



Judicial compliance in district courts[☆]

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ABSTRACT

Are judges motivated only by policy preferences? Public enforcement of law relies on the use of public agents, such as judges, to follow the law. We use the random assignment of U.S. Federal judges setting geographically-local precedent to document the causal impact of court decisions in a hierarchical legal system. We examine lower court cases filed before and resolved after higher court decisions and find that lower courts are 29%–37% points more likely to rule in the manner of the higher court. The results obtain when the higher court case was decided in the same doctrinal area as the pending case and when the higher court case was decided on the merits. Reversals by the higher court have no significant effects. These results provide evidence that judges are motivated to follow the law and are not solely motivated by policy preferences.

1. Introduction

In recent decades, economists (Miceli and Coşgel, 1994), judges (Posner, 1993), and political scientists (Segal and Spaeth, 1993; Spaeth and Segal, 2001) have speculated on the drivers of judges' decisions. We investigate whether judges follow the law and if so, why, in the context of the U.S. Federal Courts, where judges have life-tenure and fixed salaries and where tasks are randomly assigned.

The decision-making powers of public agents can have large impacts, yet their pecuniary rewards are only weakly incentivized by design (Epstein et al., 2013). Classical conceptions of judge behavior suggest that following the law is the main driver of judges' decisions. But a large empirical literature has documented the seeming importance of ideology, uncovering consistent differences in the way judges decide cases, particularly along political lines (Segal and Spaeth, 1993; Sunstein et al., 2006). While this is often interpreted as a “preferentialist” conception of legal decision-making (i.e., judges make decisions to achieve policy outcomes rather than to follow the law), one can argue for alternate interpretations: judges might be following what they perceive to be “the law”, even if differences in their legal philosophies lead them to consistently decide cases differently. For instance, a judge can derive from first principles an adherence to a strict interpretation of the Constitution, while not necessarily hewing to the consequentialist preferences of a political party for a certain policy outcome. Attempts to document the influence of “legal” factors such as the creation of precedent or changes in statutory law on judges' decisions have

remained scarce (Spaeth and Segal, 2001; Cross, 2005; Gilbert, 2011; Fischman, 2015; Helland, 2019; Niblett et al., 2010; Niblett, 2013) and are difficult for several reasons. We propose and implement a methodology that provides clean evidence that judges are motivated to follow the law and are not solely motivated by policy preferences.

The great econometric challenge behind knowing whether judges follow the law is at least five-pronged. In a seminal contribution, Priest and Klein (1984) first pointed out that plaintiffs and defendants bargain under the shadow of the law, so the plaintiff win rate reveals no information about the underlying strength of precedent. This insight effectively ended a research agenda that correlated real outcomes with measures of law to infer the real effects of laws. Second, as all law students are taught, there is extensive cross-fertilization of legal doctrine between different areas of law via analogies. *Roe v. Wade* extended the right of privacy under the 14th Amendment's Due Process Clause, which was previously interpreted as precluding government interference in *freedom of contract*, but *Roe v. Wade* interpreted Due Process as precluding government interference in a *woman's decision to have an abortion*. With cross-fertilization, real outcomes may be misattributed to one legal rule when many legal rules are changing simultaneously. The conventional approach would be to control for other legal rules, but it is practically infeasible to code—much less select—all the possible related doctrinal areas. Third, in another seminal contribution, Besley and Case (2000) cautioned against causal interpretation of correlations between real outcomes and laws because constituents can influence policies. This concern is a particularly trenchant for court cases (Klarman, 2005),

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because the legal doctrine often instructs judges to take account of community standards, i.e., norms, so it will be difficult to distinguish between laws causing economic changes and economic changes causing laws. They may even take into account the potential consequences of their decisions—at least some judges on both the left (Breyer, 2006) and right (Posner, 1998) do—which can bias the correlation between future outcomes and today’s decisions if they desire similar consequences while sitting on other cases. We overcome these three challenges with random variation in legal precedent using biographical characteristics of judges: We cannot ask judges to randomize their decisions in the interest of legal science, but the judges themselves are randomly assigned and their background correlates with the way they decide, effectively creating a clinical trial that randomizes jurisprudence.

The fourth challenge in measuring the effects of legal precedent on judicial decisions is the selection of litigation under the shadow of the law *after* a precedent has been issued. Recent theoretical models view courts as continually shifting the legal standard (Gennaioli and Shleifer, 2007). In deciding issues of law, common law courts provide new interpretations of or distinctions within pre-existing precedents or statutes. These new distinctions expand or contract the space under which an actor is found liable. Under these theoretical models, plaintiff win rates imply increasingly favorable laws for the plaintiff. However, under (Priest and Klein, 1984), defendants should be more likely to settle in response. Thus, judges decide on different types of cases before and after a legal precedent, making it challenging to have clean evidence of the effect of law on judicial decision-making. We overcome the fourth challenge by examining the impact of higher court case resolutions on pending lower court cases in the jurisdiction of the higher courts.

The fifth challenge is to find an area of law that occurs with high frequency in both the higher and lower courts and where all lower court filings are observed. Fortunately, the centrality of piercing the corporate veil in U.S. business law allows such an analysis. Piercing the corporate veil has been dubbed the “most litigated issue in corporate law” (Thompson, 1991). It is a legal remedy allowing a creditor of a corporation to hold its shareholders liable for the debt of the corporation. We have obtained all filings where plaintiffs attempt to pierce the corporate veil in the Federal Courts. We investigate the impact of Circuit Court judgments on the decisions of District Court judges and litigants in ongoing proceedings before the District Courts. By linking corporate veil piercing pleadings before the U.S. District Courts with administrative data on District case outcomes and all Circuit Court cases decided while the case was pending, we can examine cases that were initiated before a Circuit decision but were decided after a Circuit decision to control for selection into litigation.

We collect and assemble unique data: piercing the corporate veil decisions in U.S. Circuit Courts, District Court pleadings (using the Westlaw pleadings database), and the Administrative Office of the U.S. Courts Civil Terminations (AOC) database, which contains information on every case litigated before the U.S. Federal District Courts. This allows us to construct a database of District Court decisions that were filed before, but decided after the appellate decisions were submitted, thereby holding constant the case sample and eliminating any effect of the selection of cases for litigation (Hubbard, 2013). We further solve the issues of reverse causality and omitted variables by instrumenting for the direction of the resolution of the appellate cases using the random assignment of appellate judges. Moreover, the richness of the AOC database allows us to examine the impact of appellate court decisions on the duration of District Court cases. Particularly, it allows us to investigate whether litigants, incorporating the new judicial standard in deciding which litigated cases to bring to trial, are more likely to settle a case after a Circuit Court judgment.

We find a strong relationship between Circuit Court decisions and ensuing District Court decisions. After Circuit Court decisions voting to pierce, District Courts are 29%–37% points more likely to pierce. The effect is observed in the raw data and with the instrumental variables

strategy. The effects are due to Circuit decisions litigated in the same area of law as the pending District case and when the Circuit decision reached a judgment on the merits. We observe no increase in settlement after Circuit decisions, suggesting that litigants, a large part of whose litigation costs have already been sunk, are not settling in response to the new decision standard. This suggests that the behavioral changes are due to the judges themselves. Finally, we observe no significant impact of Circuit Court reversals separate from the precedent itself, suggesting that reversal aversion is not the main driver. These results are inconsistent with a purely realist view of judicial decision-making where judges are only motivated by policy preferences.

The remainder of this paper is structured as follows: Section 2 contains information on the institutional background of the U.S. Federal Courts system, piercing the corporate veil, and describes the data. Section 3 presents the empirical strategy. Section 4 discusses the results as well as their implications. Section 5 concludes.

2. Research design

2.1. U.S. Federal Courts

This study investigates the behavior of judges in the U.S. Federal Court system. Our identification strategy relies on a number of specific features of this system in order to infer the causal relationship between judgments at different courts. Therefore, we explain in some depth the institutional features against which this study is set. The role of judges in a common law system consists not only of applying the law, but also making the law through the setting of binding precedent. Precedent created by the Supreme Court is legally binding for all Federal Courts. Similarly, precedent created by a Circuit Court is legally binding for future decisions of the same court and lower courts (most importantly, the District Courts) in the same Circuit.

The U.S. Federal Courts system consists of three levels, with the Supreme Court as its highest court, the Circuit Courts as intermediate courts, and the District Courts as trial courts. The system also features a number of judicial bodies with jurisdiction over special subject matters, for example, the bankruptcy courts that exist in each District. In the judicial hierarchy, the bankruptcy courts are placed below the District Courts. Generally, the jurisdictional boundaries are geographical, with each of the 94 District Courts hearing cases related to its District, and the 12 Circuit Courts hearing appeals against the decisions of the District Courts located in their Circuits. Fig. 1 shows the geographical boundaries of Circuits and Districts.

District Courts act as trial courts for most cases that are brought before the Federal Courts. As trial courts, their task consists of both establishing the facts of the case and applying the law to the facts. Furthermore, they hear appeals against decisions of those judicial bodies that are placed below them in the judicial hierarchy, e.g., the bankruptcy courts. Overall, District Courts hear hundreds of thousands of cases each year. For example, in 2000, more than 250,000 cases were brought before the District Courts. Between 10 to 20% of these are appealed to the Circuit Courts.

Decisions by the District Courts are subject to appeal to the Circuit Courts. Circuit Courts operate under a system of mandatory review. This means they must hear all appeals from the lower courts. Unlike the District Courts, Circuit Courts will normally refrain from reassessing the factual side of the case. Instead, Circuit Courts review questions of law. If the Circuit Court finds a mistake by the District Court, the Circuit Court will normally reverse the decision of the District Court, and remand the case to the District Court.¹ Then, the District Court is obliged to retry the case, or proceed with it in accordance with the

¹ Even when the Circuit Court finds a mistake, it is clarifying the precedent, which reduces ambiguity in the space of actions that can be found liable (Gennaioli and Shleifer, 2007).

