

Judicial Federalism and Representation

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Abstract

The system of dual federalism in the United States creates interactions on multiple levels between judges, lawmakers, and the public. The Supreme Court is tasked with interpreting the U.S. Constitution, and no state can set policy below the minimum required by the Court. The ability of federal courts to set a federal “floor” for legal policy has several implications for understanding the relationship between public opinion and policy. In this paper I develop a theory that examines how judicial federalism affects state-level representation. In the theory, a federal court unilaterally establish a federal floor in a given policy area, thus creating an asymmetry—states in which the legislature has chosen a lower level are compelled to shift policy to the floor, whereas states in which legislatures or voters prefer levels above the floor are unaffected. I develop versions of the theory both with and without cross-state moral externalities; in doing so I recast the familiar “counter-majoritarian difficulty” as a problem of federalism. The predictions of the theory are illustrated and tested with original and existing data on public opinion, state-level policy, and judicial decisions on the issue of abortion. *Preliminary version*

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1 Introduction

Under the system of dual federalism in the United States, federal courts exert power over both the federal government and state governments. Due to its national scope, and combined with the sweeping power of judicial review, the U.S. Supreme Court in particular establishes the types of policies that legislatures are permitted to enact. Via its interpretation of the U.S. Constitution, the Court can establish a *minimum* level of protection. This level constitutes a federal “floor” for legal policy, below which no state can lawfully go. As Whittington (2007, 105) argues, “the Supreme Court’s power of judicial review of the constitutionality of state statutes is the primary mechanism available to the federal government for supervising the independent state governments.” decisions are analogous to a federal mandate established by Congress, which affect the ability of states to pursue favored policies.

In this paper I examine how the ability of federal courts to establish federal floors affects representation—specifically, the relationship between public opinion and policy at the state level. To do so, I develop a theory that is based on models of the effect of federal mandates on policy choices, when policy is a function of choices made at both the state and federal levels (Crémer and Palfrey 2000). In the model, a federal court can (unilaterally) establish a federal floor in a given policy area—for example, how much protection does the Second Amendment grant individual gun-owners who wish to purchase firearms without excessive government regulations? This floor thus establishes a minimum level of protection—states in which the legislature has chosen a lower level are compelled to shift policy to the floor. States in which legislatures or voters prefer levels above the floor are unaffected. I develop versions of the theory both with and without cross-state moral externalities.

The purpose of the model is three-fold. First, I use it to recast the familiar “counter-majoritarian difficulty”—the problem of unelected judges striking down legislation enacted by elected legislatures—as an issue of federalism. Most theoretical and empirical accounts of

the counter-majoritarian difficulty focus on Supreme Court invalidations of federal legislation enacted by Congress. While this use of judicial review is surely important, throughout its history the Supreme Court has been much more active in striking down state legislation than federal legislation. Moreover, the use of judicial review to strike a state law has potential implications for all 50 states, whereas federal review (generally) affects only Congress. The model of federal floors—particularly when one allows for cross-state externalities—allows for more precise definitions of when a decision is in fact counter-majoritarian. Specifically, a decision to implement a federal floor benefits voters who prefer higher levels of constitutional protection, due to the positive externalities of states in “low protection” states being forced to shift their policies. Conversely, a floor harms voters who prefer lower levels of protection, since they suffer both immediate policy losses and negative externalities from other states shifting their policies to accommodate a federal court’s mandate. Comparing net beneficiaries to net losers from the mandate allows for a classification of whether a given decision is pro- or counter-majoritarian.

Second, and relatedly, I use the theory to study the effect of federal floors on state-level representation. Because courts can implement floors but not ceilings, the effect of judicial review of state statutes on representation is *asymmetric*: state legislatures cannot implement policies below the floor, meaning that state median voters who prefer such policies cannot be adequately represented. Conversely, state legislatures can shift policy anywhere above the floor, meaning that state median voters who prefer higher amounts of protection *can* be adequately represented—even if there is no guarantee that policy will match their preferences.

Third, I use the theory to make predictions about the distribution of the types of constitutional challenges across state and federal courts. If the Supreme Court “lowers” the floor by establishing fewer constitutional protections in a given issue area, that move reduces the prospects of challenges being successful in lower federal courts (due to the nature of strict vertical stare decisis in the federal judicial hierarchy). This shift, in turn, should

induce litigants to bring more challenges in *state* courts, given that state court judges, via their interpretation of their state constitutions, are free to raise the floor above the level of protection beyond that provided by the U.S. Supreme Court.

To illustrate and test the theory, I use both original and existing data on public opinion, judicial decisions, and state-level policy on the issue of abortion. First, I use the theory to re-evaluate whether *Roe v. Wade* was in a fact a counter-majoritarian decision. Second, I show how variation in federal floors affects congruence between state-level public opinion and policies regarding several types of abortion restrictions. Third, I evaluate the effect of this variation on the incidence of constitutional challenges brought in federal versus state courts. These results have important implications for understanding the importance and influence of judicial federalism.

2 Vertical vs. Horizontal Judicial Review

In evaluating the Supreme Court’s role in the American political system, it is useful to distinguish between “horizontal” versus “vertical” judicial review (Friedman and Delaney 2011). The former refers to judicial review of the “coordinate branches of the [national] government by the Courts,” while the latter refers to “review of the constitutionality of the actions of the state and local governments under the U.S. Constitution” (Whittington 2008, 1258, fn. 4). Thus, federal courts are directly enmeshed in the twin pillars of the American constitutional design: federalism and the separation of powers.

Questions of federalism have surrounded the federal courts since their inception. In reaction to the failures of governance under the Articles of Confederation—which featured no national courts—the framers made the U.S. Constitution the “supreme law of the land,” with every state bound by it.¹ While there was general agreement over the need for a national

¹The full text of the “Supremacy Clause” (Article VI, Clause 2) reads: “This Constitution, and the Laws of the United States which shall be made in pursuance thereof; and all treaties made, or which shall be made, under the authority of the United States, shall be the supreme law of the land; and the judges in every state shall be bound thereby, anything in the constitution or laws of any state to the contrary notwithstanding.”

Supreme Court, there were deep divisions over whether and to what extent federal courts in general—as opposed to state courts—should be tasked with reviewing the accordance of state laws with the U.S. Constitution. These divisions led to a series of compromises resulting in Article III of the Constitution, which delegated to Congress choices over both the structure of lower federal courts and the scope of the federal courts’ appellate jurisdiction (Crowe 2012, 26-8).

