in *Engineering* and an LLB. X is then appointed to the High Court and authors a few judgments that cite a number of academic materials. Thereafter, X attains an LLM and an honorary doctorate in Law. All of X's academic citations over the study period would count towards the 'Master's' group only.

Figure 10 suggests that the general increase in academic citations was not driven by any one group of judges alone. This meant that it was *not* the case that judges holding PhDs were solely responsible for the increase in academic citations. On the contrary, both the Master's and Bachelor's groups exhibited broadly similar increasing trends. Citation rates for the PhD group, however, varies substantially. In 2005, 2006, 2012, and 2013, the PhD group cited significantly more academic material on average than the other groups, but from 2014 onwards, the PhD group cited significantly fewer. To be sure, this was likely an artefact of our dataset because only two judges fell within that group. Only five years – 2005, 2006, 2010, 2011, and 2012 – had more than five judgments authored by PhD holders.¹²⁸ A purely visual inspection of Figure 10 may thus yield misleading results. In particular, while the Figure seems to suggest that judges with PhDs have, after 2014, become less likely to cite academic works, the more sophisticated statistical analysis that follows shows that this was far from the case.

Multivariate regressions were therefore used to more precisely test for differences in citation rates across education groups. Specifically, we regressed the number of academic citations in a judgment on a categorical independent variable encoding the authoring judge's education group. Since it was possible for judges with more academic backgrounds to write lengthier judgments on average, we also controlled for judgment length. This further served to indirectly account for case complexity, though we make no claim that word counts suffice for this purpose. Year-fixed effects were included to account for macro-level changes in the Singapore legal system over the study period, including the general increase in academic citation densities described above. Finally, given the above observation that academic citations increased more noticeably for certain legal subjects, judgment subjects were also included. Note that here, unlike above, each judgment was only accorded *one* subject (based on which appears first in its catchwords). Incorporating multiple (and varying numbers of) subjects into the regression analysis would have been problematic for the statistical calculation. In any event, we may expect most judgments to have only *one* dominant subject.¹²⁹

As robustness checks, we further tested alternative regressions using only data from the above-mentioned five years with more than five PhD-judge-authored decisions. Further, since the dependent variable comprises academic citation counts, we tested both ordinary least squares (OLS) and Poisson regressions. Table 3 summarises the results for the full dataset. Results for the five-year subset, which are substantially similar, are reported in Appendix B.

The consistently positive coefficients for the education variables above suggest that judgments authored by both the Master's and PhD groups cite more academic materials on average comparable to the Bachelor's group, even after accounting for judgment word count and year (see columns 2 and 3 of both the OLS and Poisson regressions in Table 3). In other words, for the same judgment length and year, a judgment authored by a judge with deeper academic background does indeed tend to cite more academic materials, even after accounting for judgment subjects.

This correlation was stronger for the PhD group, which have coefficients consistently larger than those of Master's group. OLS column 3 in Table 3 suggests in particular that, compared to the Bachelor's group, judgments from the PhD group cite 1.16 more academic materials on average

¹²⁸There were 13, 15, 16, 6, and 10 PhD-holder-authored judgments in each year respectively.

¹²⁹In our dataset, 64.39% of cases had *only* one unique narrow subject attributed to it. 26.01% had only two; only 0.078% had three.

Table 3. Multi-variate Regression Analysis of Academic Citation Counts by Judge Education and Subject

Y: No. of Citations	1. OLS Regressions			2. Poisson Regressions		
	(1)	(2)	(3)	(1)	(2)	(3)
Education: Master's	0.317*** (0.0777)	0.179** (0.073)	0.182** (0.0744)	0.277*** (0.0705)	0.0156 (0.0649)	0.0392 (0.0628)
Education: PhD	1.64*** (0.385)	1.03*** (0.336)	1.16*** (0.339)	0.975*** (0.156)	0.555*** (0.138)	0.648*** (0.137)
Words (000s)		0.160*** (0.011)	0.157*** (0.0113)		0.0495*** (0.006)	0.0504*** (0.00551)
<i>Subject Categories (Reference: Administrative and Constitutional Law)</i> ¹³⁰						
Arbitration			0.949*** (0.309)			0.671*** (0.209)
Building and Construction Law			0.886** (0.362)			0.675*** (0.237)
Civil Procedure			0.61*** (0.198)			0.408** (0.180)
Conflict of Laws			1.03** (0.424)			0.722** (0.285)
Credit and Security			0.813** (0.352)			0.627** (0.261)
Equity and Trusts			0.50 (0.321)			0.466** (0.224)
Insurance Law			1.19* (0.716)			0.821** (0.341)
Intellectual Property Law			0.696** (0.294)			0.559** (0.227)
Tort Law			0.485* (0.279)			0.443** (0.203)
Year Fixed Effects	No	Yes	Yes	No	Yes	Yes
Subject Fixed Effects	No	No	Yes	No	No	Yes
R-Squared ¹³¹	0.0174	0.312	0.327	0.0137	0.182	0.207
N	2672	2672	2670	2672	2672	2670

