

TOWARD TIMELINESS IN CIVIL JUSTICE

KIM ECONOMIDES*, ALFRED A HAUG** AND JOE MCINTYRE***

This article presents a new perspective on ‘timeliness’ through developing novel hypotheses and methodologies to explain behavioural and structural determinants of civil case disposition time. Our proposed more comprehensive methodology presents a powerful explanatory tool to inform future empirical investigation, as well as laying foundations for the creation of robust time standards against which civil courts can be more accurately measured, monitored and compared across jurisdictions.

I INTRODUCTION

It might be thought timely during the 800th anniversary of Magna Carta to reassess the meaning and impact of the rhetorical commitment contained in its most famous chapter (40): ‘*To no one will we sell, to no one deny or delay right or justice*’. Popular perceptions of ‘court delay’ — reinforced by assumptions widely held amongst litigants, lawyers and researchers — traditionally tend to see so-called ‘delay’ as essentially a failure of the adversarial system or, more specifically, the judges and administrators who manage it. Too often research focuses narrowly on court behaviour as the sole cause of delay, and on delay as an unmitigated negative, with the result that much empirical research has become either unduly limited in its scope or potentially misguided in its inquiry. ‘Delay’ is commonly seen as a problem for both parties, which frequently it is not. And a lengthy ‘lapse of time’ does not automatically equate with ‘untimeliness’ or ‘delay’. Attention has focused on the collection and interpretation of limited data sets, with a tight focus on judicial case management, while cyclical variations in the wider economy that connect macro-economic to legal behaviour are ignored. Such environmental factors can however impact on, if not determine, the overall demand for litigation. Yet most previous studies explain the progress of civil trials with reference to a single jurisdiction and focus on a narrow range of input variables collected over relatively brief periods of time. Moreover,

* Professor of Law and Dean of Flinders Law School, Flinders University, Adelaide, Australia.

** Professor of Economics and Head of the Economics Department, Otago University, Dunedin, New Zealand.

*** Senior Lecturer in Law, School of Law, University of South Australia, Adelaide, Australia.

The research was inspired by two philanthropists, Grant and Marilyn Nelson of Christchurch, New Zealand who, having experienced protracted delay in having their case tried, made a generous donation to establish the University of Otago Legal Issues Centre (<http://www.otago.ac.nz/law/research/legalissues/>). Shana Fonnesebeck and Rachel Souness provided valuable research assistance in the early stages of the project. The authors are grateful to their audience at the Law & Society Association conference held in Honolulu, Hawaii where an earlier version was presented and thank, without implicating, anonymous reviewers and the following individuals for helpful comments: Juliet Aiken, Sharyn Roach Anleu, David Bamford, Michael Beenstock, Robert Dingwall, Bert Kritzer, Kathy Mack, and Andy Whitford.

studies commonly utilise different focal points, adopt divergent methodologies and address subtly distinct questions in a way that diminishes comparability of studies and makes meta-analysis difficult. The lack of a common vocabulary regarding what is being measured — whether dispute, case or trial length — compounds with divergent methodologies to create a fractured data landscape.

This article aims to move researchers and policymakers closer together and toward the creation of a common vocabulary and methodology for the empirical and comparative study of that serious and perennial problem of civil justice: court delay.¹ Such standardisation, building on earlier research by pioneering comparativists² and more recent work of the *Timeliness Project*,³ should guide the gathering and analysis of complex data sets in a more uniform and consistent manner. In turn this should improve the reliability and relevance of findings and facilitate cross-jurisdictional comparisons in a manner that helps account for underlying determinants of court behaviour, and provides a meaningful guide to policymakers.

Understanding and better accounting for the causes and consequences of delay is vital if policy is to promote greater access to justice. Delay affects the effective operation of the judicial system and can impose additional stress for litigants and witnesses and may deter citizens with legitimate legal problems from entering and using the system.⁴ Finally, increases in delay go hand-in-hand with spiralling court costs, with litigation becoming more expensive the more it is extended. These costs are borne not only by individual litigants, but also by taxpayers, who carry the burden of inefficient legal aid spending and court administrative costs. This delay-induced cost expansion can distort the meritocratic ideals upon which the legal system is founded. ‘Undue delay’, however defined, leads to increased costs in a way that ‘works for the benefit of the man with the longest purse’⁵ as it allows the more resourceful party to force their opponent into early settlement or abandonment of legal action altogether.⁶ Explaining and, where possible, reducing

- 1 In doing so, this approach seeks to complement related research exploring how lawyers and courts may be effectively by-passed through what Cappelletti and Garth called the third wave, or ‘Access-to-Justice Approach’: Mauro Cappelletti and Bryant Garth (eds), *Access to Justice* (Giuffrè, 1979) Vol 1 Book 1, 49–107.
- 2 Ibid. See also Kim Economides, ‘Mauro Cappelletti’s Legacy: Retrospect and Prospect’ (2016) 7 *Annuario di Diritto Comparato* (forthcoming).
- 3 Australian Centre for Justice Innovation (‘ACJI’), ‘The Timeliness Project: Background Report’ (Paper No 24, ACJI, Monash University, October 2013) <<http://www.civiljustice.info/timeliness>>. See Peter Cashman, ‘Welcome and Introduction, Timeliness in the Justice System: Ideas and Innovations’, (Paper No 5 presented to the ACJI, Monash University conference on *Timeliness in the Justice System: Ideas and Innovations*, Melbourne, 16 May 2014) <<http://www.civiljustice.info/timeliness/5>>. See also Productivity Commission, ‘Access to Justice Arrangements’ (Productivity Commission Inquiry Report No 72, 5 September 2014) <<http://www.pc.gov.au/inquiries/completed/access-justice/report>>.
- 4 In 2009 the New Zealand (‘NZ’) Attorney-General said defended civil cases in the District Court had halved over the past decade, partly because lawyers were routinely discouraging clients from filing claims due to excessive delay: New Zealand Law Society, *Law Talk*, Issue 731, 2009.
- 5 Moorfield Storey, *The Reform of Legal Procedure* (Yale University Press, 1911) 4.
- 6 Marc Galanter, ‘Why the “Haves” Come out Ahead: Speculations on the Limits of Legal Change’ (1974) 9 *Law & Society Review* 95.

delay is a priority if not precondition for the effective operation of the judicial system and research has a vital role to play in mitigating its negative impacts.

This article begins by providing an initial normative analysis of the nature and scope of the concept of ‘delay’, in an attempt to introduce conceptual clarity and rigour to the use of this ambiguous term. In Parts III and IV we focus on the measurement and analysis of these factors, constructively evaluating previous studies on the nature and causes of ‘delay’. In Parts V and VI we present a novel analytical framework and methodology that refines established statistical approaches in order to isolate factors most likely to make courts more efficient in their processing of legal disputes.⁷ The ‘production function’ model we propose, which we label ‘*echronometrics*’, includes many more relevant variables, and specifies their interdependence. Assuming more data can be collected, we believe our methodology should deliver superior results.

II UNDERSTANDING (UN)TIMELINESS

That courts are ‘untimely’ institutions is something rarely questioned by the public, lawyers or policymakers. Delay is expected. The old adage ‘justice delayed is justice denied’ (sometimes juxtaposed with ‘justice hurried is justice buried’) has been a stick wielded against legal systems at least since the time of Magna Carta, while over a century ago Pound optimistically looked forward to ‘when our courts will be swift and certain agents of justice’.⁸ Storey also argued that of ‘the real evils which beset the administration of justice ... first among them is “the law’s delay”’.⁹ Such concerns continue to preoccupy the public imagination as seen in a 2009 survey in New Zealand showing that only 23 per cent of respondents believed a case would be completed within ‘a reasonable time’ if they went to court,¹⁰ a finding mirrored in other jurisdictions. For example, a 1999 survey of Americans showed that 78 per cent agreed with the statement, ‘[i]t takes

7 Mary Lee Luskin, ‘Building a Theory of Case Processing Time’ (1978) 62 *Judicature* 115.

8 Roscoe Pound, ‘The Causes of Popular Dissatisfaction with the Administration of Justice’ (1906) 29 *Annual Report of the American Bar Association* 395, 417. See also Robert Hazell and James Melton (eds), *Magna Carta and Its Modern Legacy* (Cambridge University Press, 2015).

9 Storey, above n 5, 21. Storey observed that ‘delay’ is ‘an evil which has been the cause of bitter complaint ever since legal tribunals came into being’: at 21–2. Pound cites Bentham (*Works* (1797) V II, 214) complaining that 543 out of 550 writs of error ‘were shams or vexatious contrivances for delay’: Pound, above n 8, 416–17. Gurney Champion in an appendix to his *Justice and the Poor in England* (Routledge, 1926) formulated a draft Bill to repeal chapter 40 of Magna Carta ‘in so far only as poor persons are concerned’ until such time as Parliament honoured this commitment: see Robert Egerton, *Legal Aid* (Kegan Paul, 1945) 6.

10 Saskia Righarts and Mark Henaghan, ‘Public Perceptions of the New Zealand Court System: An Empirical Approach to Law Reform’ (2010) 12 *Otago Law Review* 329, 337.

too long for courts to do their job',¹¹ while politicians — no doubt with a keen eye on the electorate — have vowed to tackle endemic delay in the Italian courts.¹²

Part of the problem in pursuing a more scientific understanding is defining accurately the concept of 'delay': how long should it take to resolve a dispute in court? Indeed, the assumption that there is an *objective, proper* or *ideal* length of time to resolve a dispute ignores anthropological insights and appears naive. A dispute is a dynamic unpredictable human phenomenon that can travel in numerous directions: through legal proceedings apparently complex cases will crystallise into simple disputes, while simple straightforward claims over small sums can explode in legal complexity.¹³ Moreover, party interests and objectives may change, and the appetite for confrontation may itself wax or wane. 'Delay', not unlike the concept of 'unmet legal need',¹⁴ is best seen as a highly subjective and normative product of stakeholders in the justice system.