While the Supreme Court famously consolidated its power of horizontal judicial review in 1803 in *Marbury v. Madison*, most of the political battles the Court fought in its early decades concerned vertical judicial review. The Court’s decision in *Chislm v. Georgia*, in which it ruled in favor of the executor of a South Carolina merchant who sued the state of Georgia over outstanding payments, led to an immense backlash from the states and the quick passage of the 11th Amendment. However, the Court would prove more successful in later decades (in cases such as *McCulloch v. Maryland*) in striking down state laws that posed a threat to the economic and political functioning of the national government. As Friedman and Delaney (2011, 105) argue, “over time national officials came to understand that the judiciary was an essential ally in their struggles with the states,” thereby endowing the Court with “vertical supremacy,” which it continues to exercise today.

2.1 Federalism and The Counter-Majoritarian Difficulty

The ability of unelected and life-tenured federal courts to strike down legislation passed by the elected branches has given rise to the so-called “counter-majoritarian difficulty.” As first formulated by Bickel (1962, 16-7), “when the Supreme Court declares unconstitutional a legislative act or the action of an elected executive, it thwarts the will of representatives of the actual people of the here and now; it exercises control, not in behalf of the prevailing majority, but against it.” This tension is certainly one of the more important normative issues in considering the power of federal courts (Waldron 2006).

The exercise of horizontal versus vertical judicial review raise distinct (if overlapping)

questions, and normative evaluations of the counter-majoritarian difficulty have focused on both. Bickel (1962, 56-65), for example, was writing in the shadow of *Brown v. Board of Education*, which struck down segregation statutes in multiple states (see also Wechsler 1959). And, as I discuss below, the Supreme Court’s 1973 decision in *Roe v. Wade* striking down abortion statutes in many states is perhaps the modern decision most synonymous with the counter-majoritarian difficulty, and has generated scores of evaluations along these lines (e.g. Ely 1973, Calabresi 1997, Lain 2012). In addition, scholars working in the American Political Development tradition have examined how “the Supreme Court has used the power of judicial review to bring states into line with the nationally dominant constitutional vision” Whittington (2007, 107)

In contrast, quantitative evaluations of the counter-majoritarian difficulty have tended to implicitly discount the importance of federalism. This can be seen in two important strands of research on the Court’s decision making. First, there exists a large literature on whether the decisions of the U.S. Supreme Court align with majority opinion (Mishler and Sheehan 1993, Epstein and Martin 2010, McGuire and Stimson 2004, Giles, Blackstone and Vining 2008, Casillas, Enns and Wohlfarth 2011, see e.g.). These studies tend to focus on *national-level public opinion*, ignoring the distribution of opinion across states.² This metric makes sense when evaluating the justices’ review of federal legislation. But when the Supreme Court reviews *state legislation*, the metric is less clear, as the Court is potentially disrupting the connection between state-level public opinion and state policies.

Second, there is a significant literature to what extent the Court is constrained by Congress or the president, or both. If such constraint exists, it would potentially mitigate the counter-majoritarian difficulty, since the Court would be less likely to strike down

²In addition, as Kastellec (2016) notes, these studies generally use highly aggregated measures of public opinion (such as measures of overall public mood) to predict the Court’s aggregate voting behavior, making impossible a one-to-one comparison of policy and opinion (see e.g. McGuire and Stimson 2004, Giles, Blackstone and Vining 2008, Casillas, Enns and Wohlfarth 2011). In contrast, in the empirical application below I develop policy-specific measures of state-level public opinion, to which state-level policy can be compared.

acts of Congress, which are passed by elected officials.³ Typically, however, these studies either focus solely on judicial review of Acts of Congress (e.g. Clark 2011, Segal, Westerland and Lindquist 2011, Harvey 2013) or pool constitutional decisions that involve both state and federal law (Meernik and Ignagni 1997, Segal 1997, Segal and Spaeth 2002, Bailey and Maltzman 2008). Perhaps most famously, Robert Dahl’s (1957, 282) argument that the Supreme Court will only rarely be out of step with the dominant national political coalition expressly set aside what Dahl called the “ticklish” question of the Court’s consideration of state laws (Casper 1976).

The empirical focus on horizontal judicial review is not surprising, given the salience of the Supreme Court’s invalidation of congressional acts. Yet this focus obscures the fact that throughout its history, the Court has been much more active in invalidating state laws, compared to federal laws. As of 2014, according to the Congressional Research Service, the Supreme Court had invalidated 177 federal laws, compared to 955 state laws.⁴ Moreover, whereas the exercise of horizontal judicial review (generally) affects only Congress, vertical judicial invalidations has potential implications for all 50 states. For example, in their study of the Supreme Court’s review of state statutes, Lindquist and Corley (2013, 8) find that 25% of the Court’s decisions in which it evaluates a state statute “have the potential to adversely [and directly] affect state statutes from 21 or more states”—this is because other states have similar or identical statutes to the one under consideration. Moreover, this

³Kastellec (2016) discusses the differences between the “traditional” view of the counter-majoritarian difficulty (i.e. the Bickelian view) and revisionist approaches in which judicial review can either help legislators accomplish goals or actually move closer to public opinion, if policy lags behind changes in opinion. The possibility of a constrained court mitigating the counter-majoritarian difficulty falls under the traditional view. In the theory I present below I account for both possibilities.

⁴The federal and state lists are available respectively from <https://www.gpo.gov/fdsys/pkg/GPO-CONAN-2002/pdf/GPO-CONAN-2002-10.pdf> and <https://www.gpo.gov/fdsys/pkg/GPO-CONAN-2002/pdf/GPO-CONAN-2002-11.pdf> (both accessed in March 2016). See Whittington (2008, 1261-2) for details on how these lists were compiled over time. As he notes, there are good reasons to believe that the list of federal statutes is underinclusive, and omits instances of invalidations by the Court. However, the same issues likely affect the list of state law invalidations, and while the exact numbers may thus be off, the broader point that the Court has invalidated many more state laws is indisputable.

statistic undercounts the potential implied effect of an invalidation of a state law, since such a decision sets the federal floor below which no state can go, meaning the policy implications of an invalidation may extend to all 50 states. Lindquist and Corley (2013, 5) add: “A choice to invalidate a particular state’s legislation has counter-majoritarian effect *within the state* by countering the preferences of a majority of the state’s population as expressed through legislation, and counter-majoritarian at the *national level* when it affects legislation as enacted by a large number of states whose collective populations compose a national majority” (emphasis in original). However, while their study is important, Lindquist and Corley (2013) do not evaluate the relationship between public opinion, state statutes, and the effect of the Supreme Court’s decisions.