Geographic Boundaries

of United States Courts of Appeals and United States District Courts

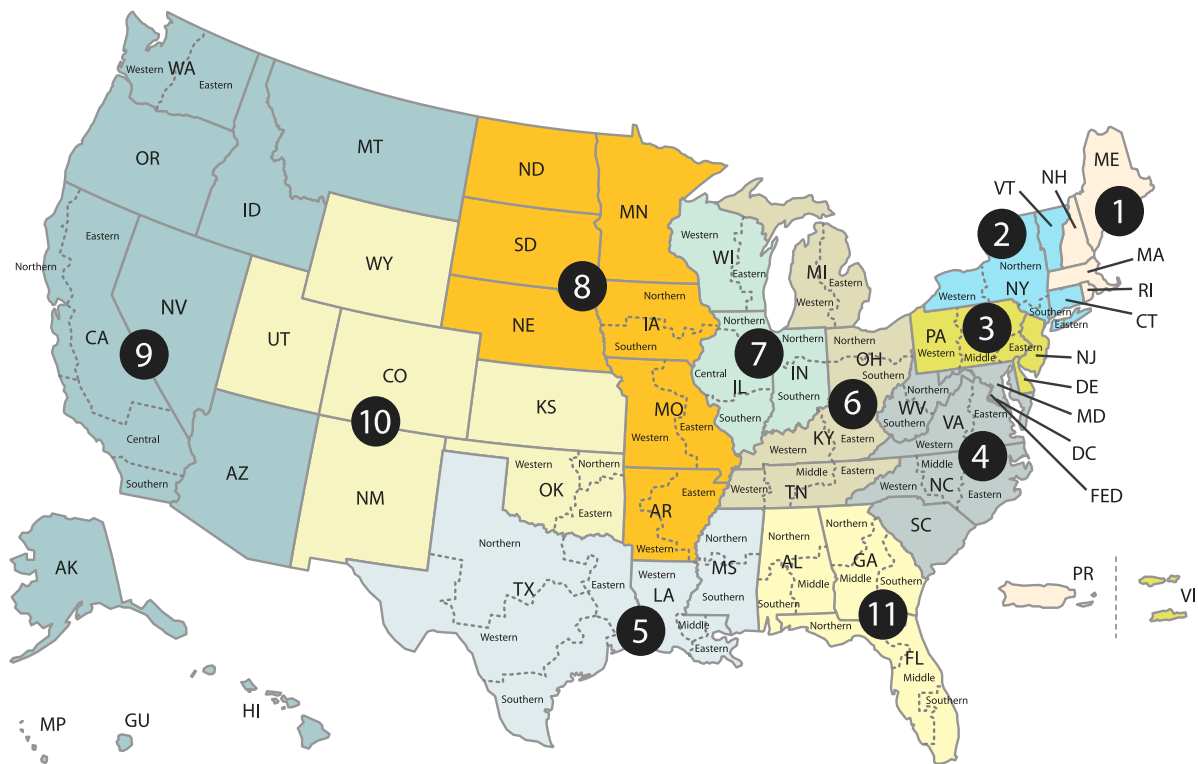


Fig. 1. Geographical boundaries of Circuits and Districts.

guidance offered by the Circuit Court. Less than 1% of the cases at the Circuit Courts are reviewed by the Supreme Court, which hears only those cases it considers particularly important. Therefore, for the majority of cases, the Circuit Courts are the final level of adjudication on legal issues. Accordingly, the courts of appeals play an important role in creating new law.

In a hierarchical legal system, judges balance their own policy preferences against the desire to follow legal principle. Clean evidence distinguishing the relative influence of these factors remains a subject of debate.² A first-order difficulty that arises in attempting to address this issue is that the preferences of the judge and legal principle are likely to be correlated with unobservable characteristics of the judge's task. In both the District and the Circuit Courts, cases are randomly assigned to 1 (District Court) and 3 (Circuit Court) judges, respectively.³ Given that individual judges may decide cases differently, the outcome of a case—and, accordingly, the creation of new law—depends at least partly on a random element. Sunstein et al. (2006), for example, investigate how Democrat and Republican judges differ in their decision making. Interestingly, they find differences in the

² Other factors with clean evidence among judges include priming (Berdejó and Chen, 2017), gambler's fallacy (Chen et al., 2016), mood (Chen and Loecher, 2019), collegial pressure (Chen et al., 2015a), and legitimacy (Chen, 2013).

³ At the Circuit Courts, *en banc* review of the decision by the full number of judges is possible, but rare. Regarding random assignment, we refer the reader to tests of random assignment of judges in cases on sexual harassment (Chen and Sethi, 2012), eminent domain (Chen and Yeh (2013), free speech (Chen and Yeh, 2012), and abortion (Chen et al., 2012).

decision standards not only for “political” areas of law, but also for piercing the corporate veil cases, and it is this variation that we will use in our instrumental variables strategy.

2.2. Piercing the corporate veil

Piercing the corporate veil (PCV) is a legal remedy allowing a creditor of a corporation to hold its shareholders liable for the debt of the corporation. As a default, under U.S. corporate law, a corporation is treated as a legal entity separate from its shareholder. This means that the corporation is solely responsible for any debt it incurs, and the shareholder or parent company is shielded from paying for the debts of his corporation by the “veil” of limited liability. If the assets of the corporation are insufficient to pay its debts, a creditor might want to recover the debt from the shareholder or parent company, which might have deeper pockets than the corporation itself. When the requirements for piercing the corporate veil are met, a creditor is allowed to recover his claims from the corporation's shareholders. PCV is an important institute in American corporate law. In fact, it has been dubbed the “most litigated issue in corporate law” (Thompson, 1991). Claims for piercing the corporate veil are raised in a variety of settings. Important areas of application include contracts and torts claims as well as claims from regulatory regimes such as ERISA⁴ and CERCLA.⁵ PCV

⁴ The Employee Retirement Income Security Act of 1974, Pub.L. 93-406, 88 Stat. 829.

⁵ The Comprehensive Environmental Response, Compensation, and Liability Act of 1980, P.L. 96-510, 94 Stat. 2767.

Table 1
PCV cases in the Federal District Courts — 2000–2004.

District	Cases	Judgments	District	Cases	Judgments	District	Cases	Judgments
D.Me	3	0	N.D.Fla.	1	0	E.D.Wis.	2	0
D.Mass	7	1	M.D.Fla.	28	2	W.D.Wis.	1	0
D.N.H.	2	0	S.D.Fla.	50	8	E.D.Ark.	6	2
D.Conn.	2	0	N.D.Ga.	6	0	S.D.Iowa	1	0
N.D.N.Y.	2	0	S.D.Ga.	2	0	D.Minn.	1	0
E.D.N.Y.	3	2	E.D.La.	9	3	E.D.Mo.	5	0
S.D.N.Y.	16	6	M.D.La.	1	0	W.D.Mo.	5	0
W.D.N.Y.	2	1	W.D.La.	2	0	D.Neb.	1	1
D.N.J.	4	0	S.D.Miss.	1	0	D.S.D.	1	0
E.D.Pa.	14	2	N.D.Tex.	10	2	D.Ariz.	1	0
M.D.Pa.	2	1	E.D.Tex.	3	0	C.D.Cal.	4	0
D.Md.	6	2	S.D.Tex.	9	1	S.D.Cal.	22	7
E.D.N.C.	1	1	E.D.Ky.	3	1	D.Nev.	24	6
M.D.N.C.	3	1	W.D.Ky.	1	0	D.Or.	2	2
W.D.B.C.	7	0	E.D.Mich.	1	0	E.D.Wash.	5	0
D.S.C.	8	0	W.D.Mich.	1	0	W.D.Wash.	14	0
E.D.Va.	1	0	N.D.Ohio	14	3	D.Colo.	1	1
N.D.W.Va.	1	0	S.D.Ohio	3	0	D.Kan.	1	0
S.D.W.Va.	1	0	E.D.Tenn.	1	0	N.D.Okla.	3	0
N.D.Ala.	4	0	N.D.Ill.	87	25	W.D.Okla.	3	1
M.D.Ala.	1	0	N.D.Ind.	2	1	D.Utah	8	0
S.D.Ala.	2	1	S.D.Ind.	2	1	D.D.C.	2	1

is not limited to recovering monetary claims from the shareholders of a company. For example, it can also be invoked to force a company into arbitration when an existing arbitration agreement was not signed by the company itself, but by an affiliate.

The legal requirements for piercing the corporate veil are often formulated as multi-factored tests. There are, however, no clear decision rules in the sense of clearly identified necessary and/or sufficient conditions for a court to pierce the veil. While courts take into account a number of different issues, in the end judges have discretion in deciding whether PCV is required to achieve a “just” result. Some of the factors cited as important across cases are (see [Macey and Mitts 2014](#) for a more comprehensive overview):

- Undercapitalization of the corporation
- Failure to observe corporate formalities
- No clear separation between the activities and the assets of the corporation and its shareholder/mother company
- “Sham” corporations

For decades, scholars criticized the state of PCV doctrine as unsatisfactory. Since the legal doctrine is considered obscure and misleading, court decisions are viewed as unpredictable and incomprehensible.⁶ Legal scholars have reacted in two ways: Some have attempted to understand the “real” motives behind decisions to pierce the veil using statistics ([Thompson, 1991](#); [Hodge and Sachs, 2008](#); [Matheson, 2009](#); [McPherson and Raja, 2010](#)). Others have tried to formulate comprehensive guidelines on when to pierce based on economic theory, arguing that the courts followed a hidden rationale such as reducing “the social cost of limited liability...in situations where the incentive to engage in excessively risky activities is the greatest” ([Easterbrook and Fischel, 1985](#)), reallocation of resources to entrepreneurs ([Millon, 2007](#)), bringing “corporate actors’ behavior into conformity with a particular statutory scheme”, remedying fraudulent activity, of maximizing “the value of an insolvent company for the benefit of all of the creditors” ([Macey and Mitts, 2014](#)).

Piercing the corporate veil is not the only legal doctrine that can be invoked to hold a person or entity responsible for the debts of a related corporate debtor. Alter ego, instrumentality theory, single business

theory, agency, succession in interest and unjust enrichment are prominent examples of alternative remedies available to the creditor seeking to hold other entities responsible for a corporation’s debts. However, some of these instruments are more closely related to PCV than others. Similar to PCV, alter ego, instrumentality theory, and single business theory rely on equitable considerations. They require answering the question whether, given the way in which the interests and activities of the shareholder and company were aligned, it is appropriate to allow a shareholder to hide behind the “shield” of limited liability. In line with that, courts usually do not draw a sharp distinction between these instruments. This is not true for agency, unjust enrichment, and succession of interest. Agency and unjust enrichment do not require an analysis of the prior conduct of the shareholder *vis-à-vis* the corporation. While this distinction might be not as clear-cut for succession in interest, the rationale between both instruments is still different. Courts, therefore, usually draw a clear line between one of these remedies and PCV, refusing to test the fulfillment of the requirements of PCV in cases where the plaintiff has based his claim on one of the other institutes.

In sum, the law is unclear, leaving room for interpretation and judicial discretion. In addition, plaintiffs have a multitude of litigation strategies, which highlights the importance of holding fixed the selection of litigation when examining the causal effects of legal precedent.

2.3. Data and descriptive statistics

We collect a novel dataset of District Court and Circuit Court decisions on PCV between 2000 and 2004. We combine the information in a way that provides, for each District Court case, the characteristics of all Circuit Court judgments rendered in the same Circuit Court while the District Court case was pending, along with the characteristics of the District Court case. We gather data from four different sources: First, we use the Westlaw pleadings database to identify District Court cases in which a party requested to pierce the corporate veil of an entity involved in the proceedings. Second, we obtain detailed information on case dispositions from the AOC. Third, we obtain all Circuit Court decisions related to PCV from Lexis. Case outcomes for all Circuit Court cases have been manually coded. Fourth, we obtain the characteristics of all judges involved in the Circuit Court decisions from data provided by the Federal Judicial Center and our own data collection. We aggregate information on District Court cases and Circuit Court judgments to the District Court case level.