The advantages that delay offers, for parties and institutions, in deferring decisions are often overlooked. Litigants view delay differently: a party seeking to alter the legal status quo — a plaintiff chasing a debt, or seeking compensation — may desire rapid resolution, while a party resisting the claim — a defendant seeking to retain title, or a parent wishing to retain custody of their child — may actively seek procrastination that maintains current conditions.¹⁵ While one party may express frustration at the other's 'delay tactics' — voluminous discovery requests, interlocutory applications, and other time-consuming legal manoeuvres — another party may defend such tactics as appropriate zealous representation. Delay may also be entirely justifiable, even desirable, within an adversarial system. As Storey notes, 'delay is extremely useful'.¹⁶ Factually or legally complex cases demand more extensive preparation and deliberation than simple cases, and inevitably absorb more time. However, some sources of delay are more suspect: ill-prepared lawyers seeking unnecessary adjournments; overloaded court facilities that are overbooked, causing postponed trials; defendants with hopeless cases striving improperly to fend off the inevitable. To combat such

- 11 American Bar Association, 'American Bar Association Report on Perceptions of the U.S. Justice System' (1999) 62 *Albany Law Review* 1307, 1340.
- 12 Matteo Renzi, Italy's current prime minister, 'has announced plans to halve Italy's backlog of 5.2m cases and ensure that all trial stages are completed within 12 months': 'Italy's Judicial System: Justice Denied?', *The Economist* (online), 19 June 2014 <<http://www.economist.com/news/europe/21607860-civil-justice-reform-italy-pressingand-difficult-justice-denied>>.
- 13 Kim Economides, 'Small Claims and Procedural Justice' (1980) 7 *British Journal of Law and Society* 111.
- 14 Cf similar debates in the 1970s that exposed the value-laden, unscientific and somewhat circular arguments behind extending legal services as the best, and often exclusive, means of addressing or meeting social needs: F Raymond Marks, 'Some Research Perspectives for Looking at Legal Need and Legal Services Delivery Systems: Old Forms or New?' (1976) 11 *Law & Society Review* 191; Philip Lewis, 'Unmet Legal Needs' in Pauline Morris, Richard White and Philip Lewis, *Social Needs and Legal Action* (Martin Robertson, 1973) 73. For more recent Australian discussion of 'unmet legal need' see Christine Coumarelos et al, Law and Justice Foundation of New South Wales, *Legal Australia-Wide Survey: Legal Need in New South Wales* (2012) 3–5; Productivity Commission, above n 3, 84–8.
- 15 Hazel Genn, *Judging Civil Justice: The 2008 Hamlyn Lectures* (Cambridge University Press, 2010) 111.
- 16 Storey, above n 5, 26.

tactics we favour a much broader notion of the ‘duty to the court’. For example in Victoria, Australia, legal practitioners and all parties — including those involved in satellite litigation, insurers and third party litigation funders — have ‘overarching obligations’ to the court which take the form of ‘10 commandments’, eg to ‘use reasonable endeavours’ in connection with the civil proceeding; to ‘act promptly; and minimise delay’.¹⁷

Some researchers favour rejecting the term ‘delay’ altogether, arguing instead that more neutral terms such as ‘timeliness’, ‘case processing time’ or ‘pace’ better reflect the standard to be measured.¹⁸ Chief Justice Wayne Martin draws a crucial distinction between ‘lapse of time’ and ‘delay’, noting that ‘some lapse of time is inevitable and unavoidable and that there will be some cases in which a significant lapse of time is essential for the proper administration of justice’.¹⁹ While ‘delay’ can be ambiguous, little is gained by rejecting it entirely. As with the elephant difficult to define in the abstract, delay *does* have a clear core meaning and, in our view, should be retained. However, as with the concept of ‘need’, the concept of ‘delay’ has an inherent subjective and value-laden dimension making it hard to measure empirically. We therefore prefer to focus on the more measurable notion of ‘timeliness’ of civil proceedings, and seek to identify the range and impact of factors that influence case progression.²⁰ A broader framework for understanding ‘timeliness’ needs to be constructed along with measurement and evaluation tools that would involve time standards.²¹ These factors include those falling within a traditional ‘narrow’ conception of delay — the obstructive litigant, underfunded courts or poor case management. But they also include more acceptable factors that can slow down proceedings such as a beneficial pause to let tempers cool or extended time to prepare properly a complex case, not to mention other relevant factors, such as broader economic, social and cultural context and practice, or the substance of the dispute. Through focusing on the identification and impact of factors that influence the duration of proceedings, subsequent analysis and evaluation can be better targeted to produce more meaningful reform.

By introducing context and taking account of disputants’ experiences from the inception of a grievance through to enforcement of judgment one can locate court delay in the overall dispute process,²² and see whether case progression

17 See *Civil Procedure Act 2010* (Vic) ss 10–26. See also Victorian Law Reform Commission, *Civil Justice Review*, Report No 14 (2008) <<http://www.lawreform.vic.gov.au/projects/civil-justice/civil-justice-review-report>>.

18 Luskin, above n 7. See also Joel B Grossman et al, ‘Measuring the Pace of Civil Litigation’ (1981) 65(2) *Judicature* 86.

19 Wayne Martin, ‘Timeliness in the Justice System: Because Delay is a Kind of Denial’ (Paper No 16 presented to the ACJI, Monash University conference on *Timeliness in the Justice System: Ideas and Innovations*, Melbourne, 17 May 2014) 22 <<http://www.civiljustice.info/timeliness/16>>.

20 See ACJI, above n 3, ch 2.

21 See Attorney-General’s Department (Cth), *Draft Objectives for the Civil Justice System* (2012), available at <<https://www.ag.gov.au/LegalSystem/Pages/AnevidencebasefortheCivilJusticesystem.aspx>>.

22 Robert Dingwall and Tom Durkin, ‘Time Management and Procedural Reform: Some Organizational Questions for Lord Woolf’ in A S Zuckerman and Ross Cranston (eds), *Reform of Civil Procedure: Essays on ‘Access to Justice’* (Clarendon Press, 1995) 371, 371–2.

time has an overall neutral, or adverse, impact on total dispute duration. This total duration will be of more significance to disputants.²³ Moreover, narrow conceptions of delay can blinker reforms in a manner that perversely ‘aggravate rather than alleviate the related problems of cost and accessibility’.²⁴ Our preferred approach, described below, incorporates important *external* factors and constraints connected with what may be happening in the local or macro economy, in addition to factors *internal* to the civil justice system (including the organisational context of time management by courts, litigation strategy by the parties,²⁵ and consequences of client management).²⁶ Before we turn to outline our proposed methodology, we must first outline the history of existing empirical research into the sources of delay.

III PREVIOUS RESEARCH ANALYSING TIMELINESS

While empirical study of court delay began in the early twentieth century, its evolution has been sporadic and it was not until much later that the first serious study was conducted at the University of Chicago.²⁷ A notable surge emerged in the 1970s and 1980s as a result of work led by Church’s *Justice Delayed: The Pace of Litigation in Urban Trial Courts*,²⁸ and subsequent follow-up studies by the National Centre for State Courts. This coincided with the emergence, in many jurisdictions, of case management reforms. Despite major systemic changes in most jurisdictions over the last decade, there have been remarkably few empirical studies of delay since 2000.²⁹ Court reform is not, it would seem,

- 23 As Dingwall and Durkin observe, what matters to the parties is not the time spent processing the case through a particular stage of legal proceedings, but ‘the duration from a plaintiff first seeking legal advice to the resolution of the case’: *ibid* 372.
- 24 *Ibid*.
- 25 See John A Martin and Nancy C Maron, ‘Courts, Delay, and Interorganizational Networks: Managing an Essential Tension’ (1991) 14/15(3/1) *Justice System Journal* 268; Robert Dingwall, William L F Felstiner and Tom Durkin, ‘Time, Legal Culture and Legal Process’ in Jerry Van Hoy (ed), *Legal Professions: Work, Structure and Organization (Sociology of Crime Law and Deviance, Volume 3)* (Elsevier Science, 2001) 96.
- 26 Robert Dingwall et al, ‘Firm Handling: The Litigation Strategies of Defence Lawyers in Personal Injury Cases’ (2000) 20 *Legal Studies* 1. We thank Robert Dingwall for pointing out how a case-processing system may be front or back-loaded, and how lawyers may slow down a case until a late point in the limitation period in order to see whether a client’s condition deteriorates thereby increasing the value of their claim. Similarly, in medical negligence cases, slowing down might be caused by lawyers trying to get their client’s expectations of a settlement down to more realistic levels.
- 27 Hans Zeisel, Harry Kalven Jr and Bernard Buchholz, *Delay in the Court – An Analysis of the Remedies for Delayed Justice* (Little, Brown and Company, 1959); Herbert M Kritzer, ‘Empirical Legal Studies Before 1940: A Bibliographic Essay’ (2009) 6 *Journal of Empirical Legal Studies* 925, 928.
- 28 Thomas Church Jr et al, *Justice Delayed: The Pace of Litigation in Urban Trial Courts* (National Center for State Courts, 1978).
- 29 Empirical studies tend to focus on particular types of cases, such as capital appeals in the US: James N G Cauthen and Barry Latzer, ‘Why So Long? Explaining Processing Time in Capital Appeals’ (2008) 29 *Justice System Journal* 298; or specialised courts: Jeffrey A Butts, Gretchen Ruth Cusick and Benjamin Adams, ‘Delays in Youth Justice’ (Research Report to the US Department of Justice, October 2009). Ongoing work by the National Center for State Courts is an exception.

driven or informed by empirical research. For example, Goerd, Lomvardias and Gallas' follow-up review of court performance in the 21 jurisdictions examined in Church's study found that eight courts had increased their median disposition time by 20 per cent or more in the following decade, and another five increased their median disposition time by 40 per cent or more.³⁰ As Goerd, Lomvardias and Gallas observe, 'these findings are somewhat discouraging' given the years of research and education of judges regarding the nature of delay in litigation and effective case management.³¹

The existing body of delay research has pointed to areas of disagreement³² and is the product of divergent research methods, different ways of characterising delay and a lack of consistent coordination of the terms used. For example, Garner noted that three studies analysing a single court delay reduction program reported 'different numbers of cases, [used] different measures for ostensibly the same concept, and [generated] different conclusions about the causes of court delay'.³³ Garner concluded that, given the disagreement among close colleagues, 'there can be little surprise at the lack of unanimity across the disciplines, institutions, and jurisdictions'.³⁴ A useful illustration of these divergent approaches has been the way different studies have focused on 'delay' with respect to various aspects of the duration of the dispute. While *Justice Delayed* and many of its contemporary and subsequent studies evaluated the duration of litigation from inception to judgment,³⁵ it has not been uncommon for studies to take a narrower approach and specifically examine trial length,³⁶ or particular stages of civil litigation.³⁷ At least one study examined the amount of time it takes for a civil litigant to recognise their problem as a legal complaint and initiate suit.³⁸

These different foci produce divergent approaches for data collection and analysis as well as divergent results — a short trial may require a long pre-trial stage, while getting before a judge quickly may slow down the later progression of a matter. Even where consensus on the type of data needed exists, different methodological

30 John A Goerd, Chris Lomvardias and Geoff Gallas, *Reexamining the Pace of Litigation in 39 Urban Trial Courts* (National Center for State Courts, 1991) 56.