2.2 Courts and theories of federalism and policy responsiveness

Political science theories of federalism have tended to focus on economic questions (i.e. “fiscal federalism”), in particular the provision of public goods across the national and state level (see e.g. Oates 1972, Rodden 2006, Besley and Coate 2003). Courts, however, are largely absent from these theories. Scholars *have* examined how courts may enforce the “federal bargain” between state governments and the national governments (Riker 1964, Bednar and Eskridge Jr 1994, Bednar 2004). Similarly, in the formal model presented in Carrubba (2009), for example, federal courts help state governments overcome collective action problems by incentivizing compliance with national regulatory regimes.

Separately, a voluminous literature has examined the relationship between public opinion and policy at the state level (see e.g. Erikson, Wright and McIver 1993, Brace et al. 2002, Lax and Phillips 2012). This literature, however, generally does not evaluate the role of federal courts in structuring the relationship between policy and opinion via their constitutional decisions. In addition, scholars have examined whether federalism may weaken representation by making it more difficult for citizens to hold politicians accountable, due to the diffusion of responsibilities and actions across the state and federal governments. Courts, however,

again do not play a role in these studies (Arceneaux 2005, Maestas et al. 2008, Wlezien and Soroka 2010). Thus, while from the federalism literature we have a good understanding of why federal courts exist within a federal system, we do not know much about how they affect representation at the state level.

While not modeling the judiciary, a series of recent formal theories by Palfrey and Cremer (1999, 2000, 1996, 2006) provide a framework for understanding how vertical judicial review affects representation at the state level. In particular, Crémer and Palfrey (2000) present a theory that examines the effects of federal mandates—i.e. a minimum policy below which no state can go below—on voter utility. The establishment of a federal mandate in the first stage affects voting over state policies in the second stage, and more voters will be made worse off the existence of a mandate than there are voters who will benefit. Cameron (2005)—the closest analogue to the theory I present below—uses the architecture of Crémer and Palfrey (2000) to develop a theory in which the Supreme Court strategically chooses whether to assert jurisdiction in a given area of the law, as a function of expected enforcement costs over states who suffer policy losses from the Court’s policy, should it assert jurisdiction and establish a national floor. Cameron uses this model to analyze the Court’s jurisdictional decisions in the 19th century, when it was still in the process of consolidating its institutional power. As discussed earlier, today that consolidation is largely complete, and for my purposes the relevant question is not the *ex ante* strategic choice of jurisdiction by the Court, but how the Court’s use of vertical judicial review has *ex post* effects on representation by constraining the set of available state policies.

3 A Theory of Judicial Federalism and Representation

The theory I develop builds directly off the formal theories presented in Crémer and Palfrey (2000) and Cameron (2005). Whereas those theories are game-theoretic, I present an informal theory that considers the Supreme Court as a non-strategic actor, and evaluates how the establishment of federal floors affects representation at the state level. While my applica-

tion of these models is largely intuitive, employing their mathematical structure of allows for concrete evaluations of voter welfare, which I use to define counter- versus pro-majoritarian decisions. (In the conclusion to the paper I suggest some ways in the model could be adapted to consider strategic behavior by federal and state courts, as well as legislators.)

It is also worth noting that I set aside any evaluation of whether judicial review is normatively desirable above and beyond its effect on the linkages between public opinion and policy. Of course, one defense of judicial review is that the Constitution prohibits some sets of policy choices—even ones that may be broadly popular—and the task of judges is to decide where that line is (e.g. Ely 1980). More directly, McGinnis and Somin (2004) argue that the very structure of federalism requires federal courts to intervene for citizens to best obtain the benefits of federalism. While recognizing these important normative considerations, my purpose in this paper is to focus solely on the positive consequences of judicial federalism as it pertains to representation.

3.1 Preliminaries

I consider a federation of S states, where S is an odd integer greater than or equal to three, and s denotes individual states.⁵ Each state has a continuum of voters, who are denoted by i , with i, s denoting a voter i in state s . It is useful to denote separate levels of aggregation within the government. Let N denote the set of all voters in all states, or the *national* district. Let C_1, C_2, \dots, C_k denote the set of *circuits* within the government, of number k . The name of “circuit” is derived, of course, from the U.S. Courts of Appeals, which are divided into geographic units. More generally, circuits can be thought of as aggregations of two or more states. Each circuit consists of a subset of the set of all states; these subsets are both exhaustive and mutually exclusive (i.e. every state appears in one and only one

⁵The model could be generalized to consider much smaller jurisdictions (e.g. legislative districts), as is done in Crémer and Palfrey (2000). Because I focus on state policy making in this paper, I consider states as the smallest political unit.

circuit).⁶ Let $a \in \{N, C, S\}$ generically denote a given level of aggregation.

Following Crémer and Palfrey (2000), voters have single-peaked preferences over a one-dimensional policy space $x \in [0, \bar{x}]$. Rather than a standard rendering of a one-dimensional spatial model, the policy space here is best characterized as the “amount of protection” for a specified activity by an individual. In the abortion context, for example, a policy of 0 would mean a complete ban on all abortions under any circumstances, whereas \bar{x} would mean a total protection of a woman’s right to obtain an abortion under any and all circumstances. In this sense, the *absence* of policy characterizes complete protection, since the absence of laws means no restrictions on behavior. Let x_s denote the implemented policy in a given state.

The “amount of protection” space can encompass a wide range of issues, including issues in which ideological conservatives would prefer greater protections. To give an example with reverse ideological polarity—the issue of gun rights—a policy of 0 would mean a complete ban on individual ownership of any firearms, while a policy of \bar{x} would mean unrestricted access to any and all firearms. Moreover, the “amount of protection” space can be applied to many of historical episodes in which federal courts have controversially struck down state laws. For instance, during the period surrounding the Court’s (in)famous decision in *Lochner v New York* (198 U.S. 45) in 1905, the Court struck down approximately 200 economic regulations, under its interpretation of the due process clause of the 14th Amendment (Friedman (2000, 1448), citing Stone et al. (1996, 830-1)). The statute struck down in *Lochner* limited the number of hours in a day that an employee could work; the Court ruled that the statute violated an individual’s right to contract. The policy dimension was thus the right to contract, with 0 representing a complete ban on contracts, and \bar{x} representing total protection to engage in any type of contract— which would mean that all regulations of employee-

⁶Formally, letting c denote a generic circuit, $C_c \cap C_{\sim c} = \emptyset \forall c$, and $\bigcup_{\forall c} C_c = N$. A more complicated and general model could allow for overlapping jurisdictions, in which a state could appear in multiple circuits.

company interactions would be unconstitutional. The Supreme Court in this period thus established a high federal floor for such regulations.