⁶ See only [Thompson \(1991\)](#), [Macey and Mitts \(2014\)](#).

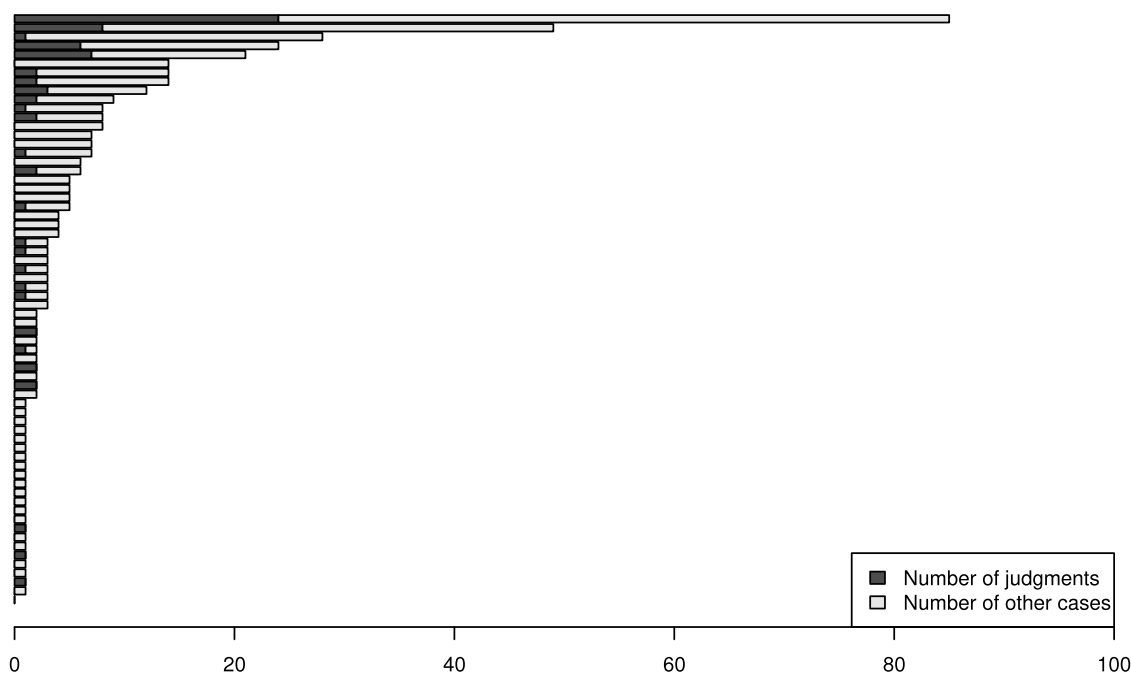


Fig. 2. PCV cases by District Court.

Table 2
PCV cases at the Circuit Courts — 2000–2004.

Circuit	Judgments on PCV		Judgments on merits of PCV claim		PCV judgments reversing DC	
	# Judgments	# pro plaintiff	# Judgments	# pro plaintiff	# Judgments	# pro plaintiff
Fed.	1	0	1	0	0	0
D.C.	1	0	1	0	0	0
1	6	2	5	2	1	0
2	13	1	9	1	4	4
3	11	4	10	4	1	1
4	3	0	3	0	1	1
5	17	6	16	5	8	7
6	9	5	8	5	3	2
7	9	2	7	1	6	4
8	4	1	4	1	1	1
9	14	6	14	6	2	2
10	3	2	2	2	1	0
11	5	2	2	1	0	0
TOTAL	96	31	82	28	28	22

For identification in the Westlaw pleadings database, we follow the methodology employed by [Boyd and Hoffman \(2013\)](#). The Westlaw pleadings database contains “selected pleadings, complaints, and answers filed in State and Federal Courts”. We identify cases related to PCV on the District Court level by searching in the Westlaw pleadings database for PCV-related keywords. The exact search string used is “(“alter ego liability” or pier! /s corpor! /s veil or “unity of interest” or (corpor! /s (facade or shell or sham or undercapitalized conduit)) and da(aft 01/01/2000) and da(bef 01/01/2012))”. The filings obtained from the Westlaw pleadings database consists of over 7000 search results, or 4439 Federal District Court cases with unique docket numbers. We combine these cases with information from the AOC civil terminations database, which assembles information on all civil cases terminated in the U.S. Federal District Courts in a certain year.

[Table 1](#) displays information on case numbers and number of cases terminated by judgment separately for all District Courts that heard at least one case related to PCV in the observed time period. We observe a high variation in case numbers across the District Courts, with

those District Courts in large population centers generally showing the highest case numbers.⁷ This fact is also illustrated by [Fig. 2](#).

Data on Circuit Court cases related to PCV were collected by searching in Lexis for PCV-related keywords, similar to the method in [Sunstein et al. \(2006\)](#). For each case, we manually code whether the case was related to PCV, whether the judges ruled on the merits of the PCV claim, whether the case was decided in favor of the PCV-seeking party, and whether the judges provided guidance on how to interpret PCV doctrine in future decisions.⁸ [Table 2](#) displays this information separately by

⁷ At first glance, it may come as a surprise that the Delaware District Court does show only low case numbers, given the status of Delaware as the jurisdiction of choice for many corporations. However, piercing the corporate veil is mostly invoked to hold liable the shareholder of closely held corporations and the parent companies of corporate subsidiaries. Delaware, by contrast, is particularly important as the jurisdiction of choice for large companies with a clear separation between shareholders and managers, in which case PCV normally cannot be invoked. [Thompson \(1991, p. 1052\)](#).

⁸ The exact wording of the coding instructions are available in [Sunstein et al. \(2006\)](#).

each Circuit Court. Note that case numbers vary widely across Circuits. This is in line with a huge variation in case numbers on the District Court level; see above.

For each Circuit Court case, we obtain the biographical characteristics of the Circuit Court judges assigned to adjudicate. We assemble these data from the Federal Judicial Center directory, the Federal Appeals and District Court Attribute datasets compiled by Zuk, et al.⁹ and our own data collection. Our dataset on judges include their vital statistics, geographic history, education, occupational history, governmental positions, military service, religion, race, gender, political affiliations, and other variables.

We link each District Court case with Circuit Court precedent in its jurisdiction. First, we identify for each District Court case the Circuit Court decisions in the same Circuit rendered while the District Court case was pending. Second, we aggregate information on the characteristics of those Circuit Court decisions as well as the biographical characteristics of the judges involved. Figs. 4 to 11 show graphically the combined information on District Court cases and Circuit Court decisions in the eight District Courts with the highest case numbers. Horizontal lines represent District Court cases filed after January 1, 2000, and terminated before December 31, 2004. Black lines represent cases that were decided by judgment. Green dots at the end of the line indicate that the case was decided at least partly in favor of plaintiff, while red dots indicate a decision in favor of defendant. Vertical lines represent Circuit Court judgments issued in the same time period. Red lines represent Circuit Court judgments denying a claim to pierce the corporate veil, while green lines represent Circuit Court judgments allowing the requesting party to at least partly pierce the corporate veil.

The dataset contains, for each District Court case, information on the case outcome (the manner in which the case was disposed of as well as whether a judgment favored the plaintiff or the defendant) and on the Circuit Court decisions rendered while the case was pending including biographical characteristics of the Circuit Court panels. We construct variables as follows:

Termination by judgment This binary variable captures whether a District Court case was terminated by judgment. We code this variable as 1 any case for which the AO codes judgment as either 1 (judgment in favor of plaintiff), 2 (judgment in favor of defendant) or 3 (judgment in favor of both). In doing so, we follow Siegelman and Waldfogel (1999). Note that this means that we treat both default judgments and judgments on consent as cases terminated by judgment for the purpose of this study. As documented by Waldfogel (1995) (p. 379), defendants do prevail in a substantial percentage of cases decided by default judgment or judgment on consent. Other cases are coded as 0.¹⁰

Judgment pro plaintiff This binary variable indicates whether the plaintiff at least partly prevailed in the judgment. Cases for which AOC coded judgment as 1 or 3 are coded as 1, and cases coded as 2 are coded as 0. Values are unavailable for cases in which Termination by judgment is 0.

CC judgments while case pending Count variable for the number of PCV-related Circuit Court judgments issued in the same Circuit while the District Court case was pending.

CC judgments pro PCV Count variable for the number of Circuit Court judgments pro piercing the corporate veil issued in the same Circuit while the District Court case was pending.

CC on the merits Count variable for the number of PCV-related Circuit Court judgments in the same Circuit deciding on the merits of the PCV claim issued while the District Court case was pending.

CC judgments on the merits pro PCV Count variable for the number of Circuit Court judgments in the same Circuit positively deciding on the merits of the PCV claim while the District Court case was pending.

Our dataset contains all 425 cases filed on or after January 1, 2000, the date the Westlaw pleadings database begins, and terminated on or before December 31, 2004, the date that the public AOC database ends. Summary statistics are provided in Table 3. Of the 425 cases, the median case length was 237 days. 18% of these terminated with a judgment and 12% voted for the plaintiff. The average case had 1.65 Circuit Court judgments decided at its higher court during its time frame. 35% were pro-plaintiff. 0.45 decisions reversed the District Court. The number and character of intervening Circuit Court cases were similar for the 78 District cases with judgments, though a slightly higher 0.68 intervening decisions reversed the District Court. In the 78 cases with a judgment, 68% voted in favor of the plaintiff seeking to pierce.

3. Empirical analysis

In our empirical analysis, we investigate the influence of Circuit Court decisions issued while a District Court case was pending. More precisely, we are interested in whether a Circuit Court decision in favor of the party seeking to pierce the corporate veil marginally affects the plaintiff's chances of success in an ongoing proceeding before the District Court in which PCV is asserted.

Fig. 3 depicts this relationship graphically. District Court cases are decided by light brown lines and green or red dots, depending on whether the District Court case was decided at least partly in favor of the plaintiff. Circuit Court decisions rendered while the respective District Court case was pending are represented by green lines (decisions in favor of piercing) and red lines (decisions against piercing). Panel (a) includes all Circuit Court decisions, Panel (b) includes only those Circuit Court decisions that decided on the merits of the PCV claim.