31 *Ibid* 29.

32 Thomas W Church Jr, 'The "Old and the New" Conventional Wisdom of Court Delay' (1982) 7 *Justice System Journal* 395; Joel H Garner, 'Delay Reduction in the Federal Courts: Rule 50(b) and the Federal Speedy Trial Act of 1974' (1987) 3 *Journal of Quantitative Criminology* 229. In his critique of more than a dozen criminal empirical studies from the 1970s and 1980s, Garner found that the defendant's bail status was the only variable consistently correlated to disposition time.

33 Joel H Garner, US Sentencing Commission, *E Pluribus Unum? Research on Processing Time in Criminal Cases* (2004) 24.

34 *Ibid*.

35 Church, above n 32; Mary Lee Luskin and Robert C Luskin 'Case Processing Times in Three Courts' (1987) 9 *Law and Policy* 207; Goerd, Lomvardias and Gallas, above n 30.

36 Some studies look at the total number of sitting days: Janet Chan and Lynne Barnes, *The Price of Justice? Lengthy Criminal Trials in Australia* (Hawkins Press, 1995); Chris Corns, *Anatomy of Long Criminal Trials* (Australian Institute of Judicial Administration, 1997); or the number of hours and minutes devoted to sitting time: Dale Anne Sipes and Mary Elsner Oram, *On Trial: The Length of Civil and Criminal Trials* (National Center for State Courts, 1988).

37 Grossman et al, above n 18; Ross Cranston et al, *Delays and Inefficiency in Civil Litigation* (Australian Institute of Judicial Administration, 1985).

38 Cranston et al, above n 37.

approaches for collecting it remain. Five principal methods have been used to gather and analyse data on delay; each having distinct qualities, but too often empirical study has relied upon just one approach and without using context to correct for weaknesses. The pros and cons of each data-gathering method need to be understood before developing a more comprehensive approach.

Most empirical research into delay has sought to deploy quantitative research methods that utilise existing data sets. Researchers commonly seek to minimise temporal and financial costs by drawing upon available court statistics to examine delay.³⁹ While this may have certain efficiency and resourcing advantages, the standards of data collection vary considerably according to administrative staff budgets, resources and training, not to mention an inherent predilection amongst organisations not to keep accurate records.⁴⁰ The result often is inaccurate data,⁴¹ which has led researchers, such as Sipes and Oram, to adopt the unusual approach of gathering contemporaneously recorded on-going trial data.⁴² Greater reliability, and more detailed and tailored data are to be weighed against the logistical and cost implications that limit such collection. And as Sipes and Oram note, accuracy may still be undermined by factors such as judges choosing not to participate, or forgetting to include relevant data.⁴³ More significantly, active data collection may reveal relevant factors invisible on the court record, including the impact of judicial attitudes and behaviours.⁴⁴ The relative convenience and ease of access to official court records makes quantitative approaches the norm but the content of court records often dictates the variables analysed in the resultant modelling, as relevant information (for example, the type of case, charge, and judge) is more readily available.⁴⁵ While more tailored case-specific variables may be desirable for providing a more nuanced understanding of the causes of delay, not only can it be difficult to identify appropriate variables,⁴⁶ but gathering data on such variables will inevitably raise logistical difficulties.

The ability of qualitative research to capture more ‘human’ elements that contribute to delay allows it to supplement the ‘hard’ data of quantitative

39 Church, above n 32; Michael Heise, ‘Justice Delayed?: An Empirical Analysis of Civil Case Disposition Time’ (2000) 50 *Case Western Reserve Law Review* 813; Don Weatherburn and Joanne Baker, *Managing Trial Court Delay: An Analysis of Trial Case Processing in the NSW District Criminal Court* (New South Wales Bureau of Crime Statistics and Research, 2000).

40 Harold Garfinkel and Egon Bittner ‘“Good” Organizational Reasons for “Bad” Clinical Records’ in Harold Garfinkel, *Studies in Ethnomethodology* (Prentice-Hall, 1967) 186.

41 See Chan and Barnes, above n 36; Sipes and Oram, above n 36.

42 Sipes and Oram reported that plans to collect data from trial transcripts were abandoned upon realising that ‘the transcripts were not complete, and that estimates of trial length based on the transcripts would contain much error’: Sipes and Oram, above n 36, 90.

43 Ibid.

44 See Keith O Boyum, ‘A Perspective on Civil Delay in Trial Courts’ (1979) 5 *Justice System Journal* 170.

45 It should be noted that other measurable variables, such as the use of technology or the number of witnesses, may or may not be recorded, depending on jurisdictional requirements.

46 Chan and Barnes took a novel approach in developing their variables by distributing a preliminary questionnaire to representatives from police, courts, and prosecutorial agencies, asking their opinions about what factors influence trial length, and the responses to these questionnaires helped form their list of variables: Chan and Barnes, above n 36.

research. While this can be labour intensive, the risk is that it is anecdotal and subjective to some degree, revealing entrenched views that may distort conduct. The problem is having non-randomised, and therefore biased, samples. However, qualitative research has an important role pointing towards problems and areas where quantitative data collection and research could be useful in order to enable formal statistical analysis. For example, in Church's 1978 study, lawyers and judges in the slowest jurisdiction took for granted that cases simply could not move any faster.⁴⁷ There are compensating advantages, including direct exposure to personal experience.

Another common approach is the use of case studies to focus intensely on a small subset, such as unusually long trials, allowing greater nuance in analysis in a more manageable logistical undertaking. For example, Chan and Barnes analysed 67 'very long' criminal trials over a two-year period in Australia, collecting concrete data and interviewing key participants.⁴⁸ In a similar Australian study, Corns identified five very long criminal cases to be analysed in great detail, including transcripts and judgments analysis, interview, and statistical analysis of trial time.⁴⁹ While these studies provide excellent detail of the chosen subset, it is often difficult to generalise the findings to what influences delay in the civil legal system as a whole.⁵⁰ Furthermore, questions remain about how representative the chosen cases are and whether general conclusions can be supported or have, in statistical terms, external validity.

Data contained in reported cases may also be used. While limited by the small set of cases for which the subject matter of the case provides data on duration, the approach can be powerful and efficient. Calvez's study examining delay by reference to judgments of the European Court of Human Rights concerning allegations of 'unreasonable delay' illustrates this.⁵¹ She drew conclusions about the court's criteria for addressing delay, by providing detailed analyses of case histories. While this could have wider application,⁵² it can only ever provide a snapshot of the causes of delay, constrained as it is by the limited causes of actions and the choices of individual litigants.

47 Church et al, above n 28, 57–8.

48 Chan and Barnes, above n 36.

49 Corns, above n 36.

50 Chan and Barnes note that 'the [original] intention [of their study] was to compare case characteristics between long and short trials', which would have offered more insight into the factors associated with trial length, but that costs and logistical complications required them to narrow the scope of the study: Chan and Barnes, above n 36, 21.

51 Françoise Calvez, European Commission for the Efficiency of Justice, *Length of Court Proceedings in the Member States of the Council of Europe Based on the Case-Law of the European Court of Human Rights* (2006). Calvez examined judgments and other materials regarding cases brought alleging a violation of Article 6(1) of the *Convention for the Protection of Human Rights and Fundamental Freedoms*, opened for signature 4 November 1950, 213 UNTS 221 (entered into force 3 September 1953), as amended by *Protocol No 14bis to the Convention for the Protection of Human Rights and Fundamental Freedoms*, opened for signature 27 May 2009, CETS No 204 (entered into force 1 September 2009), which guarantees civil litigants and criminal defendants the right to a hearing 'within a reasonable time'.

52 This approach could, for example, lend itself to a review of appellate decisions in other jurisdictions with similar provisions regarding the right to a speedy trial.

Other researchers have undertaken comparative analysis to consider data sets either across time or a number of jurisdictions.⁵³ This involves comparing case processing times in similarly sized courts within a single country⁵⁴ or, alternatively, comparing case processing time in one particular court system over a period of years.⁵⁵ While intuitively attractive as a means of isolating factors that may influence delay, the process can be difficult not only because procedures may differ for similar types of cases, but because the type and consistency of data collection varies between courts. Hypothetical disputes may circumvent the problem. For example, one 2003 study examined delay by evaluating the processes for a basic dispute by submitting a questionnaire to cooperating law firms in 109 countries asking how a hypothetical dispute would be handled.⁵⁶ This can partially equalise otherwise inconsistent variables, yet remains limited by its dependency on the accuracy of its respondents. Comparative research frequently overlooks cultural variables that influence the operation of legal systems, as seen in social and ethnographic research on delay in the Italian and Maltese legal systems.⁵⁷ As Nelken notes, '[l]egal delay in Italy should ... be treated not just as an indicator of waiting times but also as a measure of the distance between legal culture and general culture'.⁵⁸

The various approaches taken in the analysis of delay, each having its shortcomings, nevertheless provide a most useful guide for our proposed comprehensive methodology. While the existing research is mostly specific to certain courts in certain locations, to specific cases or methods of analysis, it helps us to formulate several influencing factors for our comprehensive methodology.⁵⁹

53 Examples of this approach include the work of Marfording and Eyland who have compared court processing times between Australia and Germany: Annette Marfording and Ann Eyland, 'Civil Litigation in New South Wales: Empirical and Analytical Comparisons with Germany' (UNSW Law Research Paper No 2010-28, 2010). Similarly, Dakolias has collected data on court performance across eleven countries, reporting data on case loads, cases resolved or pending, the number of judges, and the average time to resolve a case: Maria Dakolias, 'Court Performance around the World: A Comparative Perspective' (Technical Paper No 430, World Bank, July 1999).