Denote the ideal point of voter i in state s as t_{is} ; voters prefer state policies that are closer to their ideal point. For now, assume no externalities or spillovers from policies in other states. Assuming linear loss, the utility function for a voter can be stated as $U_s^i(x) = -|t_{is} - x_s|$.

It is useful to summarize the preferences of the median citizen at each level of aggregation in the government. Let m_s denotes the median citizen’s ideal policy in state s , m_c denotes the median citizen’s ideal policy in circuit c , and m_n denotes the ideal policy of the overall median citizen across all states (i.e. the “national” median voter). In addition, let m_a generically refer to the median voter at level of aggregation a .

3.2 Federal floors and state policy

In the formal literature on federal mandates, state policy results from the interaction of preferences aggregated across the government as well as preferences in individual lower units (see e.g. Crémer and Palfrey 2000). Judicial federalism and the power of judicial review simplifies matters a great deal, since courts can act unilaterally to change policy. Let FC denote a federal court, where SC denotes the Supreme Court; CC_k denotes a circuit court in circuit k , and DC_s a district court in state s . With slight abuse of notation, denote the ideal policy of each court by this same notation. Thus, SC denotes the Supreme Court’s ideal federal floor. This ideal point can encompass both pure policy concerns by judges *and* legalistic conceptions of appropriateness of judicial intervention in a given policy sphere. For example, a preference for a judicial floor of zero could mean that a judge’s interpretation of the Constitution leads to the conclusion that such protection is constitutionally unwarranted, and not necessarily that the judge personally favors no judicial guarantees protection in a

given area.⁷ The utility of a federal court is $\sum_s |t_s - FC|$ —that is, the average distance between its ideal point and all state policies.

In the absence of federal court action, states are unconstrained and free to choose to set policy anywhere in the policy space $x \in [0, \bar{x}]$. A federal court then sets a *federal floor*, denoted F_a . With F_a in place, the set of allowable policies shifts to $[F_a, \bar{x}]$.⁸ Given a court’s utility function, its strategy is simply to set F at its ideal policy.⁹

If implemented, F_a applies to the jurisdiction of the court that implements it. For example, a floor set by a district court F_{DC} would apply only to the state in which the district court is located; a floor F_{CC} would apply to all the states in a given circuit; and a floor F_{SC} applies nationally. Under the norms of strict vertical *stare decisis*, federal floors set by higher courts supersede decisions by lower courts.

To illustrate the level-specific implementation of federal floors, consider the events surrounding the federal judiciary’s consideration of gay marriage bans in recent years. In the two-year period following the Supreme Court’s invalidation of the “Defense of Marriage Act” in *U.S. v. Windsor* (133 S. Ct. 2675) in June 2013, the justices allowed lower federal courts (and state courts) to weigh in on gay marriage bans; only in June of 2015 did the Court strike down such bans as unconstitutional, creating a federal floor for protection of the right to marry in *Obergefell v. Hodges*. In between *Windsor* and *Obergefell*, several district court judges struck down gay marriage bans; these decisions applied to the state of the district judge. In addition, many circuit courts struck down bans as well; these decisions effectively

⁷Because I do not model judges as strategic actors, the law versus policy distinction is not very important here.

⁸For the purposes of this model, I assume that states fully comply with the federal floor and do not set policies below the floor. Alternatively, one could assume that such policies are struck down by a federal court as unconstitutional. Future work could both endogenize the choice of the federal floor based on expected compliance by the states (something that Cameron (2005) does with respect to federal jurisdiction) and accordingly make the federal court a strategic actor. Such a model would help us understand the *location* of federal floors, whereas I am more concerned with their *effects* on representation.

⁹See Lemma 2 in Cameron (2005). A court cannot “lower” policy in states with ideal points that are higher than FC , so it has no incentive to set the floor higher than its ideal point. Similarly, setting the floor lower creates a utility loss for the court, since some states will set policy between F_a and FC .

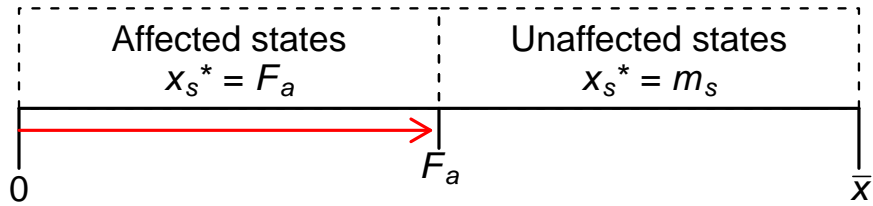


Figure 1: Illustrating the effect of a federal floor on state policy making.

ruled unconstitutional bans in every state within a given circuit. Similarly, in the years leading up to the Supreme Court’s decision in *Roe v. Wade*, which established the trimester framework for all states to follow, state and federal courts considered numerous challenges to existing state bans on abortions; many courts struck down such bans before the justices weighed in (Kastellec 2016).

3.3 State policy implementation

For now, and following the basic model in Cr mer and Palfrey (2000), assume that state policy is selected via referendum. In the absence of a federal floor, state policy would be set at m_s , the median voter in a state. With a federal floor in place, however, policies below F are now off-limits, and hence state policy is set at $x_s^* = \max \{F, m_s\}$. This result is illustrated in Figure 1: all states where the median voter prefers $x < F$ see policy “shifted” to F , thereby inducing a loss of utility for such median voters. These are the states affected by the establishment of the federal floor. Conversely, states where the median voter prefers $x \geq F$ are unaffected by the federal floor.

While straightforward, this result is fundamental to understanding the role of judicial review by federal courts in a federal system. The establishment of a federal floor cuts off the ability of some states—but not all states—to implement their preferred policy. In particular, those with a “low demand” for protections in a given issue are affected, while “high demanders” are not. This, of course, has important consequences for representation: it means that the ability of state policy to match state opinion when a federal floor has been set will be asymmetric.

3.4 Adding externalities

Now let us introduce the possibility of cross-state externalities in voters' utility functions. Many theories of federalism focus on economic externalities (e.g. Dahlby 1996, Keen and Kotsogiannis 2002, Crémer and Palfrey 2006). While certain types of judicial decisions—e.g. anti-trust rulings—can create or mitigate economic externalities across states, decisions implicating constitutional protections are more likely to implicate *moral* externalities (see e.g. Cameron 2005, Janeba 2004). The abortion issue is a clear example of how such externalities arise, in both directions. Those who are opposed to abortions may perceive harm from abortion restrictions being minimal in other states, even if such restrictions exists in a person's home state; conversely, those who support the right to an abortion might perceive harm from women in other states having reduced access to abortions, even if such restrictions do not directly impact those who live in a low-restriction state.