Both figures suggest that there is a relationship between Circuit Court case outcomes and ensuing decisions by District Court judges. The presence of a negative decision by the Circuit Court does not seem to have a strong impact on the District outcome, however: even District Court cases that are decided after three or more negative decisions by a Circuit Court fairly often end with a decision in favor of the plaintiff. But the presence of a pro-PCV decision by the Circuit Court seems to predict plaintiff success fairly well. Of 20 (or 17, if one counts only Circuit Court decisions on the merits) District Court decisions that were rendered after a Circuit Court had ruled in favor of piercing the veil, only 3 were fully decided in favor of the defendant. Of those District Court proceedings during which a Circuit Court had not at the same time declined to pierce the veil at least twice, none ended with a judgment fully in favor of the defendant.

3.1. Impact of Circuit Court decisions on the outcome of proceedings pending before the District Courts

We test whether this observed correlation between Circuit Court decisions and the outcomes of District Court cases is a causal relationship using regression analysis and instrumental variables. We use the following model:

$$P(Y_{idc} = 1|X) = \beta_0 + \beta_1 Cases_{icdt} + \beta_2 Law_{icdt} + \beta_3 D_d + \beta_4 T_1 + \epsilon_{icdt}$$

Y_{idc} is a binary variable indicating whether the District Court d ruled at least partly in favor of claimant i . $Cases_{icdt}$ is a count variable

⁹ Available at <http://artsandsciences.sc.edu/poli/juri/attributes.htm>.

¹⁰ Some researchers have found errors in AO data (Hadfield, 2004). Measurement error in the outcome variable would attenuate the effects we estimate, providing a lower bound for the potential true effects.



Fig. 3. District Court judgments after Circuit Court decisions.

Timing of District Court cases and Circuit Court judgments for D.Nev.

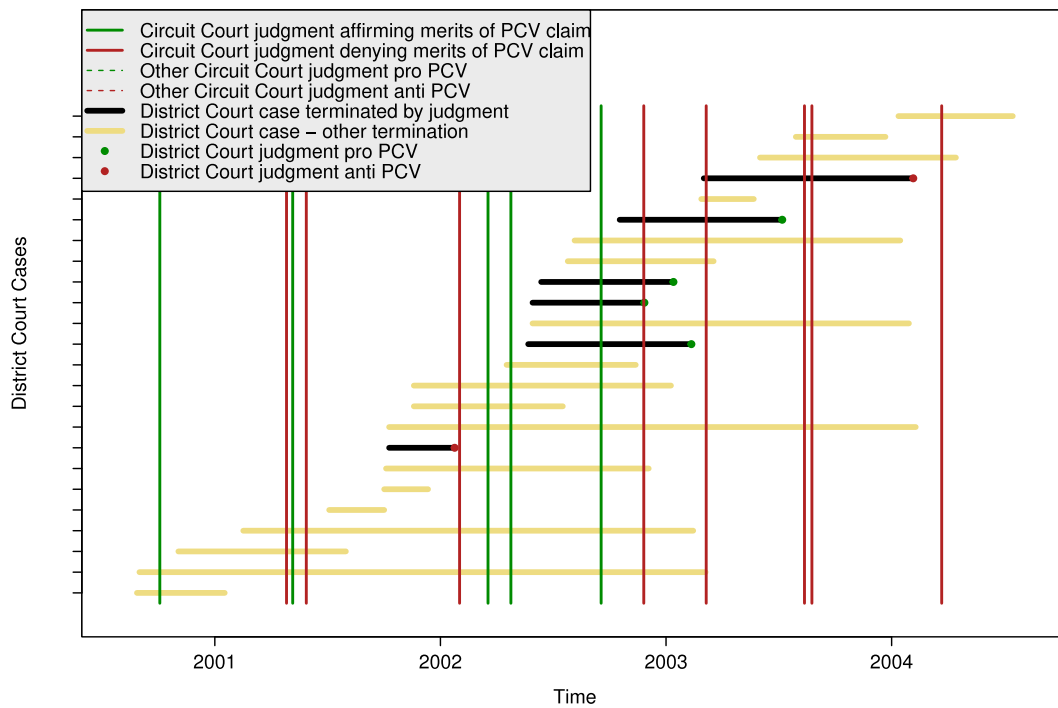


Fig. 4. Combined information on DC and CC cases in the District of Nevada.

capturing the number of Circuit Court decisions issued in the same Circuit while the District Court case was pending. Law_{icdt} is a count variable for Circuit Court decisions deciding in favor of a claim to pierce the veil. D_d and T_t are District Court and year fixed effects, respectively. Subscript i indicates the District Court case, subscript d the District, subscript c the Circuit, and subscript t the year in which the District Court case was decided.

The coefficient on Law_{icdt} describes the effect of a Circuit Court case being decided in favor of piercing the veil. This variable is our major variable of interest. If judges were to react to the creation of new

precedent by changing their decision standard in the direction of the precedent, then we should expect a positive value for the coefficient on Law_{icdt} . The coefficient on $Cases_{icdt}$ captures the effect of the presence of an anti-piercing Circuit Court case. Accordingly, we expect the coefficient on Law_{icdt} to take on negative values. We use count variables to measure Law_{icdt} . We acknowledge but do not use percentages of pro-PCV cases for Law_{icdt} together with a dummy variable for $Cases_{icdt}$ indicating whether any Circuit Court case has been decided while the District Court case was pending. The reason for measuring with counts is to avoid the mechanical assumption that the marginal effect of an

Timing of District Court cases and Circuit Court judgments for E.D.Pa.

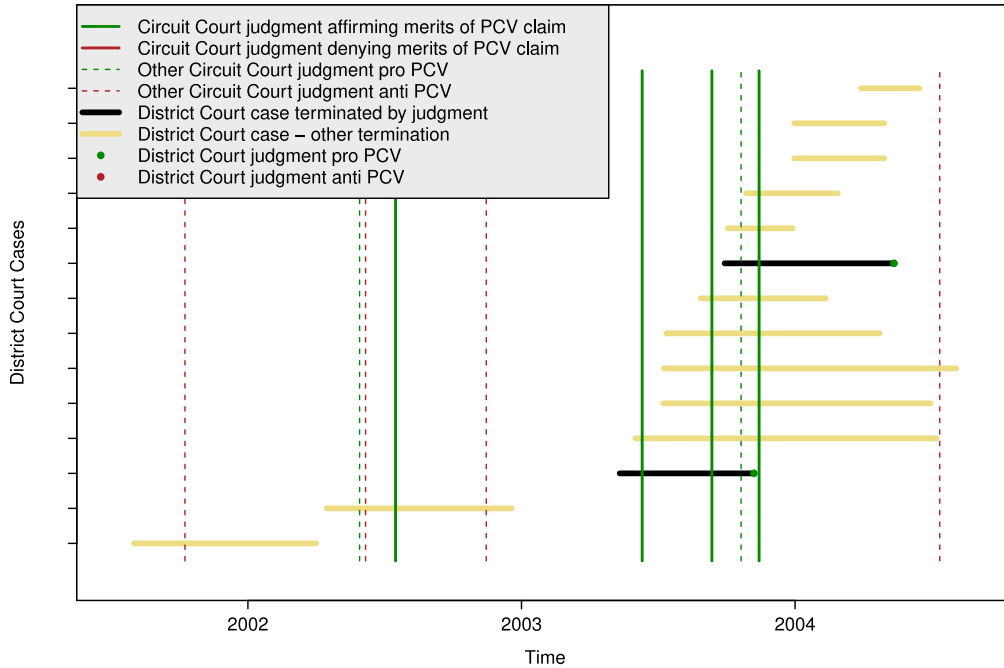


Fig. 5. Combined information on DC and CC cases in the Eastern District of Pennsylvania.

Timing of District Court cases and Circuit Court judgments for N.D.Ill.

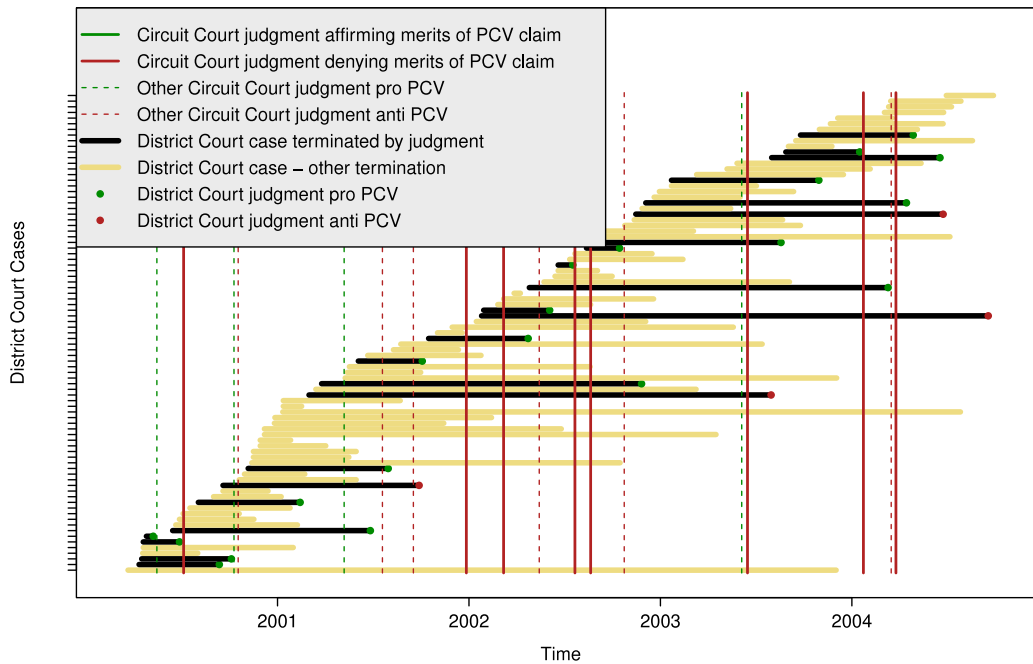


Fig. 6. Combined information on DC and CC cases in the Northern District of Illinois.

additional Circuit case is smaller when there are multiple Circuit Court decisions than when there is only one Circuit Court decision while a District Court case is pending.

3.1.1. OLS regression

Table 5 Panel A column (1) reports results from an OLS regression including all Circuit Court cases related to PCV in $Cases_{icdt}$ and

Law_{icdt} .¹¹ In line with our interpretation of Fig. 3, the coefficient for $Cases_{icdt}$ is slightly negative but statistically insignificant. The point estimate for our main variable of interest, Law_{icdt} , is 0.291. That is,

¹¹ Variables # CC judgments while case pending and # CC judgments pro PCV.

Timing of District Court cases and Circuit Court judgments for N.D. Ohio

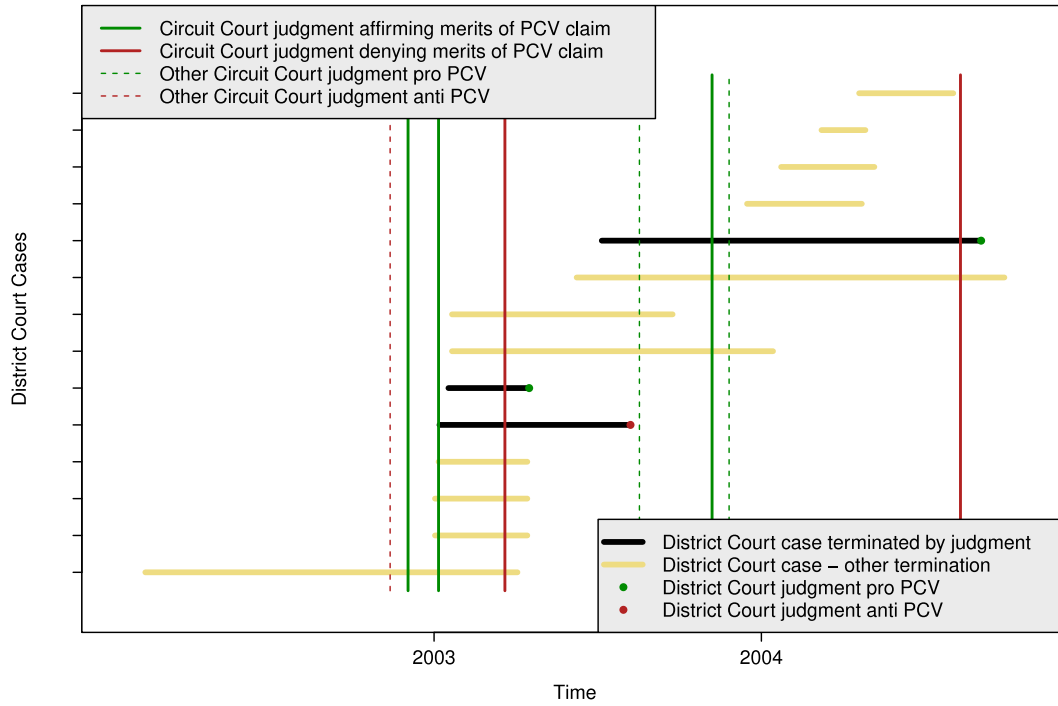


Fig. 7. Combined information on DC and CC cases in the Northern District of Ohio.

Timing of District Court cases and Circuit Court judgments for S.D. Cal.

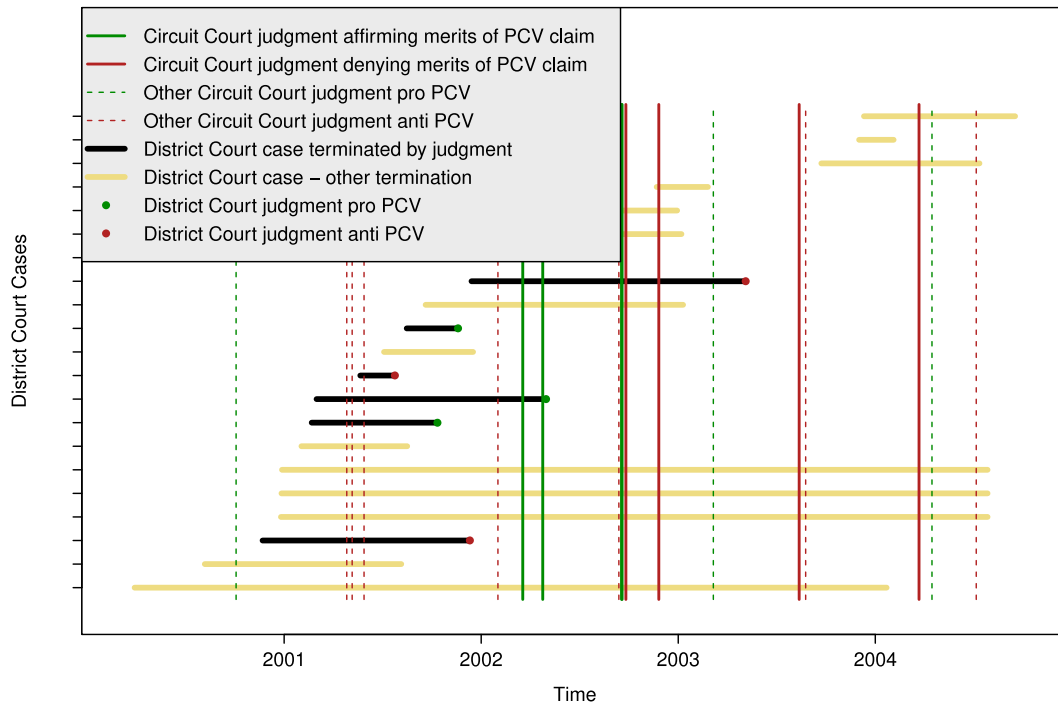


Fig. 8. Combined information on DC and CC cases in the Southern District of California.

judges are on average 29 percentage points more likely to decide in favor of a plaintiff in a case related to PCV (vote to pierce) when a decision by the Circuit Court favored PCV. This is a large effect, but

consistent with what we see in the raw data. The result is at the border of being significant on the 5% level (p-value: .050). Column (2) reports results from a similar regression including only those Circuit Court

Timing of District Court cases and Circuit Court judgments for S.D.Fla.

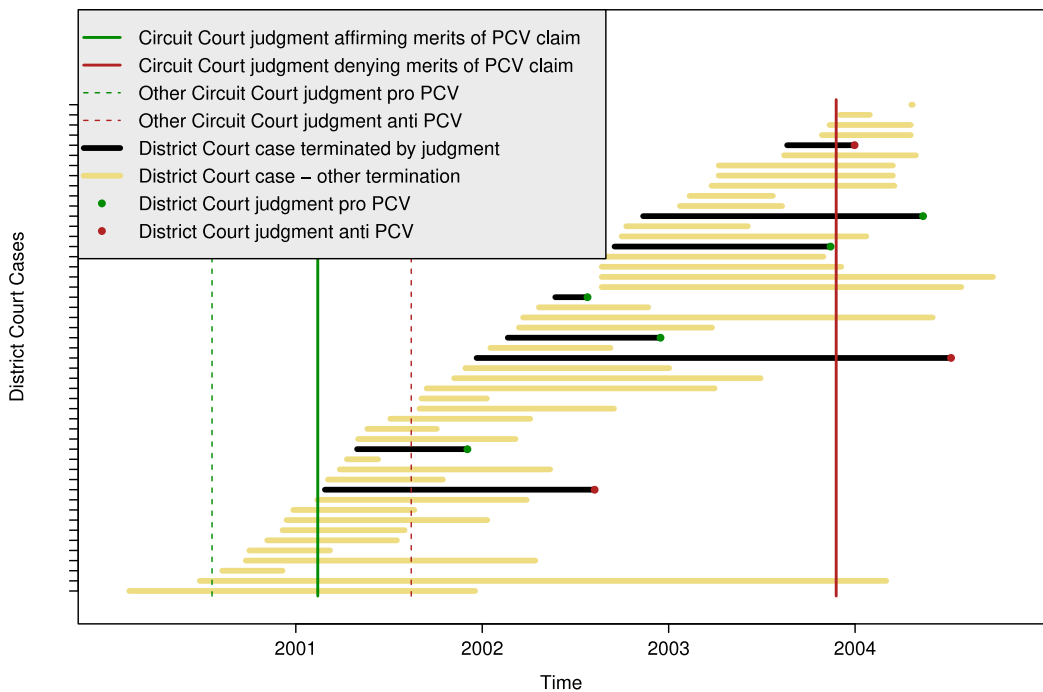


Fig. 9. Combined information on DC and CC cases in the Southern District of Florida.

Timing of District Court cases and Circuit Court judgments for S.D.N.Y.

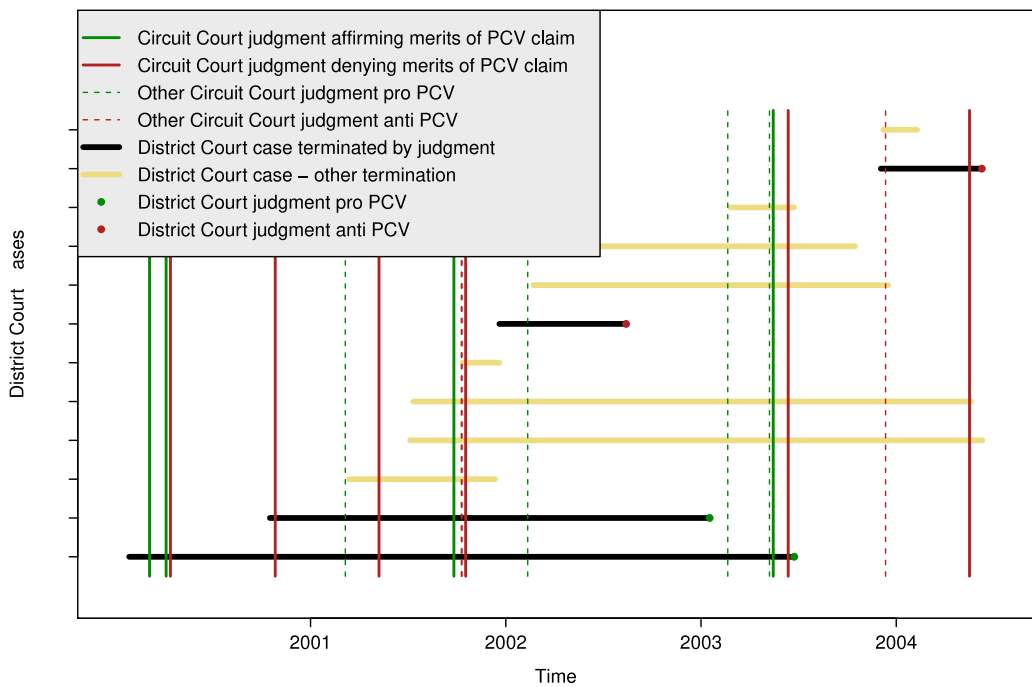


Fig. 10. Combined information on DC and CC cases in the Southern District of New York.

Timing of District Court cases and Circuit Court judgments for N.D. Ohio

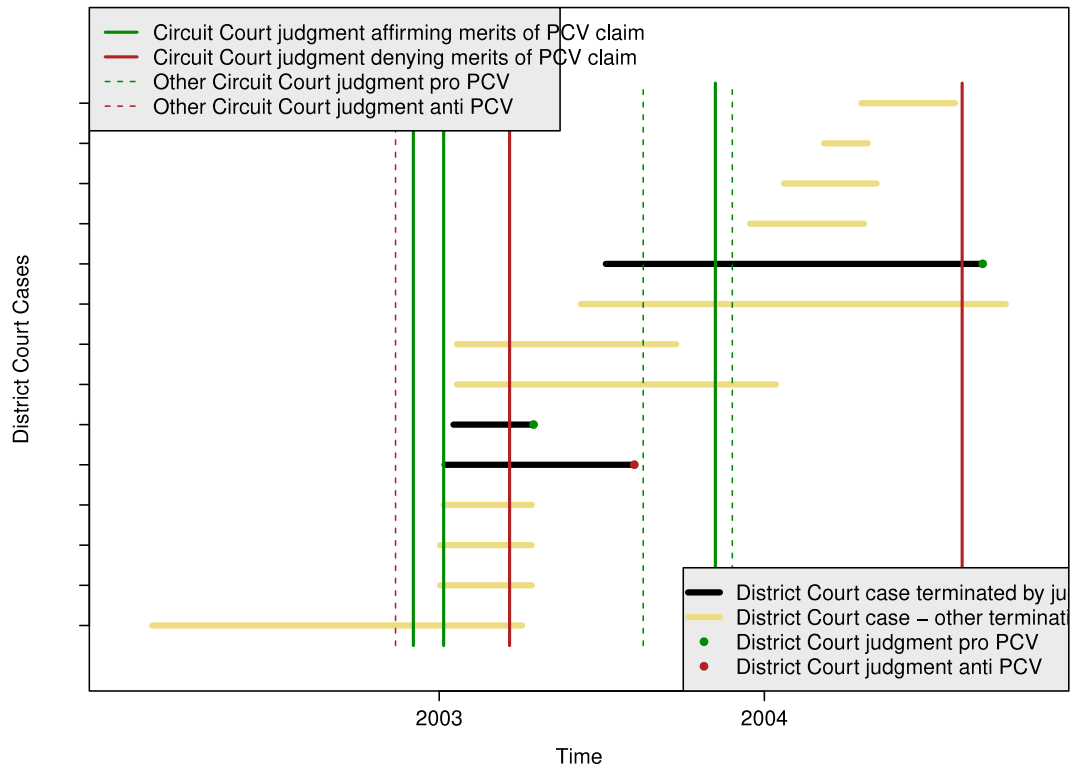


Fig. 11. Combined information on DC and CC cases in the Southern District of Ohio.

Table 3
Summary statistics.

	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
All cases (N = 425)						
Days pending	1.00	124.00	237.00	316.10	412.00	1399.00
Termination by judgment	0.00	0.00	0.00	0.18	0.00	1.00
Judgment pro plaintiff	0.00	0.00	0.00	0.12	0.00	1.00
# CC judgm. while case pending	0.00	0.00	1.00	1.65	2.00	12.00
- of which pro PCV	0.00	0.00	0.00	0.46	1.00	5.00
- of which % pro PCV	0.00	0.00	50.00	35.20	50.00	100.00
# CC judgments on the merits	0.00	0.00	1.00	1.43	2.00	12.00
- of which pro PCV	0.00	0.00	0.00	0.44	1.00	5.00
# CC judgments reversing	0.00	0.00	0.00	0.45	1.00	5.00
- of which pro PCV	0.00	0.00	0.00	0.14	0.00	2.00
Judgments only (N = 78)						
Days pending	13.00	144.00	263.50	340.40	479.00	1243.00
Termination by judgment	1.00	1.00	1.00	1.00	1.00	1.00
Judgment pro plaintiff	0.00	0.00	1.00	0.68	1.00	1.00
# CC judgm. while case pending	0.00	0.00	1.00	1.68	2.75	8.00
- of which pro PCV	0.00	0.00	0.00	0.37	0.75	4.00
- of which % pro PCV	0.00	0.00	33.33	29.46	50.00	100.00
# CC judgments on the merits	0.00	0.00	1.00	1.42	2.00	8.00
- of which pro PCV	0.00	0.00	0.00	0.33	0.00	4.00
# CC judgments reversing	0.00	0.00	0.00	0.68	1.00	4.00
- of which pro PCV	0.00	0.00	0.00	0.18	0.00	2.00

cases in which the District Court decided on the merits of the PCV claim.¹² The coefficient on Law_{icdt} is highly statistically significant, and magnitude of the point estimate is very close to that in column (1). These results suggest that District Court judges are much more likely (around 30 percentage points) to adopt a pro-plaintiff decision when a Circuit Court decided in favor of PCV while the case was pending.

¹² Variables # CC on the merits and # CC judgments pro PCV, see Section 2.3 above.

These results show a correlation, not causation, between the “direction” of the Circuit Court judgments and the ensuing District Court decisions. *A priori*, however, it cannot be excluded that such a correlation is caused by anticipating behavior of the Circuit Courts,¹³ or by common causes that make both Circuit Court and District Court judges change their decision behavior at the same time. Such omitted

¹³ See Boyd et al. (2009), p. 51 Fn. 64.

variables can include political or economic trends within the appellate jurisdiction.

3.1.2. Instrumental variable regression

We therefore employ an instrumental variable approach in order to isolate the causal effect of Circuit Court decisions on the decision-making of District Court judges. We exploit the fact that Circuit Court judges are randomly assigned to cases, and that individual characteristics of Circuit Court judges, to some extent, predict their voting behavior. This enables us to use idiosyncratic variation in the demographic composition of Circuit Court panels deciding PCV cases as an instrument for Circuit Court decisions in favor of or against PCV.

A large literature has documented that judges with different background variables differ in their decision-making, either because they differ in their perception of the law, or because they are influenced by certain political preferences that are unevenly distributed among judges according to their personal or professional backgrounds. The biographical variable that has arguably received the most attention in this literature, the political party of the appointing president, has been documented to predict the decisions of judges in controversial, politically charged areas of law such as abortion rights or civil rights. It is also significantly correlated with the votes of judges in PCV cases (Sunstein et al., 2006). One explanation for this could be that the Republican platform is traditionally pro-business and therefore less likely to extend liability to a shareholder of a failed enterprise. An alternative (and potentially complementary) explanation could be that Democrats might be more likely to use PCV as a means of enhancing the efficiency of statutory schemes aimed at fostering policy goals such as environmental protection *vis-à-vis* corporate actors.

We consider these ideas using our own data and specifications.¹⁴ Table 4 reports the results of first-stage OLS regressions of the number of pro-PCV judgments on biographic characteristics of the judges involved in the decisions, controlling for the total number of Circuit Court decisions as well as District and year fixed effects. Column (1) presents results using the number of Democrat judges in all Circuit Court panels that rendered a decision while the District Court case was pending as explanatory variable. While the effect of an increase in the number of Democrat judges is in fact positive, and it is statistically significant (p -value .039), the F-value does not exceed 5.52. Therefore, this variable would be a weak instrument. Column (2) presents estimates using the number of panels with different casts of Republican and Democrat judges as explanatory variables. The three variables are jointly significant (p -value .0000). The F-value of 26.11 suggests that these variables might not be strong enough to overcome weak instrument bias in an IV regression, particularly given the small number of cases used in the analysis. Similarly, limiting the analysis to Circuit Court decisions that decided on the merits of the PCV claim, we observe F-values of 3.97 and 8.59, respectively (see Columns (3) and (4)).

To address potential concerns from our theoretically-motivated biographical variables, we also use LASSO (least absolute shrinkage and selection operator) to select instruments from the large number of exogenous variables available to us due to the richness of information on judge backgrounds (Belloni et al. 2012). LASSO solves two problems of OLS, the lack of sparseness (resulting in a potential weak instruments problem) and the lack of continuity. Formally, LASSO minimizes the sum of squares subject to the sum of the absolute value of the coefficients being less than a constant. This leads to some coefficients being set to exactly 0, which in turn reduces model complexity. We consider

¹⁴ This means that we are not testing the question of whether judicial panels with different demographic composition differ in their likelihood of ruling pro PCV (a model with binary outcome variable). Instead, we test whether, for the District Court cases in our dataset, differences in the demographic composition of the panels who decided Circuit Court PCV cases lead to different numbers of Circuit Court decisions pro PCV given the number of Circuit Court decisions.

30 biographical characteristics¹⁵ and their interactions as potential instruments. Combinations of the characteristics of these randomly-assigned judges and panels would also be orthogonal to the error term. We use not only the number of judges with particular characteristics involved in decisions as potential instruments, but also the number of panels with a specific number of judges with a certain background (for example, how many panels featured exactly one judge who is wealthy and Catholic).

Table 5 Panel A columns (2), (3), (5) and (6) report the results of instrumental variable regressions using two different sets of instruments. We use the limited information maximum likelihood (LIML) estimator because of its better small sample properties. Model (2) and (5) use the number of panels with different numbers of democrat judges as an instrument. Including all Circuit Court cases in the analysis, we see that both $Cases_{ic}$ and Law_{ic} react as expected, and that Law_{ic} is again significant at the .1% level, although not at the .05% level. However, the large point estimate for Law_{ic} of .562 (almost twice as high as the point estimate from the OLS regression) leads us to suspect that the estimate might be inflated due to weak instrument bias. The same applies for the model including only Circuit Court cases deciding on the merits of the PCV claim (column (5)).

This problem is arguably resolved by models (3) and (6), which use the instruments identified by LASSO. We observe that the effect of Law is still large (point estimate: .406 and .371, respectively). While the effect of Law_{ic} , when including all Circuit Court cases in the analysis, is significant at the .05% level, it is highly significant when restricting the analysis to Circuit Court cases deciding on the merits of the PCV claim (p -value: .006).

3.2. Does the observed relationship indicate a legalistic motivation?

While these results suggest that District Court judges adjust their decision standards in reaction to decisions by the Circuit Courts, one can still wonder whether our results provide evidence for a legalistic motivation of District Court judges. The Circuit Court decisions in our dataset largely do not rephrase the test that is to be applied by the District Courts in order to establish whether to pierce the veil. Instead, the decisions limit themselves to either approving or discarding the application of the test given the facts at issue in the case. Does an observed shift in decision standards in reaction to such a decision signal a legalistic motivation of District Court judges?

As a first response, Circuit Courts decide issues of law and should only hear cases that present novel legal issues and new fact patterns. Gennaioli and Shleifer (2007) show how their decisions continually expand or shrink the space under which subsequent actions may be found liable. A second answer to this question depends on the definition of legal considerations. A formalist understanding of legal considerations would likely not view such a shift as showing a legalist motivation.¹⁶ The “law”, according to such formalist conceptions, consists only of “rules contained in a well-defined set of source materials—principally statutes, regulations, contracts, and prior judicial decisions[...].”¹⁷ A decision by a higher court that does nothing more than approve or reject the application of a rule that is otherwise

¹⁵ Democrat, male, male Democrat, female Republican, minority, black, Jewish, Catholic, No religion, Mainline Protestant, Evangelical, bachelor's degree (BA) received from same state of appointment, BA from a public institution, JD from a public institution, having an LLM or SJD, elevated from District Court, decade of birth (1910s, 1920s, 1930s, 1940s, or 1950s), appointed when the President and Congress majority were from the same party, ABA score, above median wealth, appointed by president from an opposing party, prior Federal judiciary experience, prior law professor, prior government experience, previous assistant U.S. attorney, and previous U.S. attorney.

¹⁶ Whether any scholar has in fact ever claimed that such a formalist is an accurate description of judicial behavior is not relevant here.

¹⁷ Stephenson (2009, 193).

Table 4
First stage OLS regression.

	Outcome: # pro-PCV judgments by the circuit court			
	All judgments		On merits only	
	(1)	(2)	(3)	(4)
<i>Cases</i>	0.115 (0.426)	0.164 (0.263)	0.0948 (0.597)	0.101 (0.599)
# of democrat judges in panels	0.141* (0.039)		0.177 (0.072)	
# of panels with 1 democrat judge		-0.0984 (0.656)		0.0968 (0.639)
# of panels with 2 democrat judges		0.436* (0.026)		0.374* (0.018)
# of panels with 3 democrat judges		0.0270 (0.948)		-0.0301 (0.868)
_cons	1.041*** (0.000)	1.065*** (0.000)	0.269 (0.471)	0.259 (0.439)
F-statistics of instruments	5.52*	26.11***	3.97	8.59**
N	78	78	78	78

p-values in parentheses. Standard errors clustered at the Circuit level. Dependent variable: count variable for the number of pro-PCV decisions by the Circuit Courts.

**p* < 0.05.

***p* < 0.01.

****p* < 0.001.

Table 5
Regression estimates.

Panel A: All circuit court judgments combined						
	Outcome: Pro-plaintiff district court judgment					
	All Circuit Court judgments			Judgments on merits only		
	(1) OLS	(2) LIML 1	(3) LIML 2	(4) OLS	(5) LIML 1	(6) LIML 2
<i>Cases</i>	-0.0869 (0.350)	-0.123 (0.208)	-0.110 (0.318)	-0.0905 (0.161)	-0.186** (0.001)	-0.115 (0.140)
<i>Law</i>	0.291 (0.050)	0.562 (0.087)	0.406* (0.033)	0.297*** (0.000)	0.578** (0.002)	0.371** (0.006)
_cons	0.934** (0.003)	0.580 (0.276)	0.784* (0.042)	1.140*** (0.000)	0.964*** (0.000)	1.094*** (0.000)
F (First stage)	-	26.11	139.25	-	8.59	334.67
N	78	78	78	78	78	78

Panel B: Circuit court judgments by legal area						
	Outcome: Pro-plaintiff district court judgment					
	All Circuit Court judgments			Judgments on merits only		
	(1) OLS	(2) LIML 1	(3) LIML 2	(4) OLS	(5) LIML 1	(6) LIML 2
<i>Cases (same area)</i>	-0.143 (0.089)	-0.225 (0.148)	-0.142 (0.219)	-0.078 (0.453)	-0.086 (0.496)	-0.065 (0.466)
<i>Cases (different area)</i>	-0.066 (0.541)	-0.110 (0.459)	-0.145 (0.140)	-0.139 (0.053)	-0.188 (0.158)	-0.190 (0.055)
<i>Law (same area)</i>	0.675 (0.124)	1.221 (0.118)	0.733 (0.268)	0.845 (0.086)	0.961 (0.078)	0.795* (0.045)
<i>Law (different area)</i>	0.186 (0.263)	0.254 (0.424)	0.401 (0.194)	0.267** (0.007)	0.374 (0.202)	0.399** (0.011)
_cons	0.784* (0.049)	0.392 (0.526)	0.565 (0.164)	1.034*** (0.000)	0.953*** (0.000)	0.965*** (0.000)
N	78	78	78	78	78	78

Notes: *p*-values in parentheses. Heteroskedasticity-robust standard errors clustered at the Circuit level.

IV estimates: *p*-values based on small sample *t*-statistics. District and Year F.E. included. Dependent variable: Dummy indicating whether District Court decided at least partly in favor of claimant.

Observation level: District Court judgment.

**p* < 0.05.

***p* < 0.01.

****p* < 0.001.

left unchanged would likely not fulfill these criteria. In other words, under formalist conceptions of the law, as long as the higher court does not change the legal test to be applied, a judge at a lower court would have no reason to change their decision-making.

A more realistic conception of the law, however, might well view such a change as driven by legal considerations. According to such conceptions, “actual legal rules” can be broader than “formal legal rules” and encompass any “systematic patterns in how earlier judges responded to the particular fact patterns that appeared in those cases”.¹⁸ Under this definition, it is possible to see the application of pre-formulated rules to new facts as conveying something about the law. At the same time, one might ask whether there exists any factor which would not count as a legal consideration under such a broad definition. In this project, we define the law in line with the economic approach (Gennaioli and Shleifer, 2007) as any factor which cannot be explained by the attitudinal model and related strategic considerations. Under the attitudinal model, judges’ decisions are exclusively or at least primarily explained by their political preferences.¹⁹ In the case of judges at lower courts, a strategic consideration such as reversal aversion might induce them to decide in line not with their own political preferences, but with the political preferences of the judges at the higher courts.²⁰

We contend that the results shown above cannot be explained by such attitudinalist or strategic considerations. The reason for this lies in the mechanism behind the instrumental variable estimator used in the analysis. To understand why, consider that the instrumental variable estimator looks for a correlation between the assignment of Circuit Court judges with personal characteristics predicting their decision-making to cases and subsequent decisions by District Court judges in the same Circuit. However, the assignment of judges in one case, while potentially affecting the outcome of that case, does not influence the probability of the assignment of any future case to a particular cast of judges. Therefore, if judges’ decisions were purely driven by attitudinalist or strategic concerns, the assignment of Circuit Court judges in one case should not influence the way District Court judges decide cases. What should influence District Court decision-making instead are retirements or new appointments to the Circuit Court, or changes in the preferences of sitting judges. In other words, in a perfect attitudinalist world, judges should not react to a decision by an “outlier panel”.

In order to provide some additional evidence on whether the results above indicate a legal motivation, we rerun our regression using a slightly modified dataset. For each Circuit Court and District Court case, we coded whether it belonged to one of the following four categories²¹:

1. Common Law
2. Bankruptcy Law
3. ERISA
4. Other Federal statutory law (including CERCLA)

In the regression analysis, we used two variables for $Cases_{ic}$ and Law_{ic} , one representing Circuit Court cases in the same category, and a second one for Circuit Court cases in a different category. We hypothesize that a legalistic motivation should lead to higher point estimates for the effect of Circuit Court decisions in the same category, while we expect cases in different categories to show either no significant effect, or an effect that is significantly below that of cases in the same category.

The results of this regression analysis are displayed in Table 5 Panel B. The point estimates are as expected: Law_{ic} shows a positive effect,

with the point estimates for the variable representing cases in the same category considerably higher than the point estimates for the effect of a decision in a different case category. These effects are not significant when including all Circuit Court cases in the analysis. When restricting the analysis to Circuit Court decisions on the merits of a PCV case, the effects are significant.

When we control for the number of intervening Circuit Court cases issuing reversals and the number of these cases that were pro-piercing, the effect of the substantive law is unaffected. There is also no strong evidence that pro-piercing precedent has effects only when there is a reversal.

3.3. Litigant reaction to Circuit Court decisions

Our method holds constant the set of litigated cases and therefore eliminates any potential effect of the selection of cases for litigation. However, the decisions of litigants in ongoing proceedings before the District Courts might still challenge the causal interpretation of our results. If litigants, after a change in law, settle a different set of cases, comparing the outcome of judgments after decisions in favor of PCV with decisions declining to pierce the veil, then the results might be compromised by selection bias.

While we cannot fully exclude a selection effect, we respond to this challenge in three ways. First, from a theoretical perspective, even if litigants settle, they do so in the Priest/Klein framework as a response to a shift in the decision standard, and the expected decision of the District Court. Such behavior would be evidence that the law (precedent) matters. Second, we expect any reaction in litigants’ decisions on which cases to settle to a change in legal standards to mitigate the observed effect of a change in law on success rates. Therefore, even if selection occurs, our results can still be measuring the lower bound of any effect of legal precedent on the subsequent decisions of District Court judges. To understand this, consider the basic Priest/Klein framework. The cases that are most likely to be tried are those with case quality close to the decision standard. If a shift in decision standard occurs, selection leads to the centering of cases around the new decision standard, leading to a more balanced sample of cases (success rate closer to 50%) than if selection still took place under the old decision standard. Third, the structure of our data allows us to investigate the effect of precedent on litigants’ decisions empirically. We use survival analysis to investigate whether a Circuit Court decision leads to an increase in cases dropping out of litigation. Estimates from Cox regressions show that this is not the case. Instead, we see fewer cases being terminated in the three months following a Circuit Court decision than before.

4. Discussion

The results obtained in Section 3 are subject to a number of limitations. A first limitation relates to our claim that attitudinal and strategic motivations cannot explain the results observed here. While we control for changes over time and differences between different Circuit Courts by using year and District Court fixed effects, there is a theoretical possibility that our results are caused by changes in the cast of judges over time that affect the composition of the bench at the individual Circuit Courts differently. This would be the case if a change in District Court decision-making is caused by a change in the composition of judges at the Circuit Court, under the additional condition that the different personal characteristics of the Circuit Court judges deciding PCV cases is not a result of random case assignment, but also an effect of the changes in the bench. While we cannot fully rule out this possibility, we point to the fact that all Circuit Court judges are appointed by the U.S. President and confirmed by the Senate.²² Therefore, we consider it unlikely that the preferences of the bench

¹⁸ Stephenson (2009, 197 et seq.).

¹⁹ See, e.g., Segal and Spaeth (1993, 2002).

²⁰ See, e.g., Boyd and Spriggs II (2009).

²¹ These categories are hand-coded from the Circuit Court opinions and the Westlaw pleadings.

²² See https://en.wikipedia.org/wiki/United_States_courts_of_appeals.

develop differently at the same time in a way that can explain these results. Indeed, our results are robust to controlling for Circuit-specific time trends and to controlling for characteristics of the composition of judges available to be assigned.

A second limitation relates to sample size and general concerns about clustering with small numbers of clusters. The number of District Court cases decided by judgment between 2000 and 2004 is limited. Our empirical findings build on an empirical analysis of only $N=78$ cases. We attempt to remedy this problem by using the limited information maximum likelihood estimator, which reportedly has better finite-sample properties compared to the standard two-stage least-squares estimator.²³ There is also the possibility that clustered standard errors might result in overconfident results in case of small numbers of clusters, particularly if the clusters are unbalanced.²⁴ However, the strongly significant results and the fact that the LIML estimates yield similar point estimates regardless of the source of the instruments lend confidence to our results.