54 Church, above n 32; Luskin, above n 7; Sipes and Oram, above n 36.

55 Molly Selvin and Patricia A Ebener, 'Managing the Unmanageable: A History of Civil Delay in the Los Angeles Superior Court' (Report, Rand Institute for Civil Justice, 1984); Garner, 'Delay Reduction', above n 32; Frances Sutton, Department for Courts (New Zealand), *A Statistical Model of the Duration of Jury Trials for Calendar Years 1999 and 2000* (2001).

56 Simeon Djankov et al, 'Courts' (2003) 118 *Quarterly Journal of Economics* 453. See also the approach adopted by the World Bank in conducting its 'Doing Business' reports, eg World Bank, *Doing Business* (2010).

57 David Nelken, 'Using the Concept of Legal Culture' (2004) 29 *Australian Journal of Legal Philosophy* 1; David E Zammit, 'Maltese Court Delays and the Ethnography of Legal Practice' (2011) 4 *Journal of Civil Law Studies* 539. See also David Clark, 'Magna Carta Frustrated? Institutional Delay in the Pacific Island States of the Commonwealth' in Robert Hazell and James Melton (eds), *Magna Carta and Its Modern Legacy* (Cambridge University Press, 2015) 123.

58 Nelken, above n 57, 25.

59 It should also be noted that the existing empirical literature strongly suggests the need for putting more resources into collecting better quality data.

IV FACTORS INFLUENCING TIMELINESS

We propose a more comprehensive set of variables and proxy variables to explain the full range of factors likely to influence, if not cause, court delay. Of particular distinction is the consideration of the full external environmental context of litigation, instead of only factors internal to court administration. Our empirical framework will allow testing of hypotheses about these factors: whether a factor has a statistically significant influence on the duration of legal proceedings or not, and if such an influence is present, whether it is positive (speeds up proceedings) or negative (prolongs proceedings).

A *Judicial Structures and Resourcing*

Judicial resources may not be quite as important as first appears. Although it seems intuitive that increasing numbers of judges and courtrooms inevitably produces faster case processing,⁶⁰ research by Church suggests otherwise and judicial shortages need not impact on delay.⁶¹ Relevant factors may include:

Number of Judges: The availability and allocation of human (judicial) resources may affect the capacity of courts to process disputes. The most obvious of these is the number of judges available to resolve disputes relative to the number of cases (caseload per judge). The correlation between judicial caseload and case duration need be neither direct nor linear. Indeed, some research indicates an inverse relationship between the number of judges and judicial productivity.⁶² However, any drop in individual productivity may be compensated by systemic gains in output due to other factors.

Availability of Courtrooms: A trial can progress only if courtrooms are available to hear the matter. Anecdotal evidence suggests that timetabling and shortages of courtrooms can cause substantial delays.⁶³ While increasing investment in court infrastructure — the number of court buildings or court rooms within buildings and support staff — should improve efficiency, this will not automatically be the result, though it does seem probable that where infrastructure falls below a certain threshold a detrimental impact on case duration will occur.

Allocation of Judicial Resources: The allocation of judicial resources *within* the judicial system may impact upon case duration. For example, the number of courtrooms may be less important than the geographic

60 Zeisel, Kalven and Buchholz, above n 27, 206–7.

61 See Church et al, above n 28, 23.

62 Michael Beenstock, ‘The Productivity of Judges in the Courts of Israel’ (2001) 35 *Israel Law Review* 249, 253; Michael Beenstock and Yoel Haitovsky, ‘Does the Appointment of Judges Increase the Output of the Judiciary?’ (2004) 24 *International Review of Law and Economics* 351, 365–7.

63 Often the remedial measures required to deal with this problem, such as ‘double-booking’ courtrooms in the hope that one case may settle or be adjourned, will themselves create ongoing complications and delay.

distribution of courthouses to ensure that they are located in regional or rural centres with a sufficiently high caseload density.⁶⁴ Similarly, a heavy concentration of judicial resources on criminal cases may reduce or even displace resources available for civil litigation. For this reason, geographic research using location-allocation models has been used to determine the optimum sites for court buildings.⁶⁵

General Court Infrastructure: The effectiveness with which judicial resources can be deployed to quickly resolve disputes may depend upon more general court infrastructure,⁶⁶ including the availability of sufficient numbers of well-trained support and administrative staff.⁶⁷ Similarly, the availability and utilisation of well-resourced information technology systems may increase judicial productivity by allowing faster research and judgment production. Further, the availability and utilisation of technological innovations, including video-conferencing and electronic submissions, may expedite trials. Conversely, such innovations may, through technical failures or shortcomings, actually increase trial length.

B Institutional Practices

A second broad category of factors that can influence case duration concerns institutional practices (both judicial and administrative) of the court. These practices control the way in which court structures are organised, cases are managed, and the time of judges utilised. Given that such practices present an opportunity to affect visible (if not effective) change, they are commonly the focus of reform initiatives. Unfortunately, such reforms are rarely based on sound empirical findings, nor are they commonly subsequently studied to assess their impact.⁶⁸ While the impact of these practices seems to have been overplayed, there remains clear potential for these institutional practices to impact upon the duration of cases. Such factors include:

64 Calvez, above n 51, 36, quoting Committee of Ministers, *Resolution Concerning the Judgments of the Court of the European Court of Human Rights of 19 February 1991 and 10 February 1993 in the Case of Zanghi against Italy*, Res DH(95) 82 (Council of Europe, Meeting of the Ministers' Deputies, 6–7 June 1995).

65 R W Thomas, B T Robson and R D Nutter, 'County Court Workloads: A Location-Allocation Analysis' (Working Paper 7, Centre for Urban Policy Studies, School of Geography, University of Manchester, 1979).

66 Marfording and Eyland, above n 53, 105–9.

67 Anecdotal evidence suggests staff training, turnover, and job satisfaction can have a major impact on court efficiency. Short-term strikes by court staff in New Zealand during 2009 shut down court operations and temporarily paralysed the country's courtroom operations. The after-effects of the Canterbury earthquakes also had an effect displacing litigation elsewhere, as well as on court buildings throughout the South Island, six of which were deemed unsafe following safety inspections: Matt Stewart, Tom Hunt and Michael Forbes, 'Quake Risk Could Close Public Buildings', Stuff.co.nz (online), 2 December 2011 <<http://www.stuff.co.nz/national/6073112/Quake-risk-could-close-public-buildings>>.

68 Heise, above n 39, 848.

Case Management Methodology: The rapid and expanding adoption of judicial case management techniques over the last thirty years has largely been justified in terms of reducing delay. While the impact of these reforms on duration, cost and quality of resolution remain under-researched, the clear potential for such impact makes this an important factor to analyse.

Alternative Resolution Methods ('ADR'): A closely related reform in the common law world has been the rapid expansion, particularly since the 1980s, of ADR mechanisms. Increasingly, courts have, in the interests of more quickly resolving disputes, actively engaged with these alternative mechanisms either by sanctioning or mandating parallel ADR. The availability and utilisation of such mechanisms may lessen judicial workload and the demand for formal adjudication in court, though again the impact on case duration is not always clear. For example, a mandatory mediation that fails may act only to increase the cost and duration of the dispute.

Decision-Making Requirements: The use of multi-judge benches where there is a willingness to deliver joint judgments may reduce duration by allowing judicial resources to be more effectively utilised. Similarly, the willingness of judges to deliver *ex tempore* decisions, rather than reserving judgment to provide written opinions, can affect the duration of cases.

Judicial Specialisation: The use of specialised courts and judges as well as workload allocation practices can impact upon duration. The creation of specialist 'streams' allows judicial expertise to increase speed, volume and efficacy of dispute resolution; for example, divorce litigation is fastest where judges primarily handle contested divorce trials, leaving other work to quasi-judicial staff.⁶⁹

Judicial Training and Competence: The training, age and experience of the judge can also be a factor, with more experienced, competent, or better-trained judges able to reach decisions more speedily. Furthermore, the assessment of 'competency' or imposition of training regimes may call into question judicial independence and accountability and so give rise to controversy.

Extra-Curial Judicial Activities: The way in which judges manage time and work-life balance is likely to have an impact on the duration of cases. For example, at least one European study noted delay caused by judges' participation in extra-judicial activities such as crime prevention advisory committees.⁷⁰

69 John A Goerdts, National Centre for State Courts, *Divorce Courts: Case Management, Case Characteristics, and the Pace of Litigation in 16 Urban Jurisdictions* (1992) xiii, 6, 13–14.

70 Calvez, above n 51, 36.

C Court Attitudes and Behaviour

Another broad category of factors influencing case length, within an overall culture of adversarialism, concerns embedded attitudes and behaviours amongst judges, lawyers, litigants and defendants. Church et al, for example, argue that a trial court's speed in processing cases and its backlog of unresolved cases is determined in large part by 'local legal culture,' which they described as 'the established expectations, practices, and informal rules of behaviour of judges' and lawyers.⁷¹ Although this concept of 'local legal culture' has been criticised as uninformative and vague, subsequent studies consistently attribute some degree of delay to individual and collective behaviours.⁷² This culture is developed over time by lawyers, judges and court officials through such means as listing practices, the degree of flexibility that can be tolerated when meeting and honouring deadlines, and participants' (including judicial, lawyer and litigant) expectations of what is fair and reasonable.

Judicial Behaviour: Empirical research shows how dominant judicial culture impacts on both the behaviour and conduct of judges, and the length of proceedings.⁷³ The degree of managerial and legal competence of judges involved in the conduct of a trial can reflect several factors, including: length of service, geographical location, specialist knowledge of relevant legal fields, broad judicial culture and collegiality, and administrative aptitude or familiarity with the context of the dispute that forms the background to the trial.

Lawyer Behaviour: Sipes and Oram's research noted that most judges interviewed agreed that trial length varied, at least somewhat, by lawyer preparation, knowledge, and skill.⁷⁴ Another key factor that can lengthen or shorten trials is lawyer behaviour and tactics. Lawyers both influence and respond to external social and economic forces, with considerations of the local legal culture and personal incentive mechanisms influencing choices lawyers make, thereby affecting case processing time. And interestingly, law school culture may be a contributory factor in lawyer procrastination.⁷⁵

71 Church et al, above n 28, 54.

72 Grossman et al, above n 18, 93. See also Boyum, above n 44. See further Mark Blacksell, Kim Economides, and Charles Watkins, *Justice Outside the City: Access to Legal Services in Rural Britain* (Longman, 1991) 12–13.