To motivate this possibility, I modify voters' utility function as follows:

$$U_s^i(x) = -\phi_s |t_{is} - x_s| - \alpha_{is} \sum_{j \neq s} \phi_j |t_{is} - x_j|, \quad (1)$$

where $\alpha \geq 0$ denotes the sensitivity of voter (i, s) to policy in states $j \neq s$, and $\phi_s \in (0, 1)$ denotes the relative size of state s , with $\sum_{s \in S} \phi_s = 1$. Thus, externalities for an individual voter are weighted by the distance between her ideal and policy in all other states, as well as the relative size of each state. (If $\alpha = 0$, the utility function reduces to that in which no externalities exist.)

3.5 Judicial floors and voter utility

I now proceed to consider how the establishment of a judicial floor affects aggregate voter utility. Doing so will facilitate below a consideration of counter-majoritarian decisions within the rubric of the judicial federalism framework.

Continue to assume that state policy perfectly matches the preferences of the median voter within each state. It is first useful to consider how the implementation of a judicial

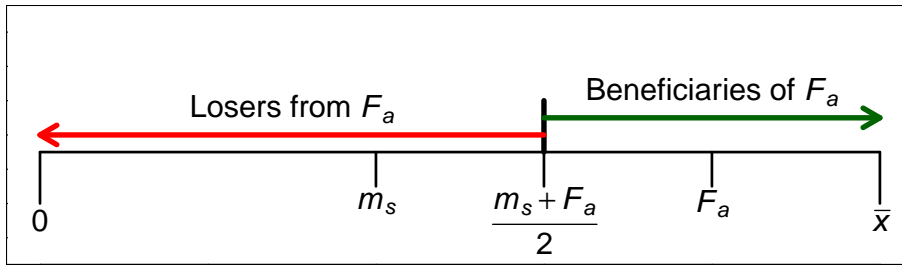


Figure 2: Illustrating winning and losing voters.

floor affects the *direct policy utility* of a voter within an affected state—that is, ignoring the role of any externalities. Again the median voter in a state is the relevant benchmark: if $f_s \leq m_s$, the the implementation of the floor does not affect policy, and voters’ utilities are likewise unaffected. Conversely, if $F_s > m_s$, many voters lose from a such a decision (since the floor is to the right of the median voter). Some voters, however, will benefit. Specifically, as seen in Figure 2, there is a cutpoint $\frac{m_s + F_s}{2}$ that lies halfway between the median voter’s ideal point and the judicial floor. Voters to the left of the cutpoint do worse under the floor, while voters to the right do better. Not surprisingly, voters with ideal points more extreme than the median and the location of the floor have more to lose and gain, while centrist voters see smaller utility shifts. The total shift in voters’ policy utility can be expressed simply as:

$$\gamma_s = \sum_{i,s} (|t_{is} - m_s| - |t_{is} - \max(F_s, m_s)|) \quad (2)$$

That is, the total shift is given by the distance between the voter and the median state voter (i.e the “old” policy), minus the distance between the voter and the new policy, which is determined by whether her state is affected by the federal floor. By construction, γ_s cannot be positive: setting the floor at or below the state median voter does not affect voters’ policy utility, while setting it above induces an overall decline in utility.

When we move to federal decisions that affect multiple states (i.e. circuit courts or the Supreme Court), the effect of judicial floors on aggregate voter utility is subtler. The calculation of net shift in voters’ policy utility proceeds similarly, only now we consider all voters in level a :

$$\gamma_a = \sum_{i,s} (|t_{is} - m_s| - |t_{is} - \max(F_a, m_s)|), \forall s \in a. \quad (3)$$

The location of the state median voter is still the benchmark, but now the relevant comparison is a judicial floor that affects voters in multiple states. It is straightforward to see that γ_a also cannot be positive: again a floor does not affect voters in states whose median lies above the floor, while it induces a shift in policy away from voters who are below the floor who live in states where the median voter is also below the floor.

For illustration, consider Figure 3, which depicts a hypothetical scenario of three states, where $\bar{x}=100$. There 99 voters, with 22 voters in state 1, 45 in state 2, and 32 in state 3. In each state, the ideal points of voters are drawn from a normal distribution; the mean ideal point of voters is increasing in each state. Specifically, the mean ideal point is 25, 50, and 75 in states 1, 2, and 3, respectively, with a standard deviation of 20 in each state (ideal points below 0 and above 100 are truncated at the limits). The top panel in Figure 3 depicts these distributions, along with the location of the respective median voters in each state. Suppose these three states are in the same circuit— m_c depicts the overall circuit median—and a circuit court sets a floor F_a . Imagine this being set sequentially at every integer on x —Figure 3B depicts the net utility shift from setting the floor at a given location on the horizontal axis. There is no effect until the floor hits just above the location of m_1 (around 20), at which point the extreme “low demand” voters in state 1 suffer a utility loss from the floor being set above m_1 . As the floor gets increasingly higher—particularly when it exceeds m_2 and m_3 —more voters are increasingly affected. As the floor approaches \bar{x} , only the most high demand voters benefit, while all others voter suffer a utility decline.

One interesting feature is that the overall circuit median can benefit from a floor if she happens to reside in a state whose median is to the left of her—that is, a high demand voter in a state with a relatively low demand median voter. This situation occurs in the simulation