Standard errors in parentheses. The reference for judge education is the Bachelor's group.
***p < 0.01, ** p < 0.05, * p < 0.10

while the Master's group cites only 0.182 more academic materials.¹³² Further, coefficients for the PhD group were significant at the 0.01 percent level across all six specifications, whereas the same for the Master's group was only significant for four and, importantly, was not significant under Poisson models 2 and 3 (which are theoretically better-suited for count data).

Thus, overall, there was strong evidence that the PhD group tends to cite more academic materials than both the Bachelor's and Master's groups. The statistical evidence for the Master's group was ambiguous because the coefficients were not consistently significant and, in any event, substantially

¹³⁰For brevity, only subjects statistically significant at the five per cent or lower level in at least one specification are shown.
¹³¹Adjusted r-squared values are presented for the OLS regressions; pseudo-r-squared values are presented for the Poisson regressions.
¹³²We use this column because OLS coefficients may be directly interpreted (while Poisson coefficients cannot) and because column 3 includes the full set of controls.

smaller. That the PhD group is clearly distinguishable from the other two is logical given that non-honorary doctorates represent significantly greater academic exposure (between three to five years of focused research) than Master's degrees (typically one year).

The regressions also shed light on whether certain subjects were driving the observed general increase in academic citations, a question previously considered above. Corroborating our findings there, results here suggested that there were indeed a number of subjects whose citation tendencies were significantly different from others. At the same time, the magnitude of this difference was relatively small. The largest differences may be found in subjects like insurance, conflicts of law, and arbitration which, based on OLS column 3 in Table 3, tend to have about 1 more academic reference per judgment on average, compared to the reference category (administrative and constitutional law). Importantly, while 30 narrow subjects were included in the full regressions, only 9 were significant at the 5 per cent level in at least one specification, reinforcing our earlier observation that the increase in academic citation tendencies was not entirely subject-driven.

All the observations made here are also borne out by the five-year subset regressions reported in Appendix B. Indeed, the difference between the Master's and the PhD groups, as well as the (relatively low) number of statistically significant subject categories, were even more prominent there.

We next examined the distribution of citation tendencies within each education group to determine whether differences across groups were driven by a few individual judges with stronger preferences for citing academic materials. Figure 11 illustrates individual citation distributions for all twelve Bachelor's, 27 Master's, and two PhD judges. To avoid potential sensitivities, index numbers are presented in place of judge names.

The Figure makes clear that, across all education groups, there were indeed certain judges who were more likely than the average judge in that group to cite academic materials. See, for instance, Bachelor's judge 10. This is unsurprising, for to find otherwise would suggest illogically that education level is the sole determinant of academic citations behaviour. The Figure also clarifies how results for the Master's group are driven to some degree by five judges in particular, these being Master's judges 2, 3, 5, 12, and 25. That said, we can also observe (less-pronounced) upticks in citation tendencies for other Master's judges (such as 16, 17, and 21). Finally, as the PhD group comprised only two judges, we refrained from over-interpreting the Figure, save to say that although PhD judge 1 indeed demonstrated a strong tendency to refer to academic materials, citation frequencies for PhD judge 2 is also higher than the average non-PhD judge, and did also increase over the three years in which that learned judge appeared in that dataset.

In this light, although it cannot be said that cross-group citation differences can be traced to a majority of judges in each group, it is also clear that our results are not driven by just one or two outliers. The intra-education-group distributions do not detract from our primary observation that judicial attitudes towards citing academic material in the Singapore High Court have shifted (indeed, improved) over the years.

Before concluding our empirical analysis overall, an important caveat is that we focus on the *correlative* question of whether judges with deeper academic backgrounds *tend* to cite more academic materials, *not* whether academic background *causes* them to cite more of the same. More sophisticated techniques beyond the scope of this article would be required to answer the latter question. In particular, the estimates presented above were probably biased as causal estimates because, amongst other reasons, case characteristics are not accounted for and are a source of omitted variable bias. To illustrate, judges with higher academic qualifications may have accordingly been assigned more 'academic' cases which in turn justified more academic citations. If so, any observation that more academically-qualified judges cited more academic material may be better attributed to the nature of the case as well as the court's case assignment practices instead of the judge's pre-dispositions. Further, the regression analysis was subject to the same data limitations on the (few observations in the) PhD group stated above. Presently, the key insights were that academic citations increased for judges across *all* education groups, that this increase was more pronounced for the Master's and

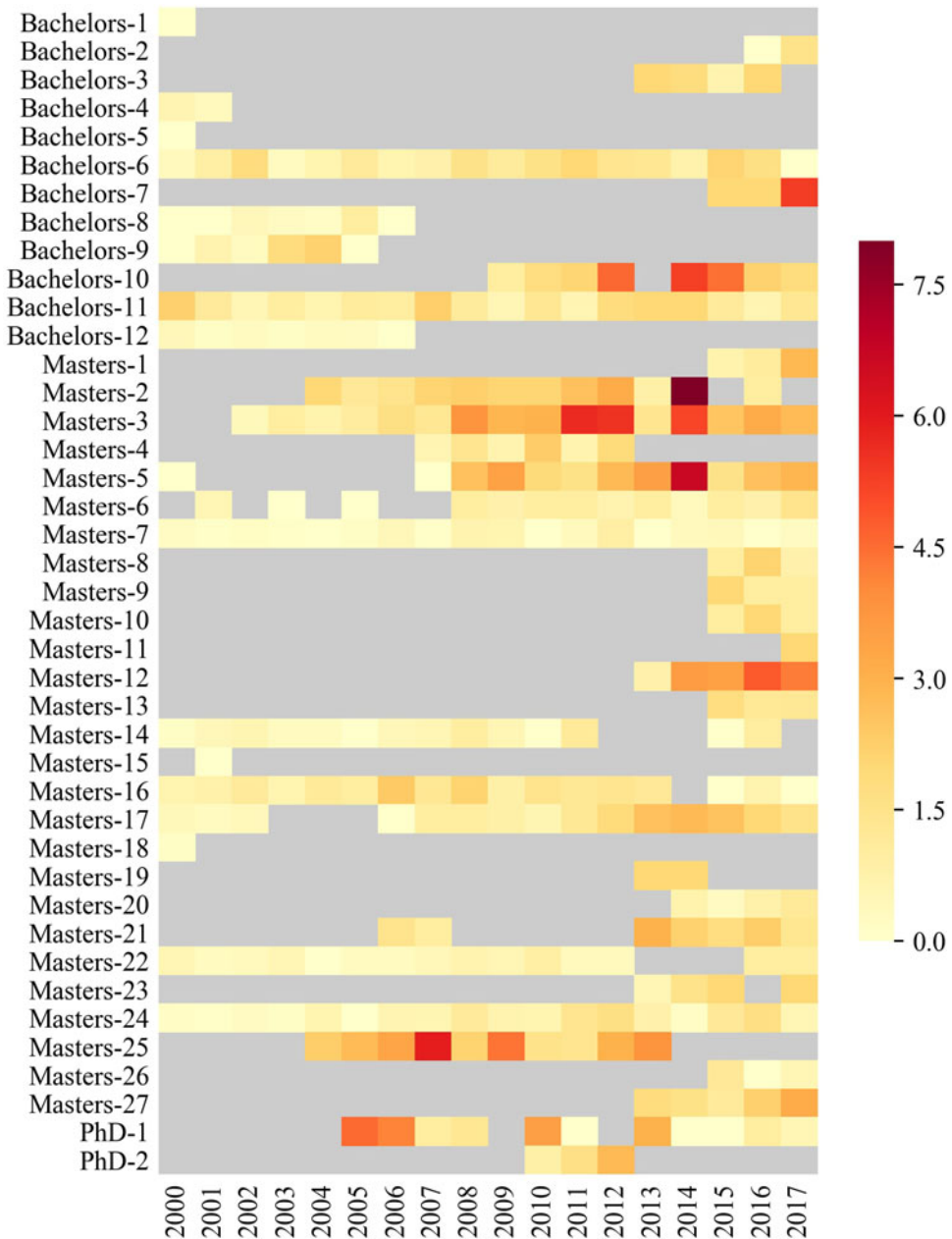


Figure 11. Judge Citation Intensities By Education Group Over Time

PhD group, though it was particularly pronounced for the latter, and that the increase was not driven solely by one or two judges or subjects.