73 Sipes and Oram, above n 36, 53–4. See also empirical studies of judicial behaviour both inside and outside court. Paterson's study offers insight into the time taken by judges to circulate draft judgments in both the UK and US Supreme Courts: Alan Paterson, *Final Judgment: The Last Law Lords and the Supreme Court* (Hart, 2013) 120–1, 129; while Darbyshire's study reveals how two Law Lords disposed of five petitions for leave in just 15 minutes as one (Lord Hoffmann) donned lycra for cycling: Penny Darbyshire, *Sitting in Judgment: The Working Lives of Judges* (Hart, 2011) 376.

74 Sipes and Oram, above n 36, 57. See also judicial attitudes intolerant of excessive and unnecessary documentation that contribute to undue delay: *Mylward v Weldon* (1596) Tothill 102; 21 ER 136 and more recently *Re L (A Child)* [2015] EWFC 15 (26 February 2015).

75 Annalise Acorn and Jason Buttuls, 'The Not Now Habit: Procrastination, Legal Ethics and Legal Education' (2013) 16 *Legal Ethics* 73.

Litigant Behaviour: Finally, the behaviour of the litigants may impact on case duration. Although delay typically poses a costly burden on those involved in litigation, delay tactics may be strategically employed, as when a deep-pocketed corporate defendant prolongs discovery, hoping to financially overwhelm and intimidate a smaller opponent into settling by ‘burying them in paper’. Who the parties are will also be relevant: children and vulnerable witnesses may take up greater time and resources, while classifying the parties as a ‘repeat player’ or ‘one-shotter’ makes a difference in terms of how well they can play the system.⁷⁶

D Dispute and Legal Complexity

Factual or legal complexity is likely to impact on duration of disputes coming to court. Much litigation is reactive in nature and lower courts cannot easily control the complexity of the cases coming before them. Nevertheless, courts can respond in an efficient and proactive manner. Many jurisdictions recognise the delay-inducing complications inherent in complex civil cases, and seek to address these problems by adopting differential case management techniques.⁷⁷ Furthermore, courts are both dispute-resolvers and norm-creators, with judicial decisions of superior courts altering the legal landscape in a way that can actively reduce legal complexity. Combined with the regulatory power of courts to set and alter Rules of Court, various measures to reduce complexity and delay may be adopted, including:

Legal Complexity: The content and clarity of the substantive law itself can play a crucial role in determining the length of trials. The degree of legal complexity will reflect the complexity of relevant legislation and case law: ambiguous rules may prolong litigation while clear legal rules may promote settlement. Moreover the legal complexity of the case may reflect the nature and number of legal issues raised by the parties. Some research has identified a positive correlation between the number of charges a defendant faces and the length of a case,⁷⁸ though the literature is more mixed about whether the type of civil case plays a major factor in the speed of case processing.⁷⁹ While it may be hard to measure, legal complexity clearly remains a critical factor affecting duration.

Factual Complexity: Factors here include: the number of witnesses, number of exhibits, and the use of expert witnesses.⁸⁰ Such factual

76 Galanter, above n 6, 97–104.

77 While case management techniques offer a commonsense approach to managing case complexity, more research is needed on the effectiveness of case management: David C Steelman, ‘What Have We Learned About Court Delay, “Local Legal Culture,” and Caseflow Management Since the Late 1970s?’ (1997) 19 *Justice System Journal* 145.

78 Sipes and Oram, above n 36; Luskin and Luskin, above n 35; Chan and Barnes, above n 36.

79 Garner, ‘Delay Reduction’, above n 32; Church, above n 32.

80 Sipes and Oram, above n 36; Luskin and Luskin, above n 35; Chan and Barnes, above n 36; Corns, above n 36.

complexity is likely to impact upon duration both because of the logistical complications involved, and because of the sheer time involved in processing and presenting such material.

Technical Complexity: This concerns the procedural and evidential norms that govern the conduct of the proceedings generally and the trial specifically, including the number of witnesses, expert witnesses and exhibits. All of these factors have potential bearing on how long the court takes to reach a decision.

Litigation Funding: The number of stakeholders and manner in which litigation is funded — whether directly by the parties, through legal aid, or some other third-party mechanism — potentially impacts on both the complexity and progress of litigation.

E Environmental Factors

Environmental factors may fall outside the control of the courts, yet still determine what happens inside them. The assessment of these factors in most empirical research is at best underdeveloped and in most cases absent. These ‘environmental’ or ‘macro and micro socio-economic’ issues would seem to have a significant indirect impact upon litigant behaviour, and therefore potentially contribute to delay. Such factors include:

Human Factors: The health/illness of participants, demographic considerations, and ethnic and cultural factors are likely to affect proceeding duration. For example, language barriers may exist in areas with a large portion of individuals whose mother tongue is not the same as the language used in courts. Similarly, different ethnic groups may have different attitudes towards the law and use courts more or less frequently as a dispute settlement mechanism. The way in which a system responds to ‘delay’ caused by such considerations will have a profound effect on the way in which the participants receive the final resolution. Such factors may slow down proceedings, yet managed well they have the potential to lead to more effective resolutions. While it may be difficult to gather personal information about the circumstances of participants, there would seem to be a causal link with the duration of proceedings.

Natural Factors: The duration of cases may also be influenced by ‘natural’ factors, such as floods, fires or earthquakes, which can disrupt and delay proceedings, and can even lead to a large increase in the number of cases. Though such factors are likely to be rare, their disruptive effect can be significant. However, the ‘one-off’ nature of such events means that while they should be noted by researchers, they are unlikely to aid in identifying undue delay.

Economic Factors: Finally, broad socio-economic factors external to the legal system can affect the volume, duration and kind of case coming to

court. Factors such as global, regional and national levels of commercial activity at a time of boom, or bankruptcy proceedings, employment disputes and debt collection at a time of recession, may impact on both the propensity to sue and the capacity of courts to process legal claims. There is empirical evidence that suggests a degree of inter-relatedness between economic development of a country and the operation of the legal system,⁸¹ though it is unclear what the precise causal relationship is.⁸² These economic factors should also account for sub-national regional differences in the socio-economic structure. It is likely that higher national or regional income levels may indicate more resources available in society that can be used for engaging in legal disputes. Along similar lines, the health and social expenditures in a geographic area where a court is located are likely to affect the demand for legal services overall but also the type of legal service used.⁸³

This broader behavioural focus may increase both cost and complexity in data collection, potentially compounding the current problem of maintaining adequate records regarding trial duration.⁸⁴ However, a more expansive conception of ‘timeliness’ should allow for a more nuanced interpretation of data, and thereby provide a more reliable guide for future reform. It therefore becomes ever more pressing that reforms are supported by clear, precise and comprehensive empirical evidence, as opposed to speculation.⁸⁵ To promote the gathering of such evidence, we propose the development of a comprehensive methodology for gathering data on delay.

V DEVELOPING A COMPREHENSIVE METHODOLOGY

It is not sufficient only to improve data quality and collect more comprehensive data regarding sources of delay. It is also necessary to have a sophisticated methodology to analyse that data to extract meaningful conclusions regarding possible *causes* of delay. Our proposed *echronometrics* method draws heavily

81 Gani Aldashev, ‘Legal Institutions, Political Economy, and Development’ (2009) 25 *Oxford Review of Economic Policy* 257; Richard E Messick, ‘Judicial Reform and Economic Development: A Survey of the Issues’ (1999) 14 *World Bank Research Observer* 117.

82 Jonathan Klick, ‘The Perils of Empirical Work on Institutions’ (2010) 166 *Journal of Institutional and Theoretical Economics* 166. Klick argues that causality may run both ways, from the characteristics of the legal system to economic growth and vice versa.

83 Giuliana Palumbo et al, ‘Judicial Performance and its Determinants: A Cross-Country Perspective’ (OECD Economic Policy Papers No 5, Organisation for Economic Co-operation and Development, June 2013).

84 Researchers frequently note their dependency on haphazard and unreliable record keeping: Chan and Barnes, above n 36; Frances Sutton and Helena Barwick, Department for Courts (New Zealand), *Analysing Trends in Jury Trial Length: A Scoping Study* (2000). The risk is that gathering more extensive data could exacerbate this problem, unless court officials are prepared to invest in better data collection and storage.

85 Bryant G Garth, ‘Observations on an Uncomfortable Relationship: Civil Procedure and Empirical Research,’ (1997) 49 *Alabama Law Review* 103; Heise, above n 39, 813.

from developments in economics regarding advanced regression analysis to provide a more powerful and accurate method of analysing relevant data.

Most previous quantitative analyses of the duration of litigation compiled extensive lists of factors (variables) that were compared pair-wise in order to shed light on what possibly explains differences in delay. For example, Sipes and Oram examine median trial times in hours and minutes by type of trial, by case type and various case and community characteristics, and by court.⁸⁶ Marfording and Eyland use descriptive statistics such as the mean, median, standard deviation and percentages for measures of court and case characteristics.⁸⁷ More recently, Righarts and Henaghan examine the median number of days from filing to resolution for courts within a set time period.⁸⁸ This use of relatively simple descriptive statistics can illustrate how issues behave relative to each other in bivariate relationships, and can be particularly effective at identifying broad trends in behaviour and providing baseline information. This approach is not, however, well suited for establishing possible determinants of duration. Apparent causal relationships that may appear when factors are taken in isolation can vanish once one controls for other influences: too often an apparent pair-wise relationship may be statistically spurious as the true driving force is some other factor. Correlation or association does not imply causality.⁸⁹ The following hypothetical example illustrates the point:

A court introduces electronic technology for handling all court documents (both civil and criminal) along with video-conferencing for expert witnesses, leading to a substantial reduction in court costs. At the same time that jurisdiction sees an (unrelated) doubling of the caseload of criminal proceedings. The court chooses to use the cost savings to deal with the increase in criminal cases and, given the relative increase in workload, prioritises the scheduling of criminal cases over civil cases. In such circumstances, an observer may incorrectly conclude, from looking at civil cases in isolation, that the introduction of new technologies *prolongs* the time from filing a civil case to its disposal.