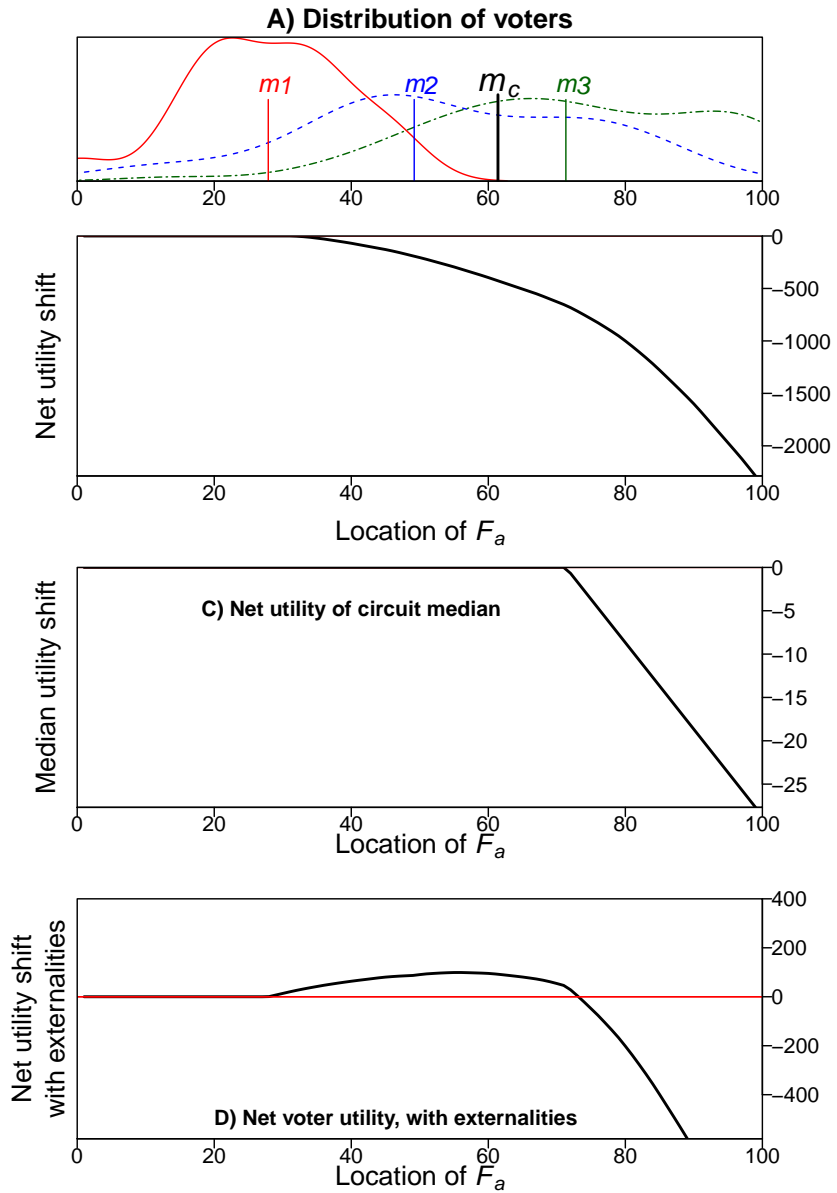


Figure 3: The Effect of a federal floor. A) The distribution of voters in a hypothetical 3-state example. Panels (B) through (E) affect shifts in utility as the floor at set sequentially from 0 to 100, for B) net voter utility, without externalities; C) the net utility of the circuit median (also without externalities; D) net voter utility with externalities; and E) net voter utility with externalities and lagging status quos. See text for further details.

in Figure 3: the circuit median resides in state 1, which would have a very low policy (m_1 in the absence of a floor). Figure 3C shows how the net utility to the circuit median from a floor as increases across x . The circuit median benefits from any floor above m_1 and below

$2m_c - F_c$.

Adding externalities Of perhaps greater substantive interest is the consideration of how externalities affect the overall picture of voter gains and losses. Accounting for externalities, the total shift in voter’s utility after the introduction of a federal floor can be expressed as follows:

$$\gamma_a^e = \sum_{i,s} \left(\left| -\phi_s |t_{is} - x_s| - \alpha_{is} \sum_{j \neq s} \phi_j |t_{is} - x_j| \right| - \left| -\phi_s |t_{is} - \max(F_a, m_s)| - \sum_{j \neq s} \phi_j |t_{is} - \max(F_a, m_s)| \right| \right), \forall s \in a. \quad (4)$$

While this expression is more complicated, the basic intuition is the same: voters compare their utility under the absence of a federal floor to that under the floor, which will now affect their utility gained or loss from policies being moved in states affected by the floor, even if their state is unaffected directly by the introduction of a floor.

To illustrate how the addition of externalities changes the net effect of the introduction of a federal floor, Figure 3D presents a similar analysis to that of Figure 3C, except now the calculations include externalities. (In this example I assume that α is uniformly distributed between 0 and 1; ϕ is based on the number of simulated voters in each state.) We can see a dramatic difference. The introduction of “moderate” floors—here in the range of 20 to 75—induce positive net voter shifts (indicated by the shaded region). This is because even though the setting of a floor has no *in-state* direct effect on many voters’ policy utility, they now reap the gains from low-demand states being forced to set higher policies, thereby moving out-of-state policy closer to their ideal points. This shift, of course, induces *negative* externalities for low demand voters who live in states with low demand median voters (on top of their in-state policy loss). However, in this example, only when the floor exceeds 75 or so (i.e only above m_3 do the overall utility losses from the floor exceed the benefits).

Defining a counter-majoritarian decision With Eq. 4 in hand, we can now turn to evaluating whether a particular federal decision is counter-majoritarian. Simply, if γ_a^e is

positive, then more voters are benefitting from the Court’s setting of a federal floor—such a decision is thus *pro-majoritarian*. If γ_a^e is negative, then the decision is counter-majoritarian. The example shown in Figure 3D illustrates the classic case of courts bringing “outlying minorities” in line with national majorities, as voters who favor higher protection see federal courts move policy closer to their ideal points in states where the median voter prefers lower levels of protection.

3.6 Incorporating state legislatures and status quo policies

So far I have assumed that state policy is set via referendum. Thus, in the absence of judicial intervention, state policy would be set perfectly at the location of the state median voter. Of course, policy is actually set by legislatures in most cases. Accordingly, assume now state policy is decided via an representative legislature. One possibility is that legislatures perfectly reflect the will of state majorities. In Crémer and Palfrey (2000), shifting from a referendum system to elected legislatures has a substantive impact on policy, as it results in the federal mandate being placed at the median of all median voters across districts, rather the overall median of all voters. In the model here, however, it actually produces no meaningful differences, given that F is set by a court. If state legislatures perfectly represented the state median voter, then state legislatures would set policy at $x_s^* = \max\{F_a, m_s\}$, and everything would play out as above.