Discussion

We set out to analyse the High Court’s citation of academic materials with two goals in mind. The first, which we have canvassed above, is to present and explore trends in the High Court’s citation of

such materials. The second, which is to explain the citations behaviour of first-instance courts in particular, warrants further discussion with reference to both our results and earlier studies conducted at the appellate level.

First, we ascertained that, over time, the High Court has cited more academic materials. This is consistent with Cheah and Goh's previous study of the Court of Appeal's citation of academic materials from 1970–2015 which similarly found that the court cited more academic materials over time.¹³³ However, what was also evident is that the Court of Appeal has cited *more* academic materials per case as compared to the High Court. We are mindful that the two studies adopted different methodologies, but the broad comparison that can be made stands true. Whereas the High Court averages around two academic materials per case (see Figure 6 above), the Court of Appeal, especially over the period between 2000 and 2017, averages around five, and reached a high of seven academic materials per case in 2008. This is unsurprising given that the Court of Appeal, as a final appellate court, has the institutional function of not only deciding the dispute before it, but also of developing the law incrementally in response to the facts of cases before it. In contrast, as we had alluded to above, the High Court, being (largely speaking) a court of first-instance, is bound by rulings of law by the Court of Appeal.

Second, consistent with these differing functions, citations to journal articles comprised a *larger* proportion of the Court of Appeal's academic citations relative to the High Court, although citations to textbooks still formed the majority of the Court of Appeal's citations. Cheah and Goh's study showed that citations to journals formed about 20–30 per cent of the Court of Appeal's academic citations from 2007–2015.¹³⁴ In contrast, journal citation shares for the High Court oscillated around 10 per cent over the same period (see Figure 8 above). Given the respective functions of each court, the High Court cites academic materials to state the law, whereas the Court of Appeal may be interested in more policy-oriented works that helped it develop the law. Such works are found not in textbooks but in monographs and journals. However, even then, we need to be cognisant of the fact that the Court of Appeal was still largely citing textbooks, which was an indication of the court's 'continuing concern to ensure holistic and consistent development of the law, taking into consideration how legal questions fit in the larger framework of the law'.¹³⁵

Third, in terms of subject area, Cheah and Goh's study identified admiralty and shipping law, administrative and constitutional law, insurance law, contract law, insolvency law, legal profession, land law, and restitution as subjects which tended to average the highest number of academic citations.¹³⁶ There was some overlap here with the subjects identified as such by the present study, to recall: admiralty, shipping and aviation, agency and partnership, intellectual property, restitution, and tort (see the section on research question three above). Restitution in particular was consistently academic, reinforcing our observations above. However, subjects like constitutional law and legal profession appear to be more academic (in citations) at the appellate level than at first instance. The reasons for this were not immediately obvious and warrant further study. Theoretically, we might attribute this to the nature of disputes in these subjects changing significantly on appeal. It may be that certain areas of law, such as constitutional law, have seen more novel arguments being brought before the courts in recent years. This may therefore necessitate the reference to more academic materials to respond to these new arguments. But this may also be driven by other factors, such as there being fewer journals (which the Court of Appeal cites more readily) than textbooks in these areas than others.

Finally, where judicial backgrounds are concerned, our results suggest that academic background may have a greater influence on academic citation rates at the first instance rather than appellate

¹³³Cheah & Goh (n 10) 110.

¹³⁴*ibid* 116

¹³⁵*ibid* 116.

¹³⁶Cheah & Goh (n 10) 113.

level. Two prior studies are germane. First, Lee et al's study of academic citation rates across both the High Court and Court of Appeal between 2005–2014 concluded that 'some judges have a greater inclination to cite academic articles'.¹³⁷ Nonetheless, while it 'may well be the case' that judges who previously served as academics were more likely to cite academic scholarship, certain judges with long academic careers have tended to cite few materials as well.¹³⁸ Four of six judges with the highest citation frequencies in that study did *not* have academic backgrounds.¹³⁹ Lee et al did not, however, decompose judge-specific citation rates by court level. Second, focusing on the appellate level, Cheah and Goh concluded that 'academic qualifications or work experience of individual judges on the Court of Appeal do not significantly influence the amount of academic citations made'.¹⁴⁰