5. Conclusion

In this project, we present a novel approach to examining the functioning of a hierarchical legal system. Our research can be seen as a contribution to the growing literature about the motivations of judges and the measurement of legal change. At the same time, we aim at answering a number of questions related to the drivers of judicial decision-making as well as the behavior of litigants in ongoing proceedings. We show that District Court judges react to Circuit Court precedent by adjusting their decision standard in the direction of the precedent. By looking only at cases that have been initiated before but terminated after the decision in the Circuit Court case was rendered, we hold constant the case sample and avoid the potentially blurring effects of the selection of cases for litigation. We exploit random assignment of Circuit Court judges and the predictive power of biographical characteristics to control for reverse causality and omitted variable bias.

Our investigation of PCV cases from 2000 to 2004 shows that District Court judges are more likely to rule in favor of the plaintiff after a pro-PCV Circuit decision. This effect is large — our estimates show a shift in success rates between 29 and 40 percentage points. The results of our instrumental variable regression suggest that this effect warrants a causal interpretation. This effect is highly statistically significant (p -value .006) when restricting the analysis to Circuit Court cases decided on the merits of the PCV claim.

Measuring whether and why public agents follow the law is challenging. Besides the issue of endogeneity of high court decisions (Boyd and Spriggs II, 2009), the composition of cases coming before the court can change because litigants may anticipate how the court will resolve the case and adjust their rates of settlement (Priest and Klein, 1984). Thus one cannot make causal inferences by simply comparing success rates before and after the change in law.²⁵ We proposed a research design to study whether judges follow the law rather than being motivated solely out of self-interest (Posner, 1973; Cameron, 1993; Kornhauser, 1999). Understanding when normative commitments are influenced by external factors is a relevant area of future research.²⁶

²³ Cameron and Trivedi (2010, 204).

²⁴ See generally (Cameron and Miller, 2015).

²⁵ See, however, Klerman and Lee (2013) for an investigation into the assumptions necessary to infer from a change in success rates whether a change in decision standards has occurred.

²⁶ Modeling how incentives interact with duties (Chen and Lind, 2007, 2014), group conflict (Chen, 2014, 2006, 2010), norms (Chen, 2020, 2011; Chen et al., 2019), and human rights (Chen, 2015; Chen and Yeh, 2014) may be a fruitful direction.

Declaration of competing interest

The author declare that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

References

- Berdej, C., Chen, D.L., 2017. Electoral cycles among us courts of appeals judges. *J. Law Econ.* 60 (3), 479–496.
- Besley, T., Case, A., 2000. Unnatural experiments? Estimating the incidence of endogenous policies. *Econ. J.* 110 (467), F672–F694.
- Boyd, C.L., Hoffman, D.A., 2013. Litigating toward settlement. *J. Law Econ. Organ.* 29 (4), 898–929.
- Boyd, C.L., Spriggs II, J.F., 2009. An examination of strategic anticipation of appellate court preferences by federal district court judges. *J. Law Policy* 29, 37–81.
- Breyer, S., 2006. *Active Liberty: Interpreting Our Democratic Constitution*. Vintage Books.
- Cameron, C.M., 1993. New avenues for modeling judicial politics. In: *Conference on the Political Economy of Public Law*. W. Allen Wallis Institute of Political Economy, University of Rochester, Rochester, NY.
- Cameron, A.C., Miller, D.L., 2015. A practitioner's guide to cluster-robust inference. *J. Hum. Resour.* 50 (2), 317–372.
- Cameron, A.C., Trivedi, P.K., 2010. *Microeconometrics using Stata*, Revised ed. Stata Press.
- Chen, D.L., 2006. Islamic resurgence and social violence during the Indonesian financial crisis. In: Gradstein, M., Konrad, K.A. (Eds.), *Institutions and Norms in Economic Development*. MIT Press, pp. 179–199.
- Chen, D.L., 2010. Club goods and group identity: Evidence from Islamic resurgence during the Indonesian financial crisis. *J. Polit. Econ.* 118 (2), 300–354.
- Chen, D.L., 2011. Markets and morality: How does competition affect moral judgment?. Working paper, Duke Law School.
- Chen, D.L., 2013. The deterrent effect of the death penalty? Evidence from british commutations during world war I. Working paper, ETH Zurich.
- Chen, D.L., 2014. Can markets overcome repugnance? Muslim trade response to anti-muhammad cartoons. Working paper, ETH Zurich, Mimeo.
- Chen, D.L., 2015. Can markets stimulate rights? On the alienability of legal claims. *Rand J. Econ.* 46 (1), 23–65.
- Chen, D.L., 2020. Gender violence and the price of virginity: Theory and evidence of incomplete marriage contracts. *J. Rel. Dem.* 7 (2), 190–221.
- Chen, D.L., Levonyan, V., Reinhart, S.E., Taksler, G.B., 2019. Mandatory disclosure: Theory and evidence from industry-physician relationships. *J. Legal Stud.* 48 (2), 409–440.
- Chen, D.L., Levonyan, V., Yeh, S., 2012. Do policies affect preferences? Evidence from random variation in abortion jurisprudence.
- Chen, D.L., Lind, J., 2007. Religion, welfare politics, and church-state separation. *J. Ecumenical Stud.* 42, 42–52.
- Chen, D.L., Lind, J.T., 2014. The political economy of beliefs: Why fiscal and social conservatives and liberals come hand-in-hand. Working paper.
- Chen, D.L., Loecher, M., 2019. Mood and the malleability of moral reasoning, Available at SSRN 2740485.
- Chen, D.L., Michaeli, M., Spiro, D., 2015a. Ideological perfectionism on judicial panels. Working paper, ETH Zurich.
- Chen, D.L., Moskowitz, T.J., Shue, K., 2016. Decision making under the gambler's fallacy: Evidence from asylum judges, loan officers, and baseball umpires. *Quart. J. Econ.* 131 (3), 1181–1242.
- Chen, D., Sethi, J., 2012. Insiders and outsiders: Does forbidding sexual harassment exacerbate gender inequality?.
- Chen, D.L., Yeh, S., 2012. How do rights revolutions occur? Free speech and the first amendment.
- Chen, D.L., Yeh, S., 2013. The impact of government power to expropriate on economic growth and inequality.
- Chen, D.L., Yeh, S., 2014. The construction of morals. *J. Econ. Behav. Organ.* 104, 84–105.
- Cross, F., 2005. Appellate court adherence to precedent. *J. Empir. Legal Stud.* 2, 369–405.
- Easterbrook, F.H., Fischel, D.R., 1985. Limited liability and the corporation. *Univ. Chicago Law Rev.* 52, 89–117.
- Epstein, L., Landes, W.M., Posner, R.A., 2013. *The Behavior of Federal Judges: A Theoretical and Empirical Study of Rational Choice*. Harvard University Press.
- Fischman, J.B., 2015. Do the justices vote like policy makers - evidence from scaling the supreme court with interest groups. *J. Legal Stud.* 44 (1), S269–S294.
- Gennaioli, N., Shleifer, A., 2007. The evolution of common law. *J. Polit. Econ.* 115, 43–68.

- Gilbert, M.D., 2011. Does law matter? Theory and evidence from single-subject adjudication. *J. Legal Stud.* 40, 333–365.
- Hadfield, G.K., 2004. Where have all the trials gone? Settlements, nontrial adjudications, and statistical artifacts in the changing disposition of federal civil cases. *J. Empir. Legal Stud.* 1 (3), 705–734.
- Helland, E., 2019. The role of ideology in judicial evaluations of experts. *J. Law Econ.* 62 (4), 579–611.
- Hodge, L.C., Sachs, A.B., 2008. Piercing the mist: Bringing the thompson study into the 1990s. *Wake Forest Law Rev.* 43, 341–363.
- Hubbard, W., 2013. Testing for change in procedural standards, with application to *bell atlantic v. Twombly*. *J. Legal Stud.* 42 (1), 35–68.
- Klarman, M.J., 2005. Brown and lawrence (and goodridge). *Michigan Law Rev.* 104 (3), 431–489.
- Klerman, D., Lee, Y.-H.A., 2013. Inferences from litigated cases. *J. Legal Stud.* 43 (2), 209–248.
- Kornhauser, L.A., 1999. Judicial organization and administration. In: Sanchirico, C.W. (Ed.), *Encyclopedia of Law and Economics*. Vol. 5, pp. 27–44.
- Macey, J., Mitts, J., 2014. Finding order in the morass: The three justifications for piercing the corporate veil. *Cornell Law Rev.* 100, 99–155.
- Matheson, J.H., 2009. The modern law of corporate groups: An empirical study of piercing the corporate veil in the parent-subsidiary context. *North Carolina Law Rev.* 87, 1091–1156.
- McPherson, R., Raja, N., 2010. Corporate justice: An empirical study of piercing rates and factors courts consider when piercing the corporate veil. *Wake Forest Law Rev.* 45, 932–969.
- Miceli, T.J., Coşgel, M.M., 1994. Reputation and judicial decision-making. *J. Econ. Behav. Organ.* 23 (1), 31–51.
- Millon, D., 2007. Piercing the corporate veil financial responsibility and the limits of limited liability. *Emory Law J.* 56, 1305–1382.
- Niblett, A., 2013. Tracking inconsistent judicial behavior. *Int. Rev. Law Econ.* 34, 9–20.
- Niblett, A., Posner, R.A., Shleifer, A., 2010. The evolution of a legal rule. *J. Legal Stud.* 39 (2), 325–358.
- Posner, R.A., 1973. An economic approach to legal procedure and judicial administration. *J. Legal Stud.* 2 (2), 399–458.
- Posner, R.A., 1993. What do judges and justices maximize? (the same thing everybody else does). *Supreme Court Econ. Rev.* 3, 1–41.
- Posner, R.A., 1998. Against constitutional theory. *New York Univ. Law Rev.* 73 (1), 1–22.
- Priest, G.L., Klein, B., 1984. The selection of disputes for litigation. *J. Legal Stud.* 13 (1), 1–55.
- Segal, J.A., Spaeth, H.J., 1993. *The Supreme Court and the Attitudinal Model*. Cambridge University Press.
- Segal, J.A., Spaeth, H.J., 2002. *The Supreme Court and the Attitudinal Model Revisited*. Cambridge University Press.
- Spaeth, H.J., Segal, J.A., 2001. *Majority Rule or Minority Will: Adherence to Precedent on the U.S. Supreme Court*. Cambridge University Press.
- Stephenson, M.C., 2009. Legal realism for economists. *J. Econ. Perspect.* 23 (2), 191–211.
- Sunstein, C.R., Schkade, D., Ellman, L.M., Sawicki, A., 2006. *Are Judges Political?: An Empirical Analysis of the Federal Judiciary*. Brookings Institution Press.
- Thompson, R.B., 1991. Piercing the corporate veil: An empirical study. *Cornell Law Rev.* 76, 1037–1074.