Of more interest is the scenario where this is a potential mismatch between state policy and current state-level opinion. Such a disconnect may occur for several reasons. First, legislative majorities may understand the public’s desire for policy change but fear exercising such change for political reasons, and thus may prefer to defer to courts and their use of judicial review (Graber 1993, Lovell 2003, Lemieux and Lovell 2010). Second, the status quo biases inherent in the United States’ separation-of-powers system may actually lead to disconnect in the mapping from public opinion to policy, when the former moves and the latter does not (Lax and Phillips 2012). As a result, the status quo as established

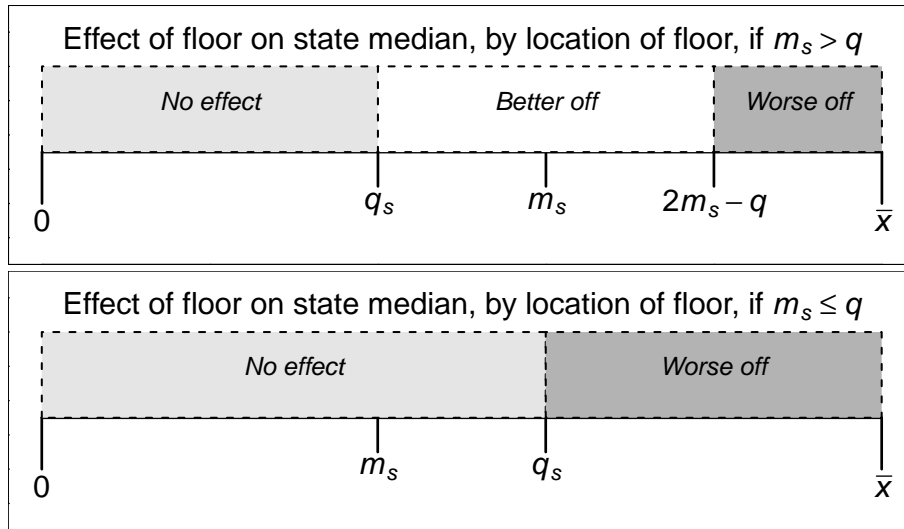


Figure 4: Effect of a federal floor on state median’s utility, depending on whether the median is to the right of the state status quo (top) or the left of the status quo (bottom).

by statutes may lag behind public opinion, perhaps due in part to blocking by entrenched interests (Whittington 2005, Klarman 1997, Lain 2012).

To capture this scenario, let q_s denote the status quo policy of state s . Accordingly, $|m_s - q_s|$ represents the lag between what the current state median prefers and the location of existing policy. Thus, there exists a range of federal floors that will improve upon the utility of the median voter. Setting aside externalities, whether a federal floor improves the welfare of a state median voter depends on her location relative to the status quo. Specifically, if $m_s > q$, any floor that is to the right of q and to the left of $2m_s - q$ will benefit the median voter. Conversely, if $m_s < q$, then the introduction or movement of a federal floor has either no effect or makes the state median voter worse off: the former occurs if $F_a \leq q$, while moving the floor above q makes the median even more worse off. Again, we see the asymmetric effect of federal floors, which is visualized in Figure 4: they only improve the representation of voters who are “higher” on a given policy dimension.

Returning to the question of how federal floors affect aggregate voter utility, including in the presence of externalities, we can restate Eqs. 3 and 4, but with q_s replacing m_s :

$$\gamma_a^{sq} = \sum_{i,s} (|t_{is} - q_s| - |t_{is} - \max(F_a, q_s)|), \forall s \in a.. \quad (5)$$

$$\gamma_a^e = \sum_{i,s} \left(\left| -\phi_s |t_{is} - x_s| - \alpha_{is} \sum_{j \neq s} \phi_j |t_{is} - x_j| \right| - \left| -\phi_s |t_{is} - \max(F_a, q_s)| - \sum_{j \neq s} \phi_j |t_{is} - \max(F_a, q_s)| \right| \right), \forall s \in a. \quad (6)$$

** check status quo in sims To see how the inclusion of lagging status quos may affect representation, I return to the hypothetical example in Figure 3. Whereas state policy defaulted to the location of the state median voter previously, now assume that the status quo in states 1 and 2 was actually “below” the location of the median: specifically $q_1 = 15$ and $q_2 = 20$ ($ms_1 = 21$ and $ms_2 = 49$). Figure 3E presents the shift in net voter utility, accounting for externalities, at every level of the federal floor. Because many more voters in states 1 and state 2 benefit from even floors well above their ideal point, the gain in voter utility is substantially higher than that seen in the case where policy is perfectly located at the state median voter (cf. Figure 3D). This example illustrates how mismatches between policy and opinion can increase the likelihood that policies mandated by unelected federal judges are nonetheless pro-majoritarian.

3.7 State courts

The final piece of the puzzle is state courts. Under the supremacy clause of the U.S. Constitution, state courts are obligated to respect floors set by the Supreme Court, but they can also interpret their own state constitutions as providing greater protections. Let SF_s denote a floor set by a state court in state s , where $SF_s \geq F_{SC}$.¹⁰

This aspect of the model speaks directly to the so-called “new judicial federalism” (Tarr 1996, Devins 2010, Brennan Jr 1977, see e.g.). As the Warren and Rehnquist Courts turned rightward and limited the Court’s interpretations of individual rights, liberals turned to state

¹⁰Though the issue is somewhat murky, state courts are not bound by decisions of lower federal courts (see e.g. Frost (2015)). Thus, state courts are only restricted by a federal floor set by the U.S. Supreme Court.

courts to for judicial expansion of such rights. In essence they were asking state courts to set constitutional floors far beyond the level the U.S. Supreme Court was willing to extend.

One direct implication of the fact that state floors can be above but not below the federal floor is that state court decisions should be more likely to be pro-majoritarian than federal decisions, since the implementation of federal floors will obviate state courts from striking down statutes that are set below a respective federal floor. Note that prediction does not rely on the fact that most state judges are elected, meaning they should be less likely to strike down favorable statutes than unelected federal judges who do not risk being thrown off the bench should they issue unfavorable opinions.

In addition, the model predicts that state courts should be more active in areas of the law with lower federal floors, since litigants are less likely to bring those cases to federal courts. Even when the Supreme Court has ruled an a restriction constitutional, based on the justices' understanding of the federal Constitutions, state courts may still find it unconstitutional under their state constitution. For example, in 1989 the California Court of Appeals ruled unconstitutional a state law requiring unwed minors to obtain consent from a parent or a court before having having an abortion.¹¹ Such a restriction had been held constitutional by the U.S. Supreme Court, but the California court noted that the California Constitution, “unlike the federal Constitution, expressly recognizes a right to privacy [that] is broader than the federal right to privacy.”