Using regression analysis, we showed above that judges holding PhDs do indeed tend to cite significantly more academic materials than both the LLM and LLB group. However, the difference between the LLM and LLB group was less pronounced. Taken together with these prior studies, our results suggest that Lee et al's observation of judge-specific variation in academic citation rates could be primarily driven at the *High Court* level, whereas citation rates at the appellate level are more uniform (as Cheah and Goh find). This is logical as High Court judgments were usually sole-authored whereas Court of Appeal judgments tend to involve a coram of three or more judges. The former may therefore provide greater scope for judge-specific variation. This reinforces the importance of accounting in empirical studies of judicial (citations) behaviour for the legal and institutional background of the cases studied, particularly where panel effects may arise.¹⁴¹

In summary, we observed a strong correlation between the function of the High Court and its rate of citation of academic materials (as well as what it cites). This was also consistent with the reasons we had offered for why the High Court cites academic materials differently compared to the Court of Appeal.

Conclusion

This study demonstrated empirically that the High Court has steadily cited more academic materials in its judgments over recent years. The increase was most pronounced between 2003 and 2006, a period which coincided with a new generation of judicial appointments, and persisted even after accounting for the significant increase in judgment length over the study period. Further, the trend was not confined to (though it was indeed more pronounced in) certain subjects, such as restitution, which may be thought of as more academic in nature and/or origin. It was likewise not isolated to judges with more academic educational background alone; judges with terminal Master's and Bachelor's qualifications also increased the rate at which they cited academic materials.

While previous work by others had already identified similar trends in the Singapore Court of Appeal, confirming this in the novel context of the High Court is poignant given the latter's primary role as a first-instance, fact-finding rather than appellate, law-making court. Consistent with the High Court's role and institutional backdrop, academic citation practices there differed in subtle, yet important ways from those of the Court of Appeal. Textbook citations formed a greater proportion of the materials cited. Subject areas most likely to rely on academic material also differ. Finally, perhaps because most High Court cases were decided by one judge rather than three or more, and

¹³⁷Lee et al (n 104) 38.

¹³⁸ibid 38.

¹³⁹ibid 38.

¹⁴⁰Cheah & Goh (n 10) 119.

¹⁴¹Panel effects occur, broadly speaking, when a judge's behaviour in deciding a case is influenced by other judges sitting on the same panel. This is well-studied in US empirical literature. See eg, Cass R Sunstein et al, *Are Judges Political? An Empirical Analysis Of The Federal Judiciary* (Brookings Institute Press 2006); Pauline Kim, 'Deliberation and Strategy on the United States Courts of Appeals: An Empirical Exploration of Panel Effects' (2009) 157 *University of Pennsylvania Law Review* 1319.

the extent of a judge's academic educational background correlates more strongly with the tendency to cite academic materials when compared with Court of Appeal cases.

To be sure, citation quantity was by no means a perfect indicator of the quality or usefulness of a piece of work. Judges may cite an article to criticise it. Our broad empirical study could not consider the specific treatment accorded to each cited work. Nonetheless, judicial writing, like all forms of legal writing, presumably aspires towards economy. Thus, dismal work is more likely ignored than cited.¹⁴²

Another question our study leaves open is how far judges may be citing more academic materials simply because more of such materials are being brought to the courts' attention by *lawyers'* pleadings. Anecdotal, we might expect this to be true due to the increasing ease with which lawyers can access academic materials (online). Further, astute lawyers who notice the courts' preferences shifting towards citing more academic materials may think it wise to follow suit, establishing a positive feedback loop between the submission of academic materials in pleadings and the citation of such materials in judgments. However, as practical access to pleadings in each case was limited, we leave empirical confirmation of these intuitions to future work.¹⁴³

Ultimately, our findings reinforced the observations canvassed in our review of the qualitative literature on the improving, and increasingly interdependent, relationship between legal academia and the judiciary, particularly in Singapore. To the extent that Singapore's legal context is closer to that of other Asian jurisdictions compared to the American and European courts (where more empirical studies of citation practices have been conducted), the High Court's experience is also submitted as a useful case study for the region.

Appendix A

Raw Subject Area	Subject Area Assigned
administrative law	administrative and constitutional law
admiralty and shipping	admiralty, shipping and aviation law
agency	agency and partnership law
arbitration	arbitration
bailment	land law
banking	banking law
betting, gaming and lotteries	others
bills of exchange and other negotiable instruments	banking law
building and construction law	building and construction law
carriage of goods by air and land	admiralty, shipping and aviation law
charities	equity and trusts
civil procedure	civil procedure

(Continued)

¹⁴²Richard Posner, 'An Economic Analysis of the Use of Citations in the Law' (2000) 2 American Law and Economics Review 381, 387.

¹⁴³For examples of empirical analysis on legal briefs, see Lance Long & William Christensen, 'Clearly, Using Intensifiers is Very Bad – Or Is It' (2008–2009) 45 Idaho Law Review 171; Lance Long & William Christensen, 'Does the Readability of Your Brief Affect Your Chance of Winning an Appeal?' (2011) 12 Journal of Appellate Practice & Process 145; Jerrold Soh, 'Causal Inference with Legal Texts' (MIT Computational Law Report, 15 Jul 2021) <<https://law.mit.edu/pub/causalinferencewithlegaltexts/release/1>> accessed 1 Sep 2021.

(Continued.)

Raw Subject Area	Subject Area Assigned
commercial transactions	contract law
companies	company law
conflict of laws	conflict of laws
constitutional law	administrative and constitutional law
contempt of court	criminal law
contract	contract law
copyright	intellectual property law
courts and jurisdiction	others
credit and security	credit and security
criminal law	criminal law
criminal procedure and sentencing	criminal procedure and sentencing
damages	others
debt and recovery	banking law
deeds and other instruments	others
designs	intellectual property law
elections	administrative and constitutional law
employment law	others
equity	equity and trusts
evidence	evidence
family law	family law
financial and securities markets	banking law
gifts	equity and trusts
immigration	others
injunctions	civil procedure
inns and innkeepers	others
insolvency law	insolvency law
insurance	insurance law
international law	others
land	land law
landlord and tenant	land law
legal profession	legal profession
limitation of actions	civil procedure
mental disorders and treatment	family law
muslim law	muslim law
partnership	agency and partnership law
patents and inventions	intellectual property law
personal property	others

(Continued)

(Continued.)

Raw Subject Area	Subject Area Assigned
probate and administration	family law
professions	others
provident fund	others
public entertainment	others
res judicata	civil procedure
restitution	restitution
revenue law	revenue and tax law
road traffic	others
sheriffs and bailiffs	others
statutory interpretation	others
succession and wills	family law
time	others
tort	tort law
trade marks and trade names	intellectual property law
trusts	equity and trusts
unincorporated associations and trade unions	agency and partnership law
words and phrases	others
powers	others
choses in action	others
planning law	land law
abuse of process	others
tracing	equity and trusts
custom, usages and customary law	muslim law

Appendix B

Table 4. Multi-variate Regression Analysis of Academic Citation Counts by Judge Education and Subject, Data from Years 2005, 2006, 2010, 2011, and 2012 only

Y: No. of Citations	1. OLS Regressions			2. Poisson Regressions		
	(1)	(2)	(3)	(1)	(2)	(3)
Education: Master's	0.0933 (0.166)	0.361** (0.158)	0.476*** (0.161)	0.0699 (0.125)	0.0789 (0.117)	0.161 (0.117)
Education: PhD	1.73*** (0.471)	1.56*** (0.39)	1.73*** (0.382)	0.849*** (0.181)	0.755*** (0.153)	0.851*** (0.145)
Words (000s)		0.197*** (0.0194)	0.197*** (0.0201)		0.0771*** (0.00564)	0.079*** (0.00587)
<i>Subject Categories (Reference: Administrative and Constitutional Law)</i> ¹⁴⁴						
Family Law			−0.539 (0.473)			−1.41*** (0.511)
Insurance Law			1.74 (1.13)			0.953** (0.396)
Legal Profession			−0.934** (0.466)			−0.762** (0.341)
Restitution			1.21*** (0.455)			0.745*** (0.277)
Year Fixed Effects	No	Yes	Yes	No	Yes	Yes
Subject Fixed Effects	No	No	Yes	No	No	Yes
R-Squared ¹⁴⁵	0.0373	0.326	0.347	0.0261	0.193	0.235
N	738	738	736	738	738	736

Standard errors in parentheses. The reference for judge education is the Bachelor's group.

***p < 0.01, ** p < 0.05, * p < 0.10

¹⁴⁴For brevity, only subjects statistically significant at the five per cent or lower level in at least one specification are shown.

¹⁴⁵Adjusted r-squared values are presented for the OLS regressions; pseudo-r-squared values are presented for the Poisson regressions.