Effective analysis must control for all major external influences that may affect duration if it is to accurately assess the relative importance of each factor. This cannot be achieved in a pair-wise comparison with descriptive statistics looking at pair-wise associations. Instead, what is required is a form of multiple-factor analysis that allows for the correction of these otherwise unseen effects. A popular solution to this problem is to use regression techniques that can handle multiple and complex variables. Of course, one can never be certain that a more sophisticated statistical model, such as a multivariate regression model, that tries to uncover the strength of associations, is not mis-specified in some way, simply

86 Sipes and Oram, above n 36.

87 Marfording and Eyland, above n 53.

88 Saskia Righarts and Mark Henaghan, 'Delays in the New Zealand Civil Justice System? Opinion v Fact' (2011) 12 *Otago Law Review* 455.

89 A basic statistical explanation, for example, is provided in Kenneth G Stewart, *Introduction to Applied Econometrics* (Brooks/Cole Thomson Learning, 2005) 102–9.

because necessary variables are unobservable and therefore more or less suitable proxy variables need to be used instead. But regression analysis may bring to light particular associations missed or misinterpreted in bivariate analysis. That is not to say that bivariate analysis has no role in statistical inference, because it can be seen as a first step in empirical analysis guiding further exploration.

A Establishing Determinants of Civil Case Disposition Time: Analysis with Regression Methods

Regression analysis is an established statistical technique for estimating the relationships between variables by providing a method to model observed data in order to understand those relationships.⁹⁰ A statistical regression model relates the variable that is to be explained — the ‘dependent variable’ (or ‘explained variable’)⁹¹ — to one or more independent variables (or factors). A ‘dependent variable’ in a model is a variable that is explained by other factors in the system, so that a ‘dependent variable’ is a mathematical function of ‘independent variables’. In a simple linear system, identifying the relationship between a single independent variable and a single dependent variable is straightforward. However, where a system consists of multiple factors a more sophisticated technique is required. By using regression analysis the relationship between an independent variable and the movement of one dependent variable is explored while other influences (other independent variables) are controlled for. The power of regression analysis arises from the fact that the dependent variable is ‘regressed’ on all independent variables simultaneously. Within this framework it is possible, therefore, to talk about multiple possible determinants or factors of duration of civil proceedings in a way that is not possible in instances of bivariate analysis.⁹² Our proposed approach for studying ‘timeliness’ utilises regression analysis to explore the impact of various factors on the duration of civil proceedings. We identify factors that allow for the formulation of statistically testable hypotheses about their capacity to influence ‘timeliness’, and about the direction (positive or negative) of the influence.

The weaknesses of bivariate analysis already have been seen in this context by others,⁹³ with several researchers using regression analysis to examine court-

90 Basic regression analysis is explained in econometrics textbooks, eg Stewart, above n 89; James H Stock and Mark W Watson, *Introduction to Econometrics* (Pearson Prentice Hall, 2nd ed, 2007); Jeffrey M Wooldridge, *Introductory Econometrics: A Modern Approach* (South-Western Cengage Learning, 4th ed, 2009).

91 Alternative terminology used in basic regression analysis is explained in Wooldridge, above n 90, 23.

92 Regression analysis is not a panacea. Often, relevant variables are not observed directly and researchers need to use more or less suitable proxy or control variables. Klick discusses limitations of regression analysis for evaluating causal effects in the context of legal institutions and their empirical contribution to economic growth and development: Klick, above n 82. Stock addresses some general problems with inference in econometric analysis and points to more robust tools that have become available recently: James H Stock, ‘The Other Transformation in Econometric Practice: Robust Tools for Inference’ (2010) 24(2) *Journal of Economic Perspectives* 83.

93 See, eg, Luskin, above n 7.

processing time.⁹⁴ For example, Heise uses regression analysis to explore which factors significantly influence disposition time for US civil cases (the dependent variable).⁹⁵ His empirical study is based on a large sample of 6000 jury trials in some of the US's most populous counties, utilising 19 independent (and so-called 'dummy') variables, including: case types, party types, case characteristics, and locale. Similarly, Sutton's analysis of (criminal) jury trials in New Zealand provides another example of the application of regression analysis, where trial duration is measured with reference to: offence category, the number of charges, the number of accused, the maximum seriousness score of the offence, circuit (geographic area), and the level of the court.⁹⁶ However, while the work of researchers such as Heise and Sutton represents a much more refined application of relatively sophisticated statistical tools to explain court behaviour, both studies ignore endogenous variables.

B Regression Analysis and the Problem of Endogenous Variables

The issue of 'endogeneity', or impact of feedback effects, is a major problem in standard regression analysis. Underlying the use of regression analysis is a common assumption that the independent variable 'A' influences the dependent variable 'B'. However, in more complex systems the influence can also (and simultaneously) run the other way, with 'B' influencing 'A' contemporaneously. In such systems possible determination not only runs from factors to the dependent variable but also, at the same time, in reverse order from the dependent variable to one or more of the factors. Ordinary regression analysis assumes all independent variables are model-exogenous variables and leads to biased results when one or more supposedly independent variables are instead endogenous.⁹⁷

There is good reason to suggest that the issue of 'endogeneity' (two-way feedback) presents a particular problem in the utilisation of regression techniques for the assessment of court delay. Our earlier hypothetical demonstrates this simultaneous feedback with reference to the relationship between criminal and civil court processing times. In such a context, the processing of civil cases is not independent of the processing of criminal cases, creating an interaction between the 'outputs' of a court. This interaction demands that two outputs, and therefore two endogenous variables, be modelled simultaneously, as one output cannot be analysed without considering contemporaneous feedback to the other. We believe that the determination of the duration of court proceedings also represents such a system. Luskin has argued that, in this context, independent

94 See, eg, William M Landes, 'An Economic Analysis of the Courts' (1971) 14 *Journal of Law and Economics* 61; Robert W Gillespie, 'The Production of Court Services: An Analysis of Scale Effects and Other Factors' (1976) 5 *Journal of Legal Studies* 243; Luskin and Luskin, above n 35; Chan and Barnes, above n 36; Heise, above n 39; Sutton, above n 55.

95 Heise, above n 39.

96 Sutton, above n 55.

97 For an explanation of statistically endogenous variables see Stewart, above n 89, 201–2.

variables may not be truly independent.⁹⁸ Variables that have been used by some researchers as independent variables may be influenced by case disposition times and vice versa, and are therefore endogenous. If regression modelling is to be accurate and meaningful, regression analysis needs to account for endogeneity.⁹⁹ Unfortunately, this has not happened in most previous studies.

There are notable instances where endogeneity is accounted for in regression analysis when studying judicial institutions, though not with reference to case disposition time. For example, Felli et al develop a model explaining the *demand* of justice in Italy in the 1990s.¹⁰⁰ This study represents a significant advance by using appropriate econometric techniques that facilitate a far more comprehensive and accurate understanding of court behaviour. Similarly, we seek to develop a powerful, although different, methodology to analyse key factors that influence case duration and identify underlying causes of delay.

VI ANALYSIS WITH FEEDBACK EFFECTS

Our distinctive new methodology — which we label *echronometrics* — offers an appropriate way to account for the role of endogenous relationships that recognises feedback effects when studying the duration of litigation. This approach allows for the development of reliable (non-biased and consistent) estimates of the effects of many more factors than would be possible with ordinary regression analysis. In order to deal with endogenous variables we adapt more advanced techniques developed in the field of econometrics, drawing on operations research, and label our more advanced model *echronometrics*, with *chrono* here referring to processing time. While the field of econometrics has developed statistical tools to uncover possible determinants in economic relationships, we extend and apply these established techniques to uncover relationships in the civil justice system, focusing on factors that influence the duration of legal proceedings.

A Outlining an ‘Echronometric’ Model

By developing a more comprehensive model that sheds light on why different courts, at the same level, process essentially identical cases at different speeds and with varying amounts of resource inputs we aim to provide a novel framework for studying the ‘efficiency’ of courts engaged in the ‘production’ of justice. To be

98 Luskin, above n 7, 124–5.

99 Simultaneity, if ignored in ordinary regression analysis, leads to biased estimation results and mistaken causal inference: Stock and Watson, above n 90, 324–5. One commonly used regression method to deal with endogeneity is instrumental variables estimation. Finding appropriate instrumental variables is generally a difficult task. On weak instruments see Michael P Murray, ‘Avoiding Invalid Instruments and Coping with Weak Instruments’ (2006) 20(4) *Journal of Economics Perspectives* 111; Stock, above n 92, 86–7.

100 Ernesto L Felli et al, ‘The “Demand for Justice” in Italy: Civil Litigation and the Judicial System’ in Fabio Padovano and Roberto Ricciuti (eds), *Italian Institutional Reforms: A Public Choice Perspective* (Springer, 2008) 155. The study looked at 26 districts in Italy in the period 1994–2002.

effective the model must reflect a broadly accepted conception of ‘case duration’ and ‘delay’, and must be able to draw on a consistent, comprehensive and accurate set of data gathered from a broad range of jurisdictions. These elements require a degree of collaboration and agreement amongst civil justice researchers that currently is absent. One goal of this article is to highlight both the need for, and possibility of, such agreement.

The need for a more comprehensive theoretical model for analysing the duration of litigation and causes of delay has been long recognised. For example, Luskin points out shortcomings of existing models¹⁰¹ that she believes could be addressed by a comprehensive theory of case processing time that would ‘specify the relationships among all the variables believed to affect case processing time’, allowing a mathematical representation of ‘multiple equations with reciprocal links and estimation from data gathered across courts and over time’.¹⁰² While Luskin acknowledges that she has neither the theory nor data for such a study, she argues — and so do we — that the goal of a comprehensive theory should be to guide research design and data collection in future research endeavours. The approach we propose will enhance the potential to explore the strength of the association between various factors and timeliness.

B Identifying Principal Variables

Our proposed model requires a broad range of proxy variables that presuppose identification of a range of factors — including environmental — that determine the capacity of courts to process cases efficiently. These frequently overlooked environmental factors, including socio-economic variables, help expose and explain contextual differences that contribute to efficiency differentials between courts. Our goal is to isolate which factors really matter and to specify to what degree each factor impacts on court processing time. This approach draws upon the economic production function model of court services proposed by Gillespie.¹⁰³ While significant differences exist between Gillespie’s and our *echronometric* approach, both focus on the differences across courts in terms of the production of court services.¹⁰⁴ Notably, Gillespie is concerned with the optimal allocation of resources between criminal and civil cases and its effect on productivity. Most previous studies have adopted far too narrow a focus by only looking at either criminal or civil cases. Given that most modern courts operate both criminal and civil jurisdictions, a partial analysis is likely to distort any overall assessment of court performance.