4 Evaluation abortion decisions, policy, and opinions

To illustrate the theory's predictions, I turn to the issue of abortion, which is conducive to studying the effect of federal courts on representation for a variety of reasons. First, the Supreme Court's rulings on abortion—particularly *Roe v. Wade*—have been at the heart of the modern-day discussion of the counter-majoritarian difficulty. As Solum (2014)

¹¹The case was *American Academy of Pediatrics v. Van de Kamp* (263 Cal.Rptr. 46), and is discussed in Devins (1996, 75).

argues, “the counter-majoritarian difficulty seems particularly acute when it comes to so-called implied fundamental rights,’ like the right to privacy at issue in cases like” *Roe*. Second, the Supreme Court has been active in regulating the constitutionality of abortion restrictions for five decades; as I discuss below, the level of protection has varied significantly over time, allowing for leverage over the question of how shifting floors affect the implementation of state policy. Third, public opinion on abortion has been extensively polled since 1973, allowing for the development of accurate measures of state-level opinion both over time and across several types of abortion restrictions.

In addition, the fight over abortion restrictions maps neatly into the policy space considered in the model. As noted above, \hat{x} represents a total protection of a woman’s right to obtain an abortion, whereas 0 represents a complete ban on abortions. As discussed in Kastellec (2016), no state enacted an abortion statute until the 1820s, meaning that the effective policy level was near \hat{x} . In the middle of the 19th century, several state legislatures enacted laws making abortion illegal after roughly 16 to 18 weeks of pregnancy, except in cases necessary to save the life of the woman. This shifted policy toward zero somewhat, while still allowing for abortions early in a pregnancy. The mid-19th century, however, witnessed a shift toward restrictive abortion policies, and by 1880 abortion was illegal in every state (although some states created health exceptions). Thus, policy across the states was effectively near zero.

Courts played no role in the abortion arena until the 1960s, when lawsuits were brought in many states challenging the constitutionality of restrictive abortion statutes. As Kastellec (2016) documents, some state courts and lower federal courts struck down these statutes as unconstitutional, which effectively implemented a floor of constitutional protection in those respective jurisdictions. In addition, when judges did strike down these statutes, public opinion in the respective states was usually in favor of moving away from the restrictive status quo and liberalizing abortion policy at least somewhat. In a majority of states,

however, the 19th century statutes were still in place when the U.S. Supreme Court weighed in with its decision in *Roe v. Wade*.

Was *Roe v. Wade* Counter-majoritarian?

One straightforward way to evaluate the popularity of *Roe v. Wade* is to simply look at national opinion on the case. In 1972, Gallup asked a national sample of Americans: “Would you favor or oppose a law which would permit a woman to go to a doctor to end pregnancy at any time during the first three months?” Forty-six percent said they were in favor, 45% said they were opposed, and 9% had no opinion. In April 1973, two months after *Roe* was handed down, Harris asked: “The U.S. Supreme Court recently decided that state laws which make it illegal for a woman to have an abortion up to three months of pregnancy are unconstitutional, and that the decision on whether a woman should have an abortion up to three months of pregnancy should be left to a woman and her doctor to decide. In general, do you favor or oppose the U.S. Supreme Court decision making abortions up to three months of pregnancy legal?” Fifty-two percent favored the decision, 42% opposed, and seven percent had no opinion. Thus, a very narrow majority of Americans favored *Roe v. Wade*, meaning that there was no national consensus regarding the decision and but that the Court was not wildly out-of-step with public opinion.

The model of judicial federalism allows for a more nuanced consideration of this question. In Kastlelec (2016), I estimated state-level support in the period just before *Roe* was decided on two issues: first, whether the public supported moving away from the restrictive status quo of allowing abortions only when the health of the woman was at stake. Second, I estimated state-level support for a more complete liberalization of the law, in which a woman could obtain an abortion at any time during the first trimester—that is, the rule announced by the Supreme Court in *Roe*.¹²

¹²I use multilevel regression and poststratification to do create the estimates. The approach I take to create these estimates differs slightly from that used in Kastlelec (2016); see the appendix for full details. Also, as described in the appendix, I employ a fully Bayesian approach to estimating opinion, which produces

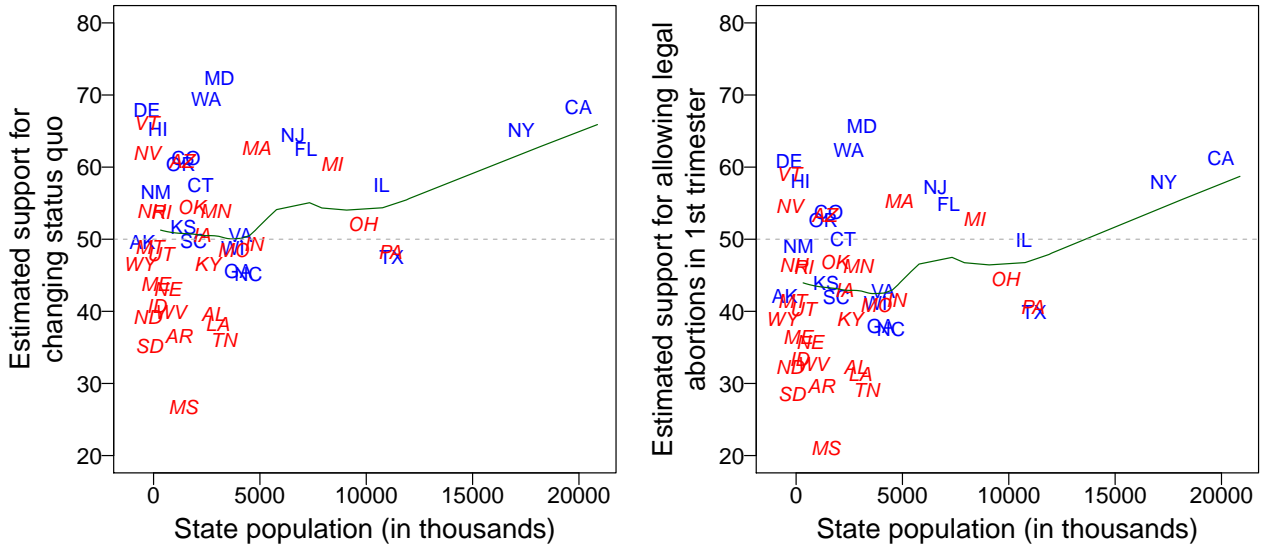


Figure 5: State-level opinion on abortion restriction as of *Roe v. Wade*, compared to state population. The left plot depicts estimated state-level support for moving away from the restrictive status quo of allowing abortions only when the health of the woman was at stake. The right plot depicts estimated state-level support for allowing abortions at any time during the first trimester. States with italicized (blue) initials still retained their 19th century statute as of *Roe*, while in the non-italicized (red) states, either the legislature had changