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**[TO BE REMOVED FROM FINAL VERSION]**

**Comments / questions:**

* Is double spacing and that kind of stuff required? I only read that APA referencing is required, and font 11. Nothing about other types of formatting / layout. I do not like double spacing, and I’m a big fan of links within the document.
* Parts I’m particularly unsure of or have not finished yet are highlighted yellow.
* I’m a big fan of links in documents. Stuff that’s clickable is marked blue.
* I figured out a mistake in my coding for punishment size last week; I have to redo the coding and rewrite the analysis section. Nevertheless, I still wanted to submit the current draft so we can talk about chapter 1 and chapter 2 on the 21st

**To-do (in order of priority) for first version:**

[x] – Theory / context / research questions

[x] – Methodology

[x] – Code outcome verdict boolean

[x] – Code punishment type

[ ] – Recode punishment size

[ ] – CMH tests

[ ] – Linear regression

[x] – Sent to Nina & Peter

[x] – Sent to Faye for proofreading

**Once first version is done (in order of priority):**

[ ] – Discussion

[ ] – Check APA formatting and stuff

[ ] – Prepare for presentation (10 min summary)

[ ] – Code decision in eerste aanleg as control variable

[ ] – Lekensamenvatting for thesis in Dutch

[ ] – Descriptive statistics for blog for NJR/Ars Aequi (revisit: <https://www.njb.nl/blogs/het-verstrekken-van-niet-gepubliceerde-uitspraken-door-de-rechtspraak-gunst-of-recht/>)

## Summary

Judicial assistants can influence the outcome of verdicts. That is the conclusion of Holvast (2017). All research within the Dutch judicial context on this matter has been qualitative of nature, or based on self-reporting and surveys. No purely qualitative methods have been used to research the question whether judicial assistants can influence the outcome of verdicts. That is what this paper does.

This paper analyses ca. 1.200 cases from the Amsterdam Court of Appeal’s criminal law division in 2019. [...]

[description of results]

Key words:

Classification: legal research, jurimetrics, quantitative methods, replication study, analytical study

## Preface

I am deeply indebted to mr. dr. Nina Holvast and prof. dr. Peter Mascini for their guidance and feedback on this paper. In particular Nina’s presentation during one of my first courses sparked my interest in further researching the judiciary. The inspiration to use qualitative methods for this research was ignited by mr. Kees van Noortwijk, who showed the application of similar methods during the Computers & Law course.

However, my first introduction to (the lack of) legal methodology was by prof. dr. mr. Wibren van der Burg. During the Research skills seminar he continuously activated my interest in legal methods with his constructive and constructive attitude on the subject.

While conducting my research, my friends helped tremendously. Marije Sluiskes – stats master – provided invaluable advice for choosing the right statistical methods. The setup to analyse the large amount of verdicts was inspired by Eelke van den Bos – master of tech. His permission to use and adapt his setup saved me an incredible amount of time. [faye proof reading]

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## 1. Context, theory & research question

What role do judicial assistants play in the judicial decision-making process in Dutch courts? This question has been explored in the PhD thesis of Holvast (2017). Her conclusion was that judicial assistants play an noteworthy role in the adjudication process. Her research, and research of others before, has been conducted using either qualitative methodologies (observations, interviews, case studies) or by conducting surveys amongst judges and judicial assistants (Holvast & Mascini, 2021). This paper answers the same question as Holvast’s PhD thesis: what role do judicial assistants play in the judicial making process. However it tries to do so with only quantitative methods.

This paper contains four chapters:

1. This chapter contains the context of my research, a theoretical framework, prior literature, classifications and a primary and secondary research questions.
2. Chapter two focusses on the methods employed in this research paper. It also includes general descriptive statistics of my dataset, and a justification for the methods used.
3. The third chapter contains the outcome of the statistical analysis, and a general interpretation of the research results.
4. In the last chapter I discuss the findings of this paper in the broader context of previous research. I also discuss options for further research, and conclude with a reflection on using quantitative methods in legal research.

### A. The relevance of judicial assistants in the decision-making process

#### I. **Judicial assistants are actively involved in the decision-making process**

Over the past 25 years, the role of judicial assistants has changed. While before, they performed mainly secretarial and administrative tasks, now they are also tasked with tasks directly related to cases. Tasks like “preparing memos for hearings, acting as sparring partners in deliberation and drafting judgements” (Holvast 2017, p. 16). According to Holvast, this trend corresponds with an increase of law degrees amongst judicial assistants; it is a trend that is not inspired by changes in law or policy, but “rather, they appear to be practical responses to changes at the workplace, a course which emerged tacitly within the practices in courts”.

This trend is still present. Not only Holvast concluded so. Den Tonkelaar (2015), who is a senior judge himself, wrote about process as well: “The judicial assistant takes care of the notes taken during the hearing, and – sometimes – also writes the draft verdict which includes the motivation for the decision.” Additionally, although anecdotal evidence, job openings at various courts include the writing of draft judgements as an important task of judicial assistants. In ‘a day of the life of a judicial assistant’ interviews, where employees tell about their work on social media, writing the draft judgement is often highlighted as one of their most important and interesting tasks.[[1]](#footnote-2) A new project was also started in 2018 where judicial assistants are trained in writing verdicts in the commercial section (Commissie Visitatie Gerechten 2018 p. 36).

This trend will continue. Dutch courts faced budgetary issues in the past decade. According to the Netherlands Council of the Judiciary *(Raad voor de rechtspraak*)three causes can be identified (Raad voor de Rechtspraak, 2018):

1. Budget cuts in the period from 2012 to 2016,
2. Less law suits, resulting in less funding – while fixed costs remained constant, and
3. Failing attempts to increase efficiency by implementing more digital processes.

Following these budget cuts came a budgetary crisis. Facing a yearly loss of almost 15% of their yearly budget, Boston Consulting Group was hired to give advice on the financial situation of the judiciary. In their analysis, they concluded that more efficiency could be achieved by realizing a good division of tasks between judge and assistant. More specifically, they concluded more writing of draft judgements could be done by assistants. (Boston Consulting Group 2018, p. 189)

Efficiency incentives can – subtly – lead to an increase of tasks for assistants. For example, a recent pre-advice by Stoepker & Schulmer (2020) called for an experiment where the pre-trial investigation (*vooronderzoekscomparitie*) would be led by someone else than an administrative judge.

#### II. The involvement of j**udicial assistants in the decision-making process raises concerns**

This trend raises concerns. Holvast (2017, p. 16 / 24) extensively discusses six:

1. Firstly, the position of judge is special, and surrounded by important safeguards. The position of judicial assistants does not enjoy similar safeguards. That is a threat to the rule of law.
2. Judges adjudicate, assistants do not. The sense of responsibility a judge might feel if they do not prepare and write judgements decreases. That might affect the quality of their decision.
3. Intuition, not careful consideration of arguments from both sides, might become the dominant factor in deciding a case. A judge writing their own judgement, forces them to reconsider the case. When an assistant write a judgement, the judge is relieved from that responsibility.
4. Judicial assistants affect the outcome of decisions because of their own ideological interests. Although the risk also applies to the Dutch context, it is less of a concern because judges are not politically chosen, Holvast concludes.
5. There will be a more legalistic type of adjudication, because judicial assistants are more included to follow general guidelines instead of making their own decision. That decreases the individualistic nature that some cases require. Additionally it hampers the law-making ability of the judiciary.
6. Judges become managers, because they need to manage assistants adjudicating for them, instead of adjudicating themselves.

It is not my ambition to revisit all six concerns in this paper. Instead, I will elaborate and discuss two concerns.

##### Safeguards around the position of judges and judicial assistants

Regarding the first concern – the safeguards around the position of judges and judicial assistants – it is especially important since the tasks and role of a judicial assistant is not exhaustively codified in law. While some laws contain specific responsibilities of an assistant in legal procedures (i.e. signing a verdict together with a judge), a complete list of responsibilities is lacking. Baas (2019, chapter 7.7.3) noticed judicial assistants that actively participated in debates with judges regarding the outcome of verdicts, and judicial assistants only doing menial secretarial tasks.

On the one hand, this provides the judiciary to adapt the role of assistants to their current needs. It creates a – relatively – more agile organisation. On the other hand, an informal practice like this makes it difficult for outsiders to understand the extent of the influence a judicial assistant might have.

Additionally, if role of the assistant would be subjected to more formalization, it would also create a more transparent practice as to their influence. It is now an informal practice that assistants author verdicts. Formalization of that task opens up the discussion to enhancing the safeguards around that role. A central, public register of assistants and public disclosure of side jobs, safeguards around the position of judges, could then be a topic of discussion for assistants. Without this formalization and transparency, it is harder to scrutinize the judiciary.

This is also related to the recent pre-advice by Stoepker & Schulmer (2020), mentioned in the previous section, which called for an experiment where the pre-trial investigation (*vooronderzoekscomparitie*) would be led by someone else than an administrative judge. Holvast (2021) reviewed that advice, and expressed concerns on the (lack of) safeguards currently surrounding the position of judicial assistants in case they would receive a formal leading role in pre-trial investigations.

##### The legalistic type of adjudication of judicial assistants

Related to the fifth concern – the more legalistic type of adjudication judicial assistants have – is an increasing trend to focus on *recours subjectif* in Dutch administrative law. *Recours subjectif*, the opposite of *recours objectif*, is a doctrine that includes a strong focus on the personal position of participants of a procedure. When judging in a *recours subjectif* style, the judge tries to find a remedy that is suitable to all participants. In contract to *recours objectif* where the judge safeguards “the abstract legal order against unlawful infringements” (Van den Berge, 2017). In other words, *recours objectif* prioritizes legality, while *recours subjectif* prioritizes legal protection (Barkhuysen, Den Ouden & Schuurmans, 2012).

*Recours subjectif* also has an important role in criminal law. A judge does not only take evidence and the legal (minimum) punishment for a crime into account when coming to a verdict, it also takes the personal circumstances of a suspect and victim. In the Netherlands, this can be seen by a large role for (relatives of) victims in criminal proceedings[[2]](#footnote-3), but also by the large amount of punishment types a judge has at their disposal.

Judicial assistants – generally speaking – have less experience than judges (Hol, 2001). Following a *recours objectiv* doctrine is easier; the margin of error is smaller because there is a large amount of information, articles and case law available for assistants when drafting a judgement. Taking context into account and following a more personal approach, an ‘all things considered’ *recours subjectif* approach, is more difficult for an inexperienced assistant. It is a process that is not taught in law school. It is a decision based on experience.

An example can be found in the observations of Holvast (2017). She concludes that, with some exceptions, that “assistants are often allowed a large amount of autonomy in writing judgments, and it can even be difficult for them to receive additional instructions from judges.” (p. 157). Although the outcome of a verdict could still be decided by the judge, the method of writing a verdict – a personal, case based approach or a large amount of references to law, previous articles and academics – is up to the assistant. This might be counterproductive to a general shift from *recours objectif* to *recours subjectif*.

#### III. Advantages of involving judicial assistants in the decision-making process

* + - 1. There are significant advantages why the judiciary should involve judicial assistants in the decision-making process. These should not be left undiscussed. In this section, I will elaborate on three advantages.

##### ***Efficiency: assistants are everywhere, right?***

Assistance is common in all professions. In politics, memo’s for ministers are prepared, and speeches are written by civil servants. Doctor’s do not do everything themselves either. Medication is often administered by nurses, and simple medical procedures are handled by doctor’s assistants. And I do not know any lawyer that could prepare for a big case without the support of junior lawyers, paralegals or their administrative staff.

Why should that be any different for the judiciary?

Collectivists and libertarians think alike on that matter: overspending public money where it is not required is a waste. Efficient allocation of resources is a political-neutral philosophy. However in the context of *new public management* and *corporations,* efficiency is often seen as negative. But where tasks can be done more efficiently by others than judges, there is a potential for a more optimal allocation of resources. Realizing that potential should be explored.

Although it is a waste to allocate tasks to judges that could also be done by judicial assistants, a few precautions need to be taken. The special task of the judiciary – adjudicating conflicts – calls for special safeguards. While a nurse can only administer medication prescribed by a doctor, a judicial assistant should only write verdicts of which the decision is made by a judge. A nurse is still required to follow special education before she can work with patients; the position of a judicial assistant alike should be safeguarded with checks and balances to ensure impartiality, skill and integrity.

Abram et al (2011) painted a picture of what the ideal cooperation between judge and judicial assistant would look like. The term assistant, was quickly replaced by legal advisor. The advisor would provide “The legal advisor presents facts, ideas and opinions in comprehensible and correct language in writing and has a sharp legal analytical ability. He is able to signal possible problems and make connections. In addition he is properly able to distinguish primary and secondary issues.” The advisor helps a judge to navigate a world that becomes more and more complex. In return, the judge receives more time to work on what they should do: adjudicate.

Important to note here is that instructions to assistants when executing their tasks can vary. There is not a manual as to how to give instructions, and there are neither manuals as to how to interpret instructions. Instructions to judicial assistants by judges, for example when writing draft verdicts, is the most important instrument for a judge to ensure a desired outcome. Holvast (2017, p. 143) observed that there are judges that – almost – dictate assistants what the text of the verdict should be like. Other judges style of instructions are more like “You’ll figure it out, right?”. If judicial assistants are given a formal task to draft judgements – the practice in various district courts – judges should be aware of a new responsibility: to give useful instructions to their assistants. While judges excel at adjudicating, this does not guarantee an effective style of leadership.

##### Professional reflection

The position of a judge can sometimes be lonely. While there are two (or more) parties arguing what ought to be right, you are expected to deliver justice. That is a burden that can feel heavy. While in multi-judge panels this burden is shared amongst judges, in a single-judge case it carried by the judge themselves. A judicial assistant with whom a judge can discuss the case, helps judges in dealing with that burden. By involving an assistant in the merits of a case – and even allowing them to write draft judgements – judges get an ‘external’[[3]](#footnote-4) opinion on the case at hand.

This advantage is also identified by Holvast (2017, p. 141) in her empirical research. One of the judges she interviewed said:

*“There was a hearing, and, for some reason, I did not have any judicial assistance [except for someone to create the court record]. Everyone was fully booked, and the idea was that judges would get only half a hearing and do everything themselves. I realised that I really missed a discussion partner then. (...) I really missed someone to write the judgments. That, too. (...) But I mainly noticed that what I really miss is the exchange of thoughts. I didn’t expect that to be such an issue.”*

##### Apprentice model

In contrast to popular belief, judges do not just spring out of holes in the ground![[4]](#footnote-5) Ward & Weiden (2006) argue that law clerks originated from an apprentice model for legal education. In the Netherlands, a judicial assistant can also be a judge in education (*rechter in opleiding*). Holvast (2017, p. 67) found in her research that judges and judicial assistants alike find the “unique experience of gaining a deeper understanding of judicial decision-making” as important factors for becoming a judicial assistant. Having judicial assistants be actively involved in the decision-making process, contributes greatly to that understanding.

With more and more judicial assistants having academic law degrees (Abrams, 2006), it makes sense that aspiring judges, lawyers or legal professionals want to gain experience in the judiciary. Only performing administrative or secretarial tasks, such as recording proceedings, does not fit the academic profile judicial assistants currently have. There is also value to educate aspiring legal professionals in the position of judicial assistant; having them experience the process of adjudicating helps to gain a more thorough understanding of the legal process.

**IV. Concluding remarks**

In this first part I reflected on the role of judicial assistants in the decision-making process. We can conclude that an increase of involvement of assistants is a trend that is not leaving anytime soon. New initiatives are proposed to further increase the involvement of assistants in pre-trial investigations, and a higher demand for efficiency makes it difficult to create enough capacity for judges to write their own judgements.

This trend is, as of now, not paired with more safeguards around the position of judicial assistants. That could be a requirement to ensure an independent and neutral judicial assistant. More specifically, formalizing their tasks and increasing (external) transparency regarding the position of the judicial assistant will allow for a public debate regarding the safeguards around the position of judicial assistants. This is an important motive for my research. A quantitative analysis of the influence of judicial assistants might provide more context and arguments to that debate.

### B. Quantitative methods as a research methodology within legal research

Quantitative methods are not ‘one of the family’ in legal research. Legal scholars are not – traditionally – educated in empirical research (Noortwijk and De Mulder, 2018). Their toolkit contains hermeneutics, hermeneutics and… hermeneutics.

However, in past years legal scholars have been held more and more accountable for the methods they employ. Langbroek, Van den Bos, Thomas, Milo and Van Rossum (2017) elaborate on this: “The necessity to develop legal research methodologies comes to the surface where lawyers try to cooperate with academics from different disciplines. It also becomes visible when lawyers try to compete for research funds with academics from disciplines other than law. Where, in the social sciences, methods of empirical research are part of everyday academic life, such an ongoing debate is absent in most law schools.”

To people not versed in legal science, the hermeneutic method could quickly be seen as just ‘an opinion’. A striking example of this is the role prof. dr. Cliteur played in the trial of politician Geert Wilders. Cliteur was asked to testify in court – as professor – and concluded that Wilders should not be prosecuted.[[5]](#footnote-6) Some analysed his contribution as an interesting philosophical addition to a complex process (Van Roermund, 2017). Others wonder whether it is possible that a scientist can make a scientific recommendation during one of the most controversial trials in years. If so, that would further blur the line between hermeneutics and ‘an opinion’.

There are other scholars that also call for a broader set of legal methodologies. Bodig (2015) argues “interdisciplinary engagement is sometimes necessary for legal scholars because some concepts and ideas built into the doctrinal structures of law cannot be made fully intelligible by way of pure normative legal analysis”. In other words, we cannot figure out everything if we continue to only use hermeneutics. There is a world beyond that. A comprehensive, and large number of calls and examples of a stronger legal methodology are included in the book *Law and Method* by Klink & Taekema (2011).

That does not mean, however, that this research does not take the intricate and complex nature of law, verdicts and cases into account. Surely, all cases are unique. And yes, we need to be careful in comparing cases and their outcomes to each other. But with the right precautions, by testing enough assumptions and by carefully interpreting results, qualitative legal research should be possible. The methodological section of this paper further elaborates on this.

Ultimately, using one method should not rule out another. Choosing between qualitative and quantitative research is only destructive for conducting good research. A combination of research methods – a mixed method approach – yields a more wholesome, concluding perspective on the matter one is trying to research. For this paper, I use the doctrinal research by Holvast, but employ different methods to test her hypothesis.

1. C. Classifications of this paper

A final section within this chapter should be spend on classifying this paper. Classifications are an analytical tool to help readers put this paper into context.

First of all, this paper should be classified as a *legal research*. Not just because this paper is written as a thesis for a Legal Theory master, but predominantly because of the subject matter: verdicts, judges and judicial assistants. The theoretical framework used for this paper is sociolegal of nature. And the authors background is from the field of law.

One of the subfields within *legal research* is *jurimetrics*. Noortwijk and De Mulder (2018) “Jurimetrics is the empirical study of law. Traditionally educated legal scholars do not often engage in empirical research. Instead, scholars use ‘hermeneutics’ to analyse legislature, judges and other actors.” Put differently, jurimetrics tries to employ quantitative methods to law. This paper employs quantitative methods to law. *Jurimetrics* should therefore be the second classification of this paper paper.

This paper should not only be classified as a paper in *jurimetrics*. In its essence it is also a *replication study*. A replication study tries to replicate research done before, employing the same methods but done by different researchers. If the study was done correctly, the findings of both studies should be similar. That similarity increases the validity of the research. Popper noted this in *The Logic of Scientific* (1935, p. 66) where he said: “A few stray basic statements contradicting a theory will hardly induce us to reject it as falsified. We shall take it as falsified only if we discover a reproducible effect which refutes the theory.”[[6]](#footnote-7)

Replication can also be interpreted in a broader context of science. When we want to *generalize* research findings to an entire population (increase external validity), we need to build arguments based on different foundations: inductive reasoning. In other words, if we want to generalize the conclusion that judicial assistants have influence on the outcome of verdicts, we need to prove that they do in different contexts and reach those conclusions with different methods.

This paper tries to employ a new method on the question whether judicial assistants have influence on the outcome of verdicts. The third classification of this paper should therefore be a *replication study*.

A fourth classification of this paper should be *interdisciplinary*. The subject mater of this paper is already interdisciplinary: the role of judicial assistants within the judiciary is not just legal of nature, but also sociological. However by borrowing statistical methods to analyse the subject matter, the nature of this paper become more interdisciplinary. Other methods are borrowed from computer science: machine learning was used to recognize and extract the names of judicial assistants, and new, high performant search engines were used to scan and classify the large amounts of verdicts analysed for this paper.

The final classification of this paper should be *analytical*. This paper does not try to convince the reader that judicial assistants do or do not have influence on the outcome of verdicts. Although we take the conclusions of previous research as a starting point for our question, we try to validate the claims made in that research instead of supporting the claims. If this research finds that the claims made in previous research are true, it enhances the scientific validity of those claims. If they contradict those claims, they only open up more avenues for further research.

Concluding, this paper tries to reproduce previous research results by employing methods that are not often used within the legal research context. This paper should receive five classifications:

1. Legal research
2. Jurimetrics
3. Replication study
4. Interdisciplinary study
5. Analytical study

### D. Research questions

In section A, I justified the subject of my research: the increasing role of judicial assistants in decision-making processes calls for research on the exact role and the extent of their involvement. In section B I justified why a quantitative research method is important: previous research by Holvast employed qualitative and survey based methods; a pure statistical method has not yet been used to research this subject. That is the method used in this research.

Statistical methods are – often – not the way to go to answer questions like “in what ways” or “how are X and Y related”. Holvast her research dealt with those questions.[[7]](#footnote-8) My research only deals with the “are they related”. In other words, my research question is:

*Do judicial assistants have influence on the outcome of a verdict?*That is a broad question, and multiple sub-questions are need to be able to answer this question. Based on Holvast’s fourth sub-question – which delved into the factors that affect the type and degree of involvement of judicial assistants in the decision-making process – I have formulated five sub-questions:

1. *How can the influence of judicial assistants be operationalized?*
2. *Do judges with more experience, work together more often with lesser experienced judicial assistants? And vice versa?*
3. *Is there a relation between the outcome of the verdict, the experience of the judge and the experience of the judicial assistant?*
4. *Is there a relation between the type of punishment, the experience of the judge and the experience of the judicial assistant?*
5. *Is there a relation between the height of punishment, the experience of the judge and the experience of the judicial assistant?*

## 2. Methodology

To answer the research question, we need to analyse verdicts, judges and judicial assistants. In summary, this methodological section describes:

1. How I retrieved my research data,
2. How I enriched the research data and what variables I control for,
3. How I operationalized influence, and
4. Which statistical tests are used to measure influence.

### A. **Data collection**

#### I. Not all verdicts are public

The basis of my dataset are all cases from the open data portal of rechtspraak.nl from 2010 to 2020. Each case is uniquely identified by their ECLI. In total, this dataset contained 1.823.323 verdicts.

A transparent judiciary is essential for the rule of law. In the Netherlands, this is also codified in Article 121 of the constitution. However, although all verdicts are given in public, not all verdicts are publicly available. This confusing, but important distinction makes this research difficult. And although we have Article 121, that article dictates only that the verdict has to be read out in public. Not that the integral text of the verdict should be made public.

When talking numbers, we see the following: Dutch courts publish around 0.19% (2007) to 0.47% (2019) of all verdicts (Kengetallen Rechtspraak 2019, 2020). The rest of the verdicts only contain metadata (section 1). If a verdict is published depends on a number of criteria formulated by the Netherlands Council of the Judiciary; for example, all verdicts from the Supreme Court (*Hoge Raad*) are made public, while only 0.27% of verdicts from district courts are made public. Verdicts in certain procedures, i.e. prejudicial questions to the Court of Justice of the European Union, are always made public; while more verdicts with a more routine character (petty theft) are only made public if they defer from or add to established case-law.

Not all verdicts being public, means that my research population is – immediately – a sub-selection of the full research population. That weakness is inherent to the current practice of the Council of the Judiciary. From an academic point of view, this is a shame. It does not allow researchers to conduct research over the full population of verdicts.[[8]](#footnote-9)

The actual dataset of verdicts was retrieved from the website of the Council of the Judiciary.[[9]](#footnote-10) The total dataset used contained ca. 1.8 million verdicts (2010 – 2020). This dataset did include an ECLI for each verdict. Most verdicts contained just that. Only a small section of cases contained more information than ECLI, such as the actual text of the verdict, the actual decision and the legal area.

Note that the dataset does not containall verdicts issued by the Dutch judiciary in that time. Fore example, in 2019, the Dutch judiciary issued approximately 1.54 million verdicts. Only a subsection of those cases receives an ECLI and is therefore included in the dataset. From that subsection, a further subsection of those cases are published with the full text of the verdict. This is a big problem. Not knowing the exact scope of which verdicts (type, legal area, institution et cetera) are unpublished, is one of the biggest problems when doing statistical analysis. Put differently: when you do not know what you do not know, you cannot know whether what you know is enough to do an analysis.

This problem is not new. For a long time, academics, researchers and legal professionals have called on the Dutch judiciary to publish more verdicts. More recently, Marseille & Wever (2019) wrote on the effects this had on their empirical research. While the number of cases that have been published has risen over the years, there is no realistic outlook on when the judiciary will publish the outcome of all cases.

#### II. The public register of judges does not contain historical data

The second dataset needed to perform an analysis is a dataset of judges.

There is a public register of judges, but it is only available as a ‘snapshot’ (Beroepsgegevens en nevenfuncties van rechters, 2021). This means that the register contains judges that are currently[[10]](#footnote-11) in office, but does not contain judges that retired recently. I.e. a judge that retired a day before the public register was consulted, might not appear in the register while their name does occur in the verdicts studied.

The implication of this lack of data, means that the older the verdicts get the higher the chance is that there is a judge missing from the research population. To counter this, I did two things: (1) I manually added names of judges that I encountered in verdicts but were not included in the list, and (2) I only analysed verdicts published after 2010.

#### III. There is no public register of judicial assistants

The third dataset needed to perform an analysis is a dataset of judicial assistants.

There is no public register of judicial assistants: we need to construct one ourselves. That is an extreme amount of work if done manually (remember: 1.8 million verdicts). Instead, I opted to use a machine learning model trained on Dutch news data from open source machine learning library ‘spaCy’ (spaCy, 2021). This model extracted all names of people mentioned in the ‘decision’ section of the verdict. All names could be checked against the public register of judges; the remaining names are judicial assistants.

This is – relatively speaking – the weakest part of the data collection process: while the names of judges can be extracted quite easily from verdicts because of the publicly available register, recognizing the names of judicial assistants is quite prone to errors.

A random manual check on 1.500 cases indicated that spaCy was accurate in 93% of the times. I complemented the list of judicial assistants generated by spaCy with the results from the random check, resulting in an accuracy of 99% in a second run. The remaining three percent of the cases were discared.

In a more ideal scenario, the Council of the Judiciary would maintain a public register of judicial assistants and their professional background, similar to the register of judges mentioned in the previous section.

#### IV. There is no formal relation between a verdict and the judge/judicial assistant

Finally, we need to know which judge and judicial assistant is related to which verdict.

Verdicts are not formally linked to a judge or judicial assistants. With ‘formally’, I mean a formal, computational link based on a unique identifier. Verdicts are downloaded from the website of the Council of the Judiciary, however these verdicts only contain the raw text of the verdict. The name of the judge and judicial assistant can be found in the verdict, but there is no separate field, metadata or unique identifier for the judge or judicial assistant related to the judgement.

This means that relationships between judges, judicial assistants and verdicts had to be made by recognizing the name of the judge in the verdict, compared to a full register of names from judges. I did this using the fuzzy string matching method from Elasticsearch’s match query (Elasticsearch match query, 2021).

For judicial assistants, this is done by recognizing the name of the judicial assistant with spaCy (see previous section). For judges, I used a pattern called ‘dictionary matching’, where we search for a name of judge and see whether it can be found in the judgement. This is a method that is prone to errors. For example, if one would need to recognize the name of judge ‘Thompson’ in the text “This judgement has been rendered by judges Clark, Thompson and George”, only a single typo in the name of the judge in the verdict will prevent a successful match. Since judgements are written by hand, typo’s like that will occur.

Four things are done to combat this methodological weakness:

1. I used Elasticsearch, which contains a fuzzy matching algorithm. This means that “Thomspon” and “Thombson” are both recognized as “Thompson”.
2. Judges with identical names were removed from the dataset; that were 2 times 4 judges.[[11]](#footnote-12)
3. There should always be a ‘logical’ amount of judges recognized in a case. When 2, 4 or more than 5 judges were recognized, the verdict was discarded (0.4% of all cases).[[12]](#footnote-13)
4. A random manual check was done to confirm the method works: this resulted in a 97% accuracy in recognizing judge names in the verdicts analysed. That’s within acceptable boundaries.

### B. Operationalizing judges and judicial assistants

* + 1. A full dataset contains – for each case – a list of people involved with that case and their role. For my research, that is the related judge(s) and the judicial assistant. An intuitive approach to testing the influence of the judicial assistant, is to see whether there is a significant deviance for the outcome of verdicts for the collaboration of each assistant and each judge. I.e. ‘when judge X collaborates with assistant Y, they get a 50% / 50% ratio of innocent vs guilty verdicts; however when judge X collaborates with assistant Z, they get a 90% / 10% ratio of innocent vs guilty verdicts’.

#### I. **T**he multiple testing problem

There is one problem that occurs with these types of tests when done on a large scale: the multiple testing problem. It means that the more analyses we run on the same dataset, the more likely it will be that errors occur. For example, in a dataset we have 100 judges and 100 assistants that collaborated on 10.000 cases. We run 100 statistical tests on sub-sections for that dataset, and calculate *p*-values for each test we do.

In laymen’s terms, *p-values* are used in statistical testing to indicate the probability that our hypothesis is true. For a *p-*value of 0.05, we assume that there could be a 5% probability that our outcome is an error; we have a 95% probability our test is valid. These errors stack. If we run 100 tests, we have to multiply the probabilities our tests are valid. For 100 tests, that would be: 0.95100 = 0.006. Which means that – instead of a 95% probability our tests are valid, we end up with a 0.6% chance our tests are valid. That low validity score effectively makes doing this type of testing useless.

#### **II. Solving the multiple testing problem**

There are a few options to solve the multiple testing problem. While there are various statistical corrections available (Bonferroni correction, the Šidák correction and the Holm-Bonferroni correction), I opted for a different solution.

Instead of correcting for the multiple testing problem, I avoided it by performing less tests. I do not operationalize judges and judicial assistants as a separate entity or category, I group them based on their experience. I do so in two ways: by their experience in office in days, and as a categorical variable ‘low’, ‘medium’ and ‘high’ experience. Further on in this paper, I describe this process in detail.

### C. **Control variables and extending the dataset**

Holvast (2017, p. 163) describes multiple factors that could determine the extent to which a judicial assistant has influence on the decision making process. Those factors were (Holvast 2017, p. 163):

1. Trust between judge and assistant
2. Role perceptions
3. Experience and expertise of both judge and assistant
4. Career perspectives and ambitions
5. Type and complexity of cases
6. Single-judge or panel decision-making
7. Time pressure and workloads

In order to exclusively measure the influence a judicial assistant has, we need to rule out other factors that could affect this influence. That is why I *control* for these factors. In this section I describe for which factors I managed to find controls and how I operationalized those controls.

In an ideal scenario, all these variables are added as variables to control our analysis. However, it is complex – if not impossible – to measure the trust between judge and judicial assistant at the time of the case (I), the perception of their role at the time of the case (II), the career perspectives and ambitions at the time of the case (IV) and the (VII) time pressure and workload at the time of the case. The enormous complexity to measure these factors, lead to not including these in this research paper.

The time pressure and workload factor is a factor that *could* easily be measured though in a world in which a full set of verdicts and employment data would be available (see 2.A. for the limits of the available research data). If a full set of verdicts would have been available, one could count the number of cases the person was involved with at the time of the verdict. If one would cross-reference this with employment data – the FTE of the related person – and the number of cases in the backlog of the court, one could develop a ‘time pressure and workload’ metric measure at the time of the case. The absence of complete research data prevents this. The other factors mentioned by Holvast are measurable.

#### I. Experience and expertise

Factor III ‘Experience and expertise’ of a judge is not fully operationalized in this research: only experience is operationalized; expertise is not.

Experience is added as an attribute to both judges and judicial assistants. We determine the expertise of judges by looking at their professional history, available from the public register of judges (Beroepsgegevens en nevenfuncties van rechters, 2021). Their earliest appointment of a judge is used to calculate the relative amount of professional experience in years. This metric is added to each verdict. Where a verdict has multiple judges, the number of years of professional experience of the most experienced judge is used.

There is no public register of professional history for judicial assistants. Instead, the date of the verdict in which they first occur is used as the start of their professional history. In a more ideal research setting, a researcher would have had access to the private employment history of judicial assistants to determine their professional experience. Unfortunately that information is not available.

Expertise could not be operationalized based on the currently available data. It could be operationalized by counting the no. of cases in the legal area the judge has thus far. However since not all verdicts are published, using this method of coding would have provided a skewed metric for expertise. For more information on the accessibility of research data, see section 2.A.

Finally, the experience of a judge is – noting the above – easy to calculate. The experience of a panel is more difficult. There is no general way to calculate the experience of a panel. Hence I adopted two methods of operationalizing experience for a panel:

1. The experience of the most experienced judge is only taken into account. This operationalization can be justified with research by Holvast (2017, p. 124 & 135) that explains the dynamics of discussion amongst judges. Experienced judges often have an important contribution to the panel discussion, and are paired with lesser experienced judges.
2. The average experience of all judges is taken into account. This is done by summing the experience in days, and dividing amongst all judges. This method takes into account the experience of all judges.
3. We sum experience in three categories: low, medium and high. We do so in such a way that each category has – approximately – an equal amount of people. The cut off points for experience in days can be found in the table below:

|  |  |  |
| --- | --- | --- |
|  | **Category** | **Days of experience (n)** |
| **Judge** | Low | 0 ≥ n < 9118 |
|  | Medium | 9118 ≥ n < 11754 |
|  | High | n ≥ 11754 |
| **Judicial assistant** | Low | 0 ≥ n < 474 |
|  | Medium | 474 ≥ n < 1146 |
|  | High | n ≥ 1146 |

#### II. Type and complexity of the case

The complexity of the case (factor V) is more difficult to operationalize. Factor V ‘type and complexity of the case’ is operationalized in three variables.

Complexity lies in the history of a case, the type of field, how quickly regulation in the legal area of the case changes, the arguments made by relevant parties and many more factors. An exhaustive review of existing literature did not yield a scientifically validated model that adequately measures the complexity of a case. Only measuring lexical complexity (i.e. measured with a Flesch-Kincaid readability tests) is according to Van der Bruggen (2020, p. 2031) not a suitable proxy for the actual complexity of a case. Even the best available tools that measure lexical complexity, are not accurate enough to predict the actual complexity of the case.

There are proxies available though, of which I employ three:

1. Firstly the complexity is already proxied for by the amount of judges (also see 2.D.III). Generally speaking, cases that are complex are handled by more judges than cases that are simple (Baas, de Groot-van Leeuwen & Laemers, 2010). This is determined by judicial assistants and administrative clerks that review cases when they are submitted to a court. Additionally, a judge always has the opportunity to refer a single-judge case to a panel of judges. We use the experience of judicial assistants, administrative clerks and judges as a proxy for the complexity of the case. We control for this variable by keeping the number of judges for each case constant: 3.
2. Secondly, the complexity of a case lies in the case’s history, the number of legal arguments made and considerations made by the judge before coming to their conclusion. This is proxied by the length of a verdict, measured in the number of characters of the verdict. More text in a verdict means a longer case history, more arguments to consider or more arguments to support a decision.
3. Thirdly, the number of references to other verdicts. More references to other verdicts, implies that the writer of the verdict took into account more case law before their verdict seemed good enough to reach.
4. Finally, the dataset did contain a ‘procedure type’ identifier (see Raad voor de Rechtspraak, 2021a) that could have been used to identify the type of the case. 78% of the cases in the available dataset did not contain a label. This lack of labelling makes the identifier unsuitable to use. See appendix XX for a full list of procedure types and the number of cases found per procedure type.

#### III. Single-judge or panel decision-making

The factor ‘Single-judge or panel decision-making’ is already used to operationalize the complexity of a case. How a relation is made between judges and cases is already described in section 2.A.IV. See appendix XX for descriptive statistics on this factor. I control for this variable by only selecting cases where the number of judges for each case is constant: 3.

#### IV. Legal area

Each case is supposed to pertain a specific legal area. The Netherlands Council of the Judiciary has a central list of possible legal areas (Raad voor de Rechtspraak, 2021a). The dataset already contained identifiers for specific areas. See appendix XX for a full list of legal areas and the number of cases found in that area.

#### V. Institution

Each case is supposed to be created by a specific institution. The Netherlands Council of the Judiciary has a central list of institutions that are allowed to create a verdict (Raad voor de Rechtspraak, 2021c). The dataset used already contained identifiers for specific institutions. See appendix XX for a full list of institutions and the number of cases found per institution.

#### VI. Outcome, punishment type and punishment height

The outcome of a verdict is coded binary; a defendant can be found guilty or found innocent. Outcomes of a case are not always this binary; in Dutch criminal law the indictment could be seen as proven, but not lead to any punishment (‘ontslagen van alle rechtsvervolging’). If that happens, the defendant is found as innocent.

For punishment type, for types are coded for: prison sentence, community service, a fine and ‘other’ (i.e. custody). In case multiple punishment types are given, we use the type that has a larger impact on the life of the defendant. That is determined in this order: (1) prison sentence & other custodial sentences, (2) community service, (3) fine, (4) other. Whether a punishment is conditional, is disregarded.

The punishment height is coded in three different ways, depending on the punishment type. This is done in the following way. The conditionality of the punishment height is disregarded.

1. For prison sentences, the number of days of the sentence is coded.
2. For community service, the number of hours in service is coded.
3. For fines, the height of the fine in euros is coded.

#### VII. Outcome of case in district court

1. [if time left, I’ll control for the outcome of the case in district court; this is a manual process and takes a lot of time. i.e. for 1.200 cases and 1 minute per case this takes 20 hours]

#### Conclusion

We went from a basic dataset to a more complex dataset by adding a number of control variables. Two of the seven factors from Holvast are operationalized and included in the dataset: experience and expertise, and the type and complexity of the case. I control for three other factors: the legal area, institution and whether the case is a single-judge or a panel making the decision. I control for these factors by keeping those factors constant in the sub-section of cases I analysed.

The table below contains the full set of variables used in this research paper.

|  |  |  |
| --- | --- | --- |
| **Variable** | **Type** | **Explanation** |
| Judge(s) related to the case | Categorical | The judge(s) related to the case, determined by whether they were mentioned in the verdict. |
| Judicial assistant(s) related to the case | Categorical | The judicial assistant(s) related to the case, determined by whether they were mentioned in the verdict. |
| Experience of most experienced judge in days | Ratio | The experience is calculated based on their first occurrence as a judge in the public judicial register. This is measured relative to the date of the verdict. |
| Average experience of all judges in days | Ratio | Idem as above, but then the average of all judges. This is measured relative to the date of the verdict. |
| Experience of judge | Categorical | Can either be low, medium or high. A judge is placed in a category in such a way that each category contains 1/3rd of the total no. of judges. |
| Experience of judicial assistant in days | Ratio | Measured based on the first occurrence of the judicial assistant in any verdict. This is measured relative to the date of the verdict. |
| Experience of judicial assistant | Categorical | Can either be low, medium or high. A judicial assistant is placed in a category in such a way that each category contains 1/3rd of the total no. of assistants. |
| Length of verdict | Ratio | The number of characters in the verdict. |
| References | Ratio | A number that contains the number of references to other verdicts. |
| Outcome | Boolean | Outcome can either be false (not guilty) or true (guilty). |
| Type of punishment | Categorical | Three types of punishments are coded for: prison, community service or a fine. A fourth category is available for ‘other’ punishment types. Mixed types are coded in the category of the primary type of punishment. |
| Punishment height | Ratio | Depending on the type of punishment, this either reflects: prison sentence in days, hours of community service or the height of the fine in euro’s. |

### D. How is influence of judicial assistants **operationalized**?

For my main research question, I check whether there is any influence of judicial assistants on the outcome of a verdict. The method for measuring this influence is taken from Šadl & Sankari (2016) who measured influence of Advocate Generals at the European Court of Justice. They measure *implicit influence* by taking into account a number of parameters, of which the advice of the AG and the actual outcome of the case are two. The theory is that an advice that corresponds with the outcome of the case means that the AG had influence; an advice and outcome that are not similar means that the court deviated from the advice of the AG and therefore did not have any influence.

In this paper, I do something similar. The theory to measuring influence is based on how well we can predict the outcome of a verdict based on a number of parameters. In this case, parameters are attributes of judicial assistants, judges and verdicts. I compare two statistical models, where the first model contains all variables to predict the outcome of a case (‘full model’), and the other model contains all variables excluding attributes related to the judicial assistant to predict the outcome of a case (‘partial model’). The difference is the influence a judicial assistant contributes to the outcome of a case.

Put in statistical terms, this is a likelihood ratio test. The ratio of the likelihoods of both models are compared. If the full model is not significantly better in predicting the outcome of a case than the partial model, then the (attributes of) a judicial assistant has no significant influence on the outcome of a verdict. Imagine we take experience of a judicial assistant, then the related hypotheses would be:

*H0*: The experience of a judicial assistant has no effect on the outcome of a verdict.  
*Ha*: The experience of a judicial assistant has an effect on the outcome of a verdict.

From this point onwards it is just mathematics. The result of a likelihood ratio test is a statistic. More specifically, it is -2 \* of the difference in the log-likehood function of both models. This statistic follows a chi-squared distribution. If our null hypothesis is correct, then the statistic should approximate 0. If the statistic deviates enough from 0, it means we can reject *H0* . In other words, the addition of the experience of judicial assistant significantly contributes to the model.

### E. Selecting a sub-population

The total dataset contains around 1.8 million verdicts. Instead of analysing the full dataset, and having to deal with a large amount of control variables for the different circumstances each institution, year and type of case has, I decided on choosing a subsection of cases that are very similar. Similarity should be seen in the broadest sense as possible. I chose verdicts that were similar on the following four attributes:

* **Time:** All verdicts are from cases that were concluded in 2019. Having cases be similar in time, prevents different legislating being applicable and affecting the verdict. When cases are judged on in the same year, they are – grosso modo – ruled on under the same legislation.
* **Institution:** I chose cases that were all from the Amsterdam Court of Appeal (*Gerechtshof Amsterdam*). Having consistency in institution is important, since different institutions could have different attitudes on the role of judicial assistants in the decision-making process. Holvast describes small cultural differences between district courts; for example some courts had a slightly more hierarchical relationship between judges and assistants or the career perspectives of judicial assistants varied per court (Holvast 2017, p. 182).
* **Legal Area:** The choice for a criminal law division was made on two ground. Pragmatism was the first reason; most cases were available for this legal area. Secondly, Holvast (2017, p. 183)describes that the role of judicial assistants in criminal law divisions could be – relatively to administrative courts – smaller. Finding an effect in a criminal law division, is therefore more easily generalizable to the entire population than finding an effect in a administrative law division.
* **Panels**: Idem to the previous explanation, pragmatism was an important reason to choose for panel cases instead of single-judge cases: more data was available. Also idem, Holvast (2017, p. 189) also describes assistants probably having less influence in panel cases than in single-judge cases. Finding an effect here, is more generalizable than finding an effect in single-judge cases.

The decision-making process for cases with specifically these attributes was mainly pragmatic of nature. That was the cross-section of cases that had these verdicts, was the largest. Had I taken cases from 2011, then the number of published cases would have been lower, lowering the accuracy of the research.

An important factor for specifically deciding for the Amsterdam Court of Appeal was that there were a – relatively – small amount of judges and judicial assistants, each tagged in a large amount of cases. If I had chosen for an institution with more people that were each tagged in a smaller amount of cases, there might have been more interaction effects that cannot be controlled for, lowering the accuracy of the research.

The final reason for choosing the criminal law section of the Amsterdam Court of Appeal was that a high ratio of cases from their section in 2019 was published. Approximately 75% of all cases from the criminal section that year was published, meaning that only 25% could not be included in the analysis. On average, 0.47% of all cases are published; 75% is a significant improvement over that. A higher publish ratio, means a better representation of the entire population. That is invaluable for doing a good analysis.

There is one important weakness to note. The qualitative research done by Holvast on the influence of judicial assistants was done in Dutch district courts. The Amsterdam Court of Appeal is not a district court. There are a two mitigating factors here to take into consideration:

1. Holvast concludes that the judicial assistance models in district courts and courts of appeal are rather similar (p. 49). More specifically, she states: “It is characteristic for judicial assistants in Dutch district courts and Courts of Appeal that they perform duties in all stages of the judicial process.”
2. The position and tasks of the judicial assistant in criminal procedures are codified in the Code of Criminal Procedure (*Wetboek van Strafvordering*). In that code, the position and tasks of the judicial assistant are listed; these are identical for courts of appeal and district courts.[[13]](#footnote-14)

By selecting cases only with these attributes, we reduce the dataset of 1.8 million verdicts to 1.200 verdicts. These verdicts are the subject of my analysis.

### F. Statistical methods

For the main research question, I will employ a likelihood ratio test. More elaboration on this test and the related hypotheses can be found in section 2.E. In this section I will elaborate on the statistical methods used to answer the four sub-research questions. Each statistical test used in this paper has α = 0.05. Each test is ran in SPSS.

#### I. Sub-research question: Do judges with more experience, work together more often with lesser experienced judicial assistants? And vice versa?

A chi-square test of independence (not to be confused with the chi-squared statistic from the likelihood ratio test used for the main question) is used to determine associations between categorical variables. In this test, we we have two categorical variables: the experience of the judge and and the experience of the judicial assistant. Both are coded as ‘low’, ‘medium’ and ‘high’. For this test, the hypotheses are:

*H0*: There is no relation between the experience of a judge and the experience of a judicial assistant.  
*Ha*: There is a relation between the experience of a judge and the experience of a judicial assistant.

The result of a chi-squared statistic should be compared to the corresponding chi-square distribution. If the result is higher, we can reject the null hypothesis. In this case, that would mean there is a relationship between the experience of a judge and the experience of a judicial assistant.

#### II. **Sub-**research question: **Is there a relation between the outcome of the verdict, the experience of the judge and the experience of the judicial assistant?**

In the previous question we determined associations between two categorical variables. In this case, we compare three categorical variables: the outcome of the verdict, and the experience of both the judge and the judicial assistant. We need a more complicated statistic: the Cochran-Mantel-Haenszel test.[[14]](#footnote-15) For this test, we want to control for the experience of the judge. The outcome of the test is similar to the chi-square test of independence, as are the hypotheses. Important to note when using a Cochran-Mantel-Haenszel test is that each subsection of our data contains enough entries; that is the case with this dataset.

*H0*: For each level of experience of a judge an judicial assistant is paired with, there is no relation between the experience of the judicial assistant and the outcome of a verdict.  
*Ha*: For at least one level of experience of a judge an judicial assistant is paired with, there is a relation between the experience of the judicial assistant and the outcome of a verdict.

#### III. Sub-research question: Is there a relation between the type of punishment, the experience of the judge and the experience of the judicial assistant?

1. The test used to answer this question is identical to the test used in the previous question. The difference is that the outcome of the verdict is coded with different values than ‘innocent’ or ‘guilty’, but in terms of the type of punishment. See section 2.C. for the operationalization of this variable. Secondly, this test is only ran on a subset of the original dataset: the subset in which the defendant was found guilty (add percentage after recoding punishment size).
2. *H0*: For each level of experience of a judge an judicial assistant is paired with, there is no relation between the experience of the judicial assistant and the type of punishment issued.  
   *H0*: For at least one level of experience of a judge an judicial assistant is paired with, there is a relation between the experience of the judicial assistant and the type of punishment issued.

#### IV. Sub-research question: Is there a relation between the height of punishment, the experience of the judge and the experience of the judicial assistant?

1. Instead of the categorical operationalization of the experience of judges and judicial assistants, we use the ratio operationalization (experience in days) for this test. We use a linear regression to determine the relationship between the height of the punishment (in days), the experience of the judge and the experience of the judicial assistant. While the previous tests can only say something about the statistical significance of the relation between two categories, this test can also say something about the size of the effect of the relationship.

Theoretically speaking, we do not expect a linear relation (or any type of relation) between the height of punishment and the experience of the people involved. While I could test for other types of relations than linear, theses types of relationships have no basis in previous literature or any theory.[[15]](#footnote-16) Therefore, I am modelling a linear relationship.

Practically, the model will look like:

*y = b0 + b1X1 + b2X2 + b3X3 + b4X4 + b5X5 + e*

where

y height of punishment

b0  intercept of slope

b1X1 experience of the judge

b2X2 experience of the judicial assistant

b3X3 length of the verdict

b4X4 reference of the verdict

e random error

Theoretically speaking, we would expect b1 and b2 to not contribute to the predictive power of the model, while b3 and b4 could contribute to the predictive power of the model. A higher punishment is expected to be accompanied with a more longer and more complex verdict.

### G. Summary of methodology

In summary, the object of analysis are verdicts, judges and judicial assistants, From a dataset of around 1.8 million cases from 2010 to 2020, I distilled around 1.200 cases that were highly similar in four properties: time, institution, legal area and the no. of judges involved. Keeping those properties similar, means we do not need to separately control for these properties.

This dataset contains the outcome of the case, the related judges, their experiences, the related judicial assistant, their experience, and the complexity of the judgement. Each case is identified through an ECLI. Our dependent variable is the outcome of the case; the other variables are independent.

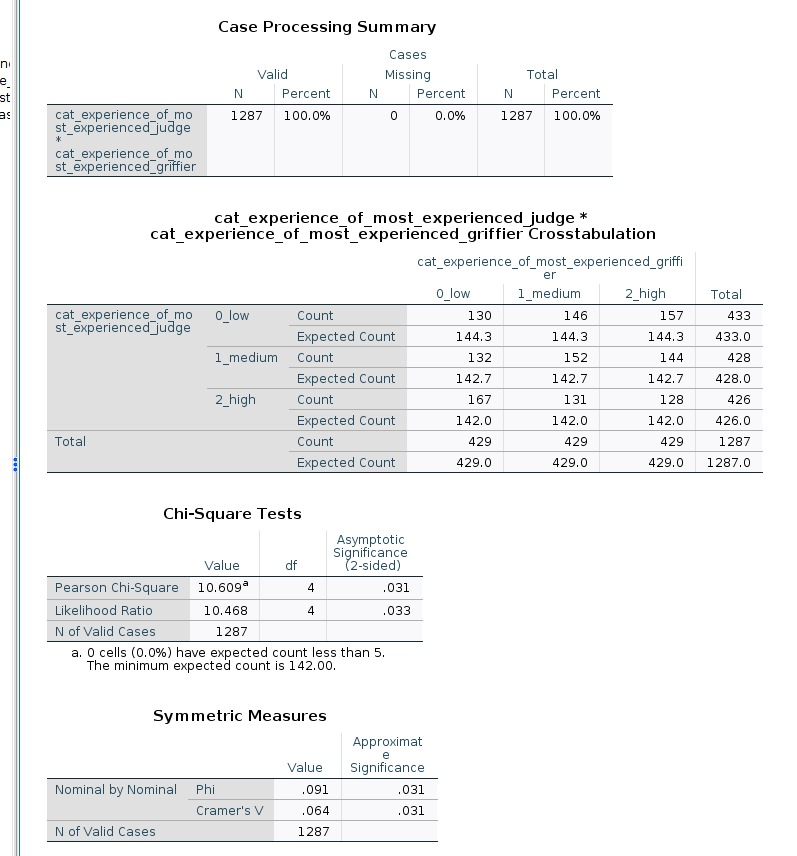
We run various statistical tests on the dataset, starting with a likelihood ratio test to see whether the experience of judicial assistants influence the outcome of a verdict. We then run various tests for categorical variables to find associations between the experience of judges, experience of judicial assistants, punishment types and the outcome of the verdict. We finally use a linear regression to test for a relation between the height of punishment, the experience of the judge and the experience of the judicial assistant.

## 3. Analysis & results

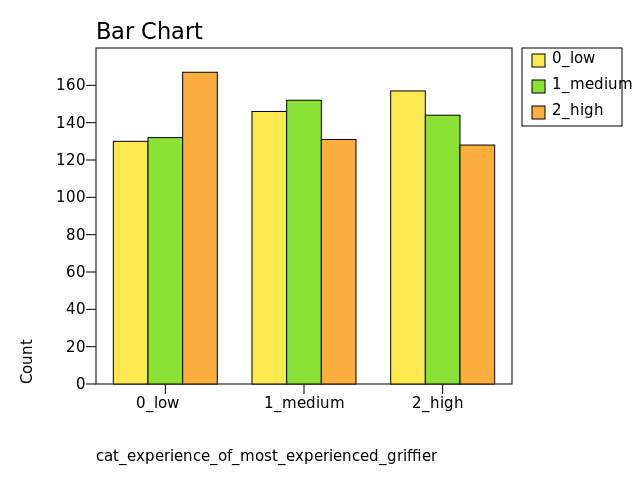
### A. Main research question

wait for recode of punishment size

### B. Do judges with more experience, work together more often with lesser experienced judicial assistants? And vice versa?

A chi-square test of independence is used to measure this. All assumptions for this test are met (all cells have expected counts of 5). The null hypothesis can be rejected (*p* = 0.031). This means that there is an association between the experience of the judge and the experience of the judicial assistants.

When we further research this association, we can see that especially judicial assistants with low experience collaborate with judges that have a high amount of experience, and vice versa. Intuitively, this makes sense. Starters are often paired with seniors within an organisation; seniors learn starters the rope of the work.

 [change charts/tables to APA format]

### C. Is there a relation between the outcome of the verdict, the experience of the judge and the experience of the judicial assistant?

wait for recode of punishment size

### D. Is there a relation between the type of punishment, the experience of the judge and the experience of the judicial assistant?

wait for recode of punishment size

### E. Is there a relation between the height of punishment, the experience of the judge and the experience of the judicial assistant?

wait for recode of punishment size

## 4. Discussion & **options** for further research

In the last chapter I discuss the findings of this paper in the broader context of previous research. I also discuss options for further research, and conclude with a reflection on using quantitative methods in legal research.

### A. Implications of this research

sss

### **B. Problems of this research**

methodological weaknesses:

→ only gerechtshof, could be different for other institutions

→ only panel, could be different for single jduge

→ experience of judicial assistant measured by first occurance instead of CV check or smth

Adding quality of verdict as a control variable. Opens up further research to connect quality of verdict to judges and judicial assistants. There are qualitative models (i.e. <http://epistemo.nl/blog/wp-content/uploads/2016/06/Grip-op-kwaliteit.pdf> ) but no quantitative models. One possible model would be to see whether a case holds in a higher court. But quite tricky.

→ not controlled for circumstances of the case; i.e. we could control for attributes of the defendant (but no data available)

### C. A further note on data accessibility problems

critical note on availability of verdicts; afterwards rewrite to blog for NJR/Ars Aequi in Dutch

### D. Further research options

- encompassing more cases, i.e. in another legal area or institution

- institutional comparisons for the same legal area

- more specific legal area (i.e. only alcohol cases or traffic infractions)

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## Appendices

### Appendix **I**: descriptive statistics legal areas

A full list of legal areas can be found at: Raad voor de Rechtspraak (2021b).

|  |  |  |
| --- | --- | --- |
| **Legal area identifier** | **Amount of cases** | **% of total** |
| http://psi.rechtspraak.nl/rechtsgebied#civielRecht | 379732 | 20.83% |
| http://psi.rechtspraak.nl/rechtsgebied#bestuursrecht | 308495 | 16.92% |
| http://psi.rechtspraak.nl/rechtsgebied#civielRecht\_personenEnFamilierecht | 272204 | 14.93% |
| http://psi.rechtspraak.nl/rechtsgebied#strafrecht | 268867 | 14.75% |
| http://psi.rechtspraak.nl/rechtsgebied#bestuursrecht\_vreemdelingenrecht | 193568 | 10.62% |
| http://psi.rechtspraak.nl/rechtsgebied#bestuursrecht\_belastingrecht | 113486 | 6.22% |
| http://psi.rechtspraak.nl/rechtsgebied#bestuursrecht\_socialezekerheidsrecht | 84982 | 4.66% |
| None | 74361 | 4.08% |
| http://psi.rechtspraak.nl/rechtsgebied#bestuursrecht\_bestuursprocesrecht | 24693 | 1.35% |
| http://psi.rechtspraak.nl/rechtsgebied#civielRecht\_verbintenissenrecht | 20738 | 1.14% |
| http://psi.rechtspraak.nl/rechtsgebied#civielRecht\_burgerlijkProcesrecht | 19569 | 1.07% |
| http://psi.rechtspraak.nl/rechtsgebied#bestuursrecht\_omgevingsrecht | 13656 | 0.75% |
| http://psi.rechtspraak.nl/rechtsgebied#bestuursrecht\_ambtenarenrecht | 10687 | 0.59% |
| http://psi.rechtspraak.nl/rechtsgebied#strafrecht\_strafprocesrecht | 8285 | 0.45% |
| http://psi.rechtspraak.nl/rechtsgebied#strafrecht\_materieelStrafrecht | 7998 | 0.44% |
| http://psi.rechtspraak.nl/rechtsgebied#civielRecht\_arbeidsrecht | 7221 | 0.40% |
| http://psi.rechtspraak.nl/rechtsgebied#civielRecht\_insolventierecht | 5394 | 0.30% |
| http://psi.rechtspraak.nl/rechtsgebied#civielRecht\_ondernemingsrecht | 2347 | 0.13% |
| http://psi.rechtspraak.nl/rechtsgebied#bestuursrecht\_bestuursstrafrecht | 1155 | 0.06% |
| http://psi.rechtspraak.nl/rechtsgebied#civielRecht\_intellectueeleigendomsrecht | 1129 | 0.06% |
| http://psi.rechtspraak.nl/rechtsgebied#strafrecht\_europeesStrafrecht | 902 | 0.05% |
| http://psi.rechtspraak.nl/rechtsgebied#civielRecht\_goederenrecht | 726 | 0.04% |
| http://psi.rechtspraak.nl/rechtsgebied#bestuursrecht\_europeesBestuursrecht | 700 | 0.04% |
| http://psi.rechtspraak.nl/rechtsgebied#internationaalPubliekrecht | 560 | 0.03% |
| http://psi.rechtspraak.nl/rechtsgebied#civielRecht\_aanbestedingsrecht | 530 | 0.03% |
| http://psi.rechtspraak.nl/rechtsgebied#strafrecht\_internationaalStrafrecht | 483 | 0.03% |
| http://psi.rechtspraak.nl/rechtsgebied#civielRecht\_internationaalPrivaatrecht | 320 | 0.02% |
| http://psi.rechtspraak.nl/rechtsgebied#strafrecht\_penitentiairStrafrecht | 229 | 0.01% |
| http://psi.rechtspraak.nl/rechtsgebied#civielRecht\_europeesCivielRecht | 164 | 0.01% |
| http://psi.rechtspraak.nl/rechtsgebied#bestuursrecht\_mededingingsrecht | 90 | 0.00% |
| http://psi.rechtspraak.nl/rechtsgebied#civielRecht\_mededingingsrecht | 50 | 0.00% |
| http://psi.rechtspraak.nl/rechtsgebied#internationaalPubliekrecht\_volkenrecht | 2 | 0.00% |
| **Total** | **1823323** | **100%** |

### Appendix II: descriptive statistics institutions

A full list of institutions can be found at: Raad voor de Rechtspraak (2021c).

|  |  |  |
| --- | --- | --- |
| **Institution identifier** | **Amount of cases** | **% of total** |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Den\_Haag | 133384 | 7.32% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Rotterdam | 119437 | 6.55% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Amsterdam | 112361 | 6.16% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_s-Gravenhage | 107399 | 5.89% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Noord-Holland | 98474 | 5.40% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Limburg | 95532 | 5.24% |
| http://standaarden.overheid.nl/owms/terms/Gerechtshof\_Arnhem-Leeuwarden | 88182 | 4.84% |
| http://standaarden.overheid.nl/owms/terms/Gerechtshof\_'s-Hertogenbosch | 68613 | 3.76% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Zeeland-West-Brabant | 68475 | 3.76% |
| http://standaarden.overheid.nl/owms/terms/Raad\_van\_State | 64567 | 3.54% |
| http://standaarden.overheid.nl/owms/terms/Gerechtshof\_Amsterdam | 62582 | 3.43% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Midden-Nederland | 60488 | 3.32% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Oost-Brabant | 60288 | 3.31% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Gelderland | 56605 | 3.10% |
| http://standaarden.overheid.nl/owms/terms/Centrale\_Raad\_van\_Beroep | 52087 | 2.86% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Noord-Nederland | 49684 | 2.72% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Overijssel | 44302 | 2.43% |
| http://standaarden.overheid.nl/owms/terms/Hoge\_Raad\_der\_Nederlanden | 38652 | 2.12% |
| http://standaarden.overheid.nl/owms/terms/Gerechtshof\_Den\_Haag | 34003 | 1.86% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_'s-Hertogenbosch | 32071 | 1.76% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Roermond | 31402 | 1.72% |
| http://standaarden.overheid.nl/owms/terms/Parket\_bij\_de\_Hoge\_Raad | 26679 | 1.46% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Utrecht | 23775 | 1.30% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Haarlem | 23423 | 1.28% |
| http://standaarden.overheid.nl/owms/terms/Gerechtshof\_'s-Gravenhage | 22482 | 1.23% |
| http://standaarden.overheid.nl/owms/terms/Gerechtshof\_Leeuwarden | 21744 | 1.19% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Breda | 19766 | 1.08% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Maastricht | 19271 | 1.06% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Alkmaar | 19118 | 1.05% |
| None | 18091 | 0.99% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Arnhem | 16034 | 0.88% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Middelburg | 15741 | 0.86% |
| http://standaarden.overheid.nl/owms/terms/Gerechtshof\_Arnhem | 14243 | 0.78% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Zutphen | 11425 | 0.63% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Leeuwarden | 10933 | 0.60% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Groningen | 10725 | 0.59% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Zwolle-Lelystad | 8273 | 0.45% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Assen | 8234 | 0.45% |
| http://standaarden.overheid.nl/owms/terms/College\_van\_Beroep\_voor\_het\_bedrijfsleven | 6427 | 0.35% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Dordrecht | 6287 | 0.34% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Almelo | 5346 | 0.29% |
| http://standaarden.overheid.nl/owms/terms/Rechtbank\_Oost-Nederland | 3865 | 0.21% |
| http://standaarden.overheid.nl/owms/terms/tgzctg | 3515 | 0.19% |
| http://standaarden.overheid.nl/owms/terms/tadrams | 3309 | 0.18% |
| http://standaarden.overheid.nl/owms/terms/tahvd | 3063 | 0.17% |
| http://standaarden.overheid.nl/owms/terms/tadrsgr | 3034 | 0.17% |
| http://standaarden.overheid.nl/owms/terms/tadrshe | 2507 | 0.14% |
| http://standaarden.overheid.nl/owms/terms/tadrarl | 2293 | 0.13% |
| http://standaarden.overheid.nl/owms/terms/tgdkg | 2140 | 0.12% |
| http://standaarden.overheid.nl/owms/terms/tgzrsgr | 1726 | 0.09% |
| http://standaarden.overheid.nl/owms/terms/tgzrzwo | 1717 | 0.09% |
| http://standaarden.overheid.nl/owms/terms/tgzrams | 1515 | 0.08% |
| http://standaarden.overheid.nl/owms/terms/tgzrein | 1295 | 0.07% |
| http://standaarden.overheid.nl/owms/terms/tacakn | 1174 | 0.06% |
| http://standaarden.overheid.nl/owms/terms/tadrarn | 979 | 0.05% |
| http://standaarden.overheid.nl/owms/terms/tdivtc | 751 | 0.04% |
| http://standaarden.overheid.nl/owms/terms/Gerecht\_in\_Ambtenarenzaken\_van\_Aruba\_Curacao\_Sint\_Maarten\_en\_van\_Bonaire\_Sint\_Eustatius\_en\_Saba | 626 | 0.03% |
| http://standaarden.overheid.nl/owms/terms/tgzrgro | 578 | 0.03% |
| http://standaarden.overheid.nl/owms/terms/tnorarl | 492 | 0.03% |
| http://standaarden.overheid.nl/owms/terms/tnorshe | 231 | 0.01% |
| http://standaarden.overheid.nl/owms/terms/tnordha | 229 | 0.01% |
| http://standaarden.overheid.nl/owms/terms/tnorams | 218 | 0.01% |
| http://standaarden.overheid.nl/owms/terms/tpetpve | 192 | 0.01% |
| http://standaarden.overheid.nl/owms/terms/Raad\_van\_Beroep\_voor\_Belastingzaken\_van\_Aruba\_Curacao\_Sint\_Maarten\_en\_van\_Bonaire\_Sint\_Eustatius\_en\_Saba | 161 | 0.01% |
| http://standaarden.overheid.nl/owms/terms/tadrlee | 148 | 0.01% |
| http://standaarden.overheid.nl/owms/terms/tdivbc | 148 | 0.01% |
| http://standaarden.overheid.nl/owms/terms/tnokams | 116 | 0.01% |
| http://standaarden.overheid.nl/owms/terms/tnokarn | 102 | 0.01% |
| http://standaarden.overheid.nl/owms/terms/Raad\_van\_Beroep\_in\_Ambtenarenzaken\_van\_Aruba\_Curacao\_Sint\_Maarten\_en\_van\_Bonaire\_Sint\_Eustatius\_en\_Saba | 95 | 0.01% |
| http://standaarden.overheid.nl/owms/terms/tvvtpvv | 94 | 0.01% |
| http://standaarden.overheid.nl/owms/terms/tnokshe | 89 | 0.00% |
| http://standaarden.overheid.nl/owms/terms/tnoksgr | 65 | 0.00% |
| http://standaarden.overheid.nl/owms/terms/tnokrot | 55 | 0.00% |
| http://standaarden.overheid.nl/owms/terms/tnoklee | 36 | 0.00% |
| http://standaarden.overheid.nl/owms/terms/tnokalm | 34 | 0.00% |
| http://standaarden.overheid.nl/owms/terms/tnokass | 27 | 0.00% |
| http://standaarden.overheid.nl/owms/terms/tnokbre | 26 | 0.00% |
| http://standaarden.overheid.nl/owms/terms/tnokzut | 16 | 0.00% |
| http://standaarden.overheid.nl/owms/terms/tnokroe | 13 | 0.00% |
| http://standaarden.overheid.nl/owms/terms/tnokdor | 9 | 0.00% |
| http://standaarden.overheid.nl/owms/terms/taktpa | 8 | 0.00% |
| http://standaarden.overheid.nl/owms/terms/tnokmaa | 8 | 0.00% |
| http://standaarden.overheid.nl/owms/terms/tnokmid | 8 | 0.00% |
| http://standaarden.overheid.nl/owms/terms/tscts | 7 | 0.00% |
| http://standaarden.overheid.nl/owms/terms/tnokalk | 3 | 0.00% |
| http://standaarden.overheid.nl/owms/terms/tnokhaa | 1 | 0.00% |
| **Total** | **1823323** | **100%** |

### Appendix III: descriptive statistics procedure types

A full list of procedure types can be found at: Raad voor de Rechtspraak (2021a).

|  |  |  |
| --- | --- | --- |
| **Institution identifier** | **Amount of cases** | **% of total** |
| None | 1437061 | 78.82% |
| http://psi.rechtspraak.nl/procedure#hogerBeroep | 146866 | 8.05% |
| http://psi.rechtspraak.nl/procedure#eersteAanlegEnkelvoudig | 74308 | 4.08% |
| http://psi.rechtspraak.nl/procedure#eersteAanlegMeervoudig | 70642 | 3.87% |
| http://psi.rechtspraak.nl/procedure#cassatie | 30217 | 1.66% |
| http://psi.rechtspraak.nl/procedure#kortGeding | 11751 | 0.64% |
| http://psi.rechtspraak.nl/procedure#voorlopigeVoorziening | 10828 | 0.59% |
| http://psi.rechtspraak.nl/procedure#artikel81ROzaken | 6941 | 0.38% |
| http://psi.rechtspraak.nl/procedure#bodemzaak | 6538 | 0.36% |
| http://psi.rechtspraak.nl/procedure#beschikking | 5757 | 0.32% |
| http://psi.rechtspraak.nl/procedure#wraking | 3681 | 0.20% |
| http://psi.rechtspraak.nl/procedure#hogerBeroepKortGeding | 2736 | 0.15% |
| http://psi.rechtspraak.nl/procedure#voorlopigeVoorzieningbodemzaak | 2323 | 0.13% |
| http://psi.rechtspraak.nl/procedure#opTegenspraak | 2150 | 0.12% |
| http://psi.rechtspraak.nl/procedure#tussenuitspraakBestuurlijkeLus | 1543 | 0.08% |
| http://psi.rechtspraak.nl/procedure#raadkamer | 1447 | 0.08% |
| http://psi.rechtspraak.nl/procedure#rekestprocedure | 1395 | 0.08% |
| http://psi.rechtspraak.nl/procedure#eersteEnEnigeAanleg | 1107 | 0.06% |
| http://psi.rechtspraak.nl/procedure#herziening | 1090 | 0.06% |
| http://psi.rechtspraak.nl/procedure#verzet | 989 | 0.05% |
| http://psi.rechtspraak.nl/procedure#mondelingeUitspraak | 892 | 0.05% |
| http://psi.rechtspraak.nl/procedure#prejudicieelVerzoek | 733 | 0.04% |
| http://psi.rechtspraak.nl/procedure#tussenuitspraak | 570 | 0.03% |
| http://psi.rechtspraak.nl/procedure#verwijzingNaHogeRaad | 329 | 0.02% |
| http://psi.rechtspraak.nl/procedure#vereenvoudigdeBehandeling | 285 | 0.02% |
| http://psi.rechtspraak.nl/procedure#procesverbaal | 272 | 0.01% |
| http://psi.rechtspraak.nl/procedure#tussenbeschikking | 206 | 0.01% |
| http://psi.rechtspraak.nl/procedure#proceskostenveroordeling | 166 | 0.01% |
| http://psi.rechtspraak.nl/procedure#schadevergoedingsuitspraak | 110 | 0.01% |
| http://psi.rechtspraak.nl/procedure#verstek | 83 | 0.00% |
| http://psi.rechtspraak.nl/procedure#prejudicieleBeslissing | 80 | 0.00% |
| http://psi.rechtspraak.nl/procedure#conservatoireMaatregel | 51 | 0.00% |
| http://psi.rechtspraak.nl/procedure#cassatieInHetBelangDerWet | 43 | 0.00% |
| http://psi.rechtspraak.nl/procedure#geheimhoudingsbeslissing | 39 | 0.00% |
| http://psi.rechtspraak.nl/procedure#verschoning | 24 | 0.00% |
| http://psi.rechtspraak.nl/procedure#herroeping | 22 | 0.00% |
| http://psi.rechtspraak.nl/procedure#artikel80aROzaken | 15 | 0.00% |
| http://psi.rechtspraak.nl/procedure#uitspraakNaPrejudicieleBeslissing | 14 | 0.00% |
| http://psi.rechtspraak.nl/procedure#versneldeBehandeling | 9 | 0.00% |
| http://psi.rechtspraak.nl/procedure#NCC | 7 | 0.00% |
| http://psi.rechtspraak.nl/procedure#belemmeringenwetPrivaatrecht | 2 | 0.00% |
| http://psi.rechtspraak.nl/procedure#peek | 1 | 0.00% |
| **Total** | **1823323** | **100%** |

### Appendix IV: descriptive statistics on single-judge or multi-judge panels

|  |  |  |
| --- | --- | --- |
| **Panel type** | **Amount of cases** | **% of total** |
| Single (1 judge) | 132133 | 7.25% |
| Multi (3 or 5 judges) | 182605 | 10.01% |
| Unknown | 1508585 | 82.74% |
| **Total** | **1823323** | **100%** |

1. I.e. see <https://www.raadvanstate.nl/werkenbij/bestuursrechtspraak/klaar-start/>, <https://m.facebook.com/Rechtspraak/photos/a.325986370873530/1430467350425421> and <https://www.rechtspraak.nl/Organisatie-en-contact/Organisatie/Gerechtshoven/Gerechtshof-Den-Haag/Nieuws/Paginas/Even-voorstellen-een-juridisch-medewerker-familierecht.aspx>. [↑](#footnote-ref-2)
2. i.e. see the recent Law on the Rights of Victims (*Wet uitbreiding slachtofferrechten*) that was passed by the Dutch parliament. [↑](#footnote-ref-3)
3. The judge makes a decision. External in this context means someone that does not have the same responsibility. [↑](#footnote-ref-4)
4. See J.R.R. Tolkien’s Lord of the Rings. [↑](#footnote-ref-5)
5. ECLI:NL:RBDHA:2016:15014 [↑](#footnote-ref-6)
6. Replicable and reproducible should be seen as synonyms in this context. [↑](#footnote-ref-7)
7. Holvast her research question is: “In what ways are judicial assistants involved in the judicial decision-making process, and what consequences does their involvement have for the manner in which adjudication take place?” [↑](#footnote-ref-8)
8. Also from a non-academic point of view, it is a shame that the Council of the Judiciary does not publish all verdicts online. Trust in the judiciary is hurt by publishing only a small amount of verdicts. The constitution dates from a time where not everyone could read, and the internet was not yet a thing. This clause – desperately – needs an update to the 21st century. [↑](#footnote-ref-9)
9. <https://www.rechtspraak.nl/Uitspraken/paginas/open-data.aspx> [↑](#footnote-ref-10)
10. A list of judges was compiled on February 21, which is used throughout this research paper. [↑](#footnote-ref-11)
11. Cases from these eight judges were removed from the dataset: A. de Boer, J.B. Smits, L. Stevens and S.M. de Bruijn. [↑](#footnote-ref-12)
12. Each case in the Netherlands has 1, 3 or 5 judges. There are no cases with an uneven amount of judges. Cases in which more than 5 names were recognized generally occurred in three different contexts: (1) a conclusion from the Advocate General contained names from judges in lower cases, (2) cases where the integrity of the judge was challenged (‘*wraking*’), and (3) cases where a judicial assistant had the same name of a person that was on the central list of judges (which could be a coincidence or a judicial assistant becoming a judge). Cases where only 2 or 4 judges were recognized were not discarded; this happened because the central list of judges which could be recognized did not contain judges that already retired (see 2.A.II). [↑](#footnote-ref-13)
13. See articles 25, 171, 172, 409 and 420. [↑](#footnote-ref-14)
14. You might think: why do you not run three chi-square tests of independence for each subsection of your data? That’s what the Cochran-Mantel-Haenszel test – in laymen's terms – is. [↑](#footnote-ref-15)
15. For example, a quadratic relationship between experience and height of punishment means that (assuming a negative quadratic relationship) with very little experience the height of punishment would be low, with moderate experience the height of punishment would be at its height, and with a lot of experience the height of punishment would be low again. [↑](#footnote-ref-16)