101 Luskin notes that ‘the independent variables imply more than one dependent variable and more than one level of analysis’: Luskin, above n 7, 118.

102 Ibid 126.

103 Gillespie, above n 94.

104 Our methodology and focus are quite different. Gillespie does not use a two-stage methodology with environmental variables, which has been developed only recently, and his focus is not directly targeted on a measure of efficiency relative to a production frontier for the most efficient courts.

To overcome this, our *echronometric* model specifies both input and output variables for the construction of a production-frontier model. Each court becomes a unit of observation. As a ‘multivariate analysis’ our model allows for multiple inputs *and* multiple outputs. This means that it is unnecessary to specify just one single aggregated measure of output. Potential outputs include: median processing time by type of case; dollar amounts awarded in civil cases; the number of civil cases disposed after the allocation of a hearing date; the number of cases disposed prior to the allocation of a hearing date; and cases pending and unresolved.

Sound data on these standard outputs are commonly kept in court record keeping systems, making them natural targets for empirical research. Environmental factors, on the other hand, are more difficult to identify and measure, which is why it is important to develop hypotheses that can help cluster key variables and isolate potential proxies for such variables. We propose in the Appendix a list of factors and associated potential proxy variables to be used to formulate statistical hypotheses for econometric analysis. We do not claim to offer an exhaustive list of all possible variables that determine the duration of civil proceedings, but rather to illustrate factors likely to have a significant impact. To allow for comparability between studies across jurisdictions there has to be a measure of agreement on what constitutes the key variables that need to be assessed, a task we assign to the next phase of our research.¹⁰⁵

C Utilising Adapted Data-Envelopment Analysis

The above principal variables should guide research to ensure a comprehensive set of data on the influences of case duration is collected. To draw meaningful information and conclusions from that data, however, we require a powerful modelling tool. This is where the notion of *echronometrics* comes into its own by adapting an existing econometric (statistical) framework that draws on methods from operations research: data-envelopment analysis (‘DEA’). We propose modelling multiple court outputs simultaneously and using so-called ‘bootstrap’ methods to bias-adjust estimated coefficients and construct confidence intervals

105 The null hypothesis postulates that a specific factor has no influence on the duration of civil case disposition against the alternative hypothesis that the influence on duration is either positive or negative. Our approach allows calculating test statistics for these hypotheses that can be assessed at usual 5% or 10% levels of statistical significance, or, alternatively, at 95% and 90% confidence intervals.

for the two-stage DEA analysis,¹⁰⁶ while also drawing upon structural equation modelling.¹⁰⁷ This will allow the creation of a robust production model of court services that accounts for efficiency differences between courts. We advocate the use of a cross-sectional analysis to compare courts in terms of their efficiency in transforming a given set of inputs into outputs. For the DEA method one calculates, by linear programming, an estimate of the efficiency with which each court handles this process. An initial set of efficiency scores will be generated by a flexible production function that transforms inputs into outputs in a way that avoids the use, at this stage, of other variables (particularly environmental variables) that will explain efficiency differences across courts.¹⁰⁸ Only in the second stage of the analysis will these broader variables, including the environmental variables, be taken account of in order to explain, by the use of statistical regression, what actually causes differences in efficiency across courts.

For this two-stage DEA analysis, the relevant unit of observation is the court. The approach compares courts in their different socio-economic settings along with other court-specific environmental factors for a given time period. DEA is a performance measurement technique that empirically measures productive efficiency of each court in the sample relative to the efficiency of all the other courts in the sample. One advantage of this DEA approach is that, as a cross-section study, it can be repeated for different time periods in order to compare changes over time. Another significant advantage of using DEA is that it can be applied to non-profit organisations. While public institutions such as courts 'produce' justice, this cannot, we argue, be treated in quite the same way as private profit-maximising firms in the market. In addition, DEA does not require

- 106 Worthington provides a concise explanation of DEA: Andrew C Worthington, 'An Empirical Survey of Frontier Efficiency Measurement Techniques in Education' (2001) 9 *Education Economics* 245. Cook and Seiford survey DEA advancements over a thirty year period: Wade D Cook and Larry M Seiford, 'Data Envelopment Analysis (DEA) — Thirty Years on' (2009) 192 *European Journal of Operational Research* 1. Simar and Wilson also survey a long list of studies that have applied DEA to the measurement and analysis of efficiency in a range of different organisations and settings: Léopold Simar and Paul W Wilson, 'Estimation and Inference in Two-Stage Semi-Parametric Models of Production Processes' (2007) 136 *Journal of Econometrics* 31. Unfortunately, as they point out, many DEA studies suffer from a problem that arises because the DEA efficiency estimates are serially correlated. Simar and Wilson suggest the double bootstrapping method in order to bias-adjust the efficiency scores and to conduct consistent inference in DEA analysis. We suggest in this paper adopting their methodology. See also Léopold Simar, 'Aspects of Statistical Analysis in DEA-Type Frontier Models' (1996) 7 *Journal of Productivity Analysis* 177; Léopold Simar and Paul W Wilson, 'Sensitivity Analysis of Efficiency Scores: How to Bootstrap in Nonparametric Frontier Models' (1998) 44 *Management Science* 49; Léopold Simar and Paul W Wilson, 'Two-Stage DEA: *Caveat Emptor*' (2011) 36 *Journal of Productivity Analysis* 205.
- 107 Juliet Aiken pointed us to the literature on structural equation modelling outside economics: Gregory R Hancock and Ralph O Mueller (eds), *Structural Equation Modelling: A Second Course* (Information Age Publishing, 2006); Rex B Kline, *Principles and Practice of Structural Equation Modelling* (Guilford Press, 3rd ed, 2011). See also Judea Pearl, 'The Causal Foundations of Structural Equation Modelling,' in Rick H Hoyle (ed), *Handbook of Structural Equation Modelling* (Guilford Press, 2012) 68. While this approach deals with measurement error (latent variables) to some extent, it requires setting up structural models, based on theoretical relationships, at the court and case levels, that are not available in the literature so far. Also, this approach cannot predict court-level outcomes and multivariate outcomes would be very difficult to deal with.
- 108 DEA permits evaluation of the relative efficiency of the decision-making units (courts in our case) without imposing a priori weights on the inputs and outputs in the production function.

specifying a functional form for the production process of legal services and it can deal with multiple inputs *and* multiple outputs. DEA measures technical (or ‘managerial’) efficiency relative to a non-parametric estimate of the unobserved true production frontier. The DEA framework can be applied in order to identify and compare factors that explain differences in efficiency within a country’s legal system. However, DEA is also a general methodology that can be applied to other jurisdictions in a parallel manner to explain cross-cultural differences in efficiencies across different jurisdictions. This approach allows a common and comparable form of analysing data, yet has sufficient flexibility to account for differences in the context and environment of different courts.

An alternative statistical method that could be applied to studying the progress of civil trials is duration or survival (hazard) modelling.¹⁰⁹ The duration of time, from the commencement of an event through to its conclusion, is modelled as a function of factors (variables). While duration analysis might seem to be a tool well suited to analysing court case durations, several problems arise with its application. First, the literature suggests a large number of alternative distribution functions for both duration and hazard, and choosing between them is frequently difficult and influences analytical outcomes. Second, accounting for endogeneity and heteroscedasticity further complicates the modelling.¹¹⁰ Third, allowing in addition for multivariate duration, ie with multiple transitions (destinations) to trial, pre-trial settlement, or out-of-court settlement, for example, leads to a highly complex model. We also need to differentiate civil from criminal cases. Bijwaard suggests instrumental variable methods for duration data.¹¹¹ Such structurally dependent competing durations (risks) produce models that are cumbersome to both implement and interpret.¹¹² Our preference is therefore to think of courts as ‘producing’ multiple outputs instead of modelling duration distributions for each type of court output. Accordingly, we propose using the DEA methodology.

VII CONCLUSION

Excessive case disposition time, whether in courts or in processes outside them, has the potential to prolong, and indeed cause, injustice for the parties, but it can also undermine the productivity and efficiency of the economy at large. While there have been significant reforms aimed at alleviating such problems, promoting efficient and timely dispute resolution, such reforms have not always been effective, and in some cases could have exacerbated the problem. The

109 We thank Bert Kritzer and Andrew Whitford for suggesting this approach to us. William H Greene, *Econometric Analysis* (Pearson Education, 7th ed, 2012) and A Colin Cameron and Pravin K Trivedi, *Microeconometrics: Methods and Applications* (Cambridge University Press, 2005) provide useful introductions to duration and hazard analysis.

110 Cameron and Trivedi, above n 109.

111 Govert E Bijwaard, ‘Instrumental Variable Estimation for Duration Data’ (Discussion Paper TI 2008-032/4, Tinbergen Institute, Erasmus University Econometric Institute, 2008).

112 Michael Rosholm, and Michael Svarer, ‘Structurally Dependent Competing Risks’ (2001) 73 *Economics Letters* 169.

failure to found these reform efforts on a sound empirical understanding has undoubtedly contributed to their failure.¹¹³ While empirical research into case duration should guide policy,¹¹⁴ too often reform has been guided by ‘impressions or anecdotes’ rather than quality data analysis that establishes multiple possible determinants of duration.¹¹⁵ In part, this can be attributed to the fractured nature of the empirical research, and its failure to satisfactorily establish the strength of the association between various factors of timeliness. By contrast, we have sought to confront some underlying challenges for the empirical study of case disposition time by providing a common foundation for future research. In order to assess the true impact of procedural reform on court performance, and to guide more effective future reforms, a new comprehensive methodological tool is necessary: *echronometrics*.

This article addresses these issues by clarifying what data is required, and why. This should assist the identification of acceptable proxy variables, as well as the development of a more standardised approach to promote effective comparative and statistical analysis. Our *echronometric* model draws upon developments in the field of econometrics to propose a more reliable empirical methodology capable of explaining the duration of civil trials. Ultimately, both judicial and executive authorities share responsibility for collecting and interpreting accurately information that explains both case duration and abnormal delay. Empirical research remains vital in helping to identify potential policy changes that may improve the overall health of the court system.

Ultimately, if research into the nature and possible causes of a lack of timeliness is to provide a more accurate and comprehensive understanding of case duration, researchers must begin to collaborate with each other and policymakers to develop a uniform, systematic approach to data collection and analysis. If such standards can be developed and adhered to, then this should make possible the creation of intelligent systems with the capacity to monitor accurately complex interactions between court, human and economic behaviour.

APPENDIX

The following table outlines potential proxy variables for the various factors, and includes a brief discussion on the availability of data, drawing on conversations with staff in the South Australian Court Registry.¹¹⁶

113 Heise, above n 39, 813, 848. Heise recognises that most civil justice reforms ‘regrettably, address variables that do not appear to influence trial disposition time’: at 848.

114 Ibid 813.

115 Ibid 848.

116 We thank Steve Roder, Marc Marshall and Julianne Kouts for their time in discussing these matters with us.

1. Judicial Structures and Resourcing		
The first category of factors relates to the resourcing, both structural and administrative, of judicial institutions.		
Influencing Factor	Proxy Variable	Notes
<i>Judicial Resources</i>	<ul style="list-style-type: none"> • number of judges • judicial caseload per judge • judicial salaries 	This information is all readily available from Annual Reports etc.
<i>Court Resources</i>	<ul style="list-style-type: none"> • the number of court buildings • the number of court rooms 	This information is all readily available from Annual Reports etc.
<i>Court Characteristics</i>	<ul style="list-style-type: none"> • the number of civil cases filed • the nature and characteristics of civil cases being processed • the number and characteristics of criminal cases that a court deals with • the socio-economic characteristics of a court district • the allocation of judicial resources <i>within</i> the judicial system 	<p>Data is recorded with respect to key indicator dates.</p> <p>A record is kept of the nature of the principal ‘activity’ involved — the nature of the action or charge.</p> <p>A record is kept of the allocation of the judge’s time</p>
<i>General Court Infrastructure</i>	<ul style="list-style-type: none"> • the availability and number of administrative staff • the availability and number of specific judicial support staff • access to IT systems and resources • the availability and utilisation of technology such as video-conferencing and electronic submissions 	With appropriate authorisations, this information can be gathered.

<p>2. Institutional Practices</p> <p>The second broad category of factors involves the institutional practices of the court, both judicial and administrative, that control the way in which court structures are organised, cases are managed, and the time of judges utilised.</p>		
<p><i>Methods of Case Management</i></p>	<ul style="list-style-type: none"> • what systems are available for a case 	<p>No record is specifically kept of which (of the available mechanisms) is utilised in a given case.</p>
<p><i>Alternative Resolution Methods</i></p>	<ul style="list-style-type: none"> • availability of alternative dispute processing resources • sanctioning or mandating parallel alternative dispute resolution 	<p>Information may be generally available, through rules etc, but no specific data is recorded.</p>
<p><i>Decision-Making Requirements</i></p>	<ul style="list-style-type: none"> • use of multi-judge benches • prevalence of <i>ex tempore</i> decisions • requirements for written opinions 	<p>A record will be kept of when multiple judges sit.</p> <p>A specific code is utilised when an <i>ex tempore</i> decision is handed down, so a record should be available of the use of this process.</p> <p>A record is kept when that written judgment is delivered.</p>
<p><i>Judicial Experience and Specialisation</i></p>	<ul style="list-style-type: none"> • the number of years of experience of judges at a court • any specialisation of judges 	<p>Years of experience could be calculated from appointment date.</p> <p>No specific record is kept of judicial specialisation.</p>
<p><i>Judicial Training and Competence</i></p>	<ul style="list-style-type: none"> • judicial training undertaken 	<p>No information is recorded or available with respect to judicial competence.</p>
<p><i>Extra-Curial Judicial Activities</i></p>	<ul style="list-style-type: none"> • speeches given • articles written • conferences attended • voluntary and community work 	<p>Some information on extra-curial activities is recorded and provided for the purposes of the Annual Report.</p>

<p>3. Behavioural and Cultural Factors</p> <p>The third broad category of factors examines the attitudes and behaviours of judges, lawyers, litigants and defendants involved in the dispute.</p>		
<i>Judicial Behaviour</i>	<ul style="list-style-type: none"> managerial and legal competence of judges behavioural expectations of the given judicial culture 	No record is kept on this type of information — will require the identification of relevant proxy.
<i>Lawyer Behaviour</i>	<ul style="list-style-type: none"> managerial and legal competence of lawyers behavioural expectations of the given legal culture 	No record is kept on this type of information — will require the identification of relevant proxy.
<i>Parties' Behaviour</i>	<ul style="list-style-type: none"> behavioural expectations of the given legal culture 	No record is kept on this type of information — will require the identification of relevant proxy.
<p>4. Dispute Complexity and Legal Factors</p> <p>The fourth category of factors examines the impact of the factual and legal complexity of a particular case.</p>		
<i>Legal Complexity</i>	<ul style="list-style-type: none"> the complexity of legal issues raised by the parties complexity/simplification of legislation and case law nature of the proceedings — main cause of action nature of the proceedings — alternative causes of action 	<p>No specific record is kept on the system of the complexity of the case. The only record of the complexity of the case occurs where the case, in the Supreme Court, is entered onto the 'Long and Complex' case list.</p> <p>A record of the main cause of action will be kept, and be reasonably readily accessible.</p> <p>No data is recorded as to any alternative causes of action.</p>
<i>Factual/ Technical Complexity</i>	<ul style="list-style-type: none"> the number of witnesses use of expert witnesses the number of exhibits 	There is no electronic record kept, but manual records are kept of the trial that will record these issues.
<i>Litigation Funding</i>	<ul style="list-style-type: none"> party funded legal aid other external funding dispute among corporations, or among private individuals, or between a corporation and one or more private individuals 	There is no specific record kept as to the underlying funding of litigation, though useful information that is recorded includes a record that is kept of when lodgement fees have been waived (an indicia of limited party resources) and when a party is self-represented.

5. Environmental Factors		
The final broad category of factors examines the impact of broader ‘environmental’ factors upon the duration of the proceedings. These macro-economic factors arise from the social context in which the dispute occurs.		
		Observations ¹¹⁷
<i>Human Factors</i>	<ul style="list-style-type: none"> • health issues • demographic considerations • ethnic and cultural factors 	It is likely difficult to collect data on individual participants in civil proceedings in this category. Data in a geographical area of a court could function as a rough, though not ideal, proxy instead. Socio-economic data should look at immigration and the ethnic composition of a geographical area, as well as the health and social expenditures in that area. The United Nations has constructed a human development index for numerous countries. The components of this index are also available, such as: literacy rates, years of schooling, expenditure on health, gender equality, poverty index, life expectancy and others. ¹¹⁸ The OECD provides some similar data, as do national statistical offices. ¹¹⁹
<i>Natural Factors</i>	<ul style="list-style-type: none"> • events such as floods, fires or earthquakes that may disrupt and delay proceedings 	Natural disasters such as earthquakes, flooding, droughts and fires impact on the operation of courts and the legal system in the affected areas. Such events can be accounted for statistically by including so-called dummy variables for the time periods that were affected. Searching newspapers online for such events would allow a researcher to gather data for the relevant dates. The database <i>Factiva</i> provides access to news from 200 countries and 35,000 sources. ¹²⁰

117 Our observations are drawn from diverse sources, going beyond our conversations with South Australian court officials.

118 See the range of data on human development across a large range of countries available at <<http://unstats.un.org>>.

119 National statistical offices of numerous countries make available extensive socio-economic data. Examples include: <<http://www.abs.gov.au>> (Australia); <<http://www.statcan.gc.ca>> (Canada); <<http://www.stats.govt.nz>> (New Zealand); <<https://data.gov.uk/>> and <<http://www.ons.gov.uk>> (UK); <<http://www.bea.gov>> and <<http://www.census.gov>> (USA).

120 *Factiva* is available at <<http://global.factiva.com>>.

<i>Economic Factors</i>	<ul style="list-style-type: none"> • broad 'economic' conditions external to the legal system 	Relevant available economic data will include: income per capita; income distribution; the rate of unemployment; age distribution in the population; gross national product and the state of the economy (whether in a boom or a recession). ¹²¹ Economic data are available from a variety of sources, such as international organisations like Eurostat, ¹²² the International Monetary Fund, ¹²³ the OECD, ¹²⁴ the World Bank ¹²⁵ and national statistical offices. ¹²⁶
-------------------------	--	--

121 It would be necessary to apply a filter, such as the Hodrick and Prescott filter, that separates out cyclical fluctuations from a measure of economic activity, such as the gross national product of a country or region: See Robert J Hodrick and Edward C Prescott, 'Postwar US Business Cycles: An Empirical Investigation' (1997) 29 *Journal of Money, Credit and Banking* 1.

122 For various member countries of the European Union, economic data are available at <<http://ec.europa.eu/eurostat>>.

123 See International Monetary Fund, *International Financial Statistics* <<http://data.imf.org/?sk=5dabaff2-c5ad-4d27-a175-1253419c02d1>>.

124 The OECD's Main Economic Indicators electronic database has similar data to the *International Financial Statistics* but only for OECD member countries: Organisation for Economic Co-operation and Development, *OECD.Stat* <<http://stats.oecd.org>>.

125 For example, the World Bank provides data on the ease of doing business in numerous countries, including some sub-national data, such as enforcing contracts for the quality of goods (costs, time and number of procedures involved in solving disputes), employment regulations, transparency of business regulations, and business density: World Bank Group, *Doing Business 2016* <<http://www.doingbusiness.org>>.

126 It is worth noting that the International Labour Organization publishes a number of useful sources of relevant data, including *Yearbook of Labour Statistics* <<http://www.ilo.org/stat/Publications/Yearbook/lang--en/index.htm>> and the *Key Indicators of the Labour Market* database <<http://www.ilo.org/global/statistics-and-databases/research-and-databases/kilm/lang--en/index.htm>>. Similarly, the *Penn World Table* provides economic data from national income accounts converted to international prices, based on purchasing-power-parity-based exchange rates: <<http://www.rug.nl/research/ggdc/data/pwt/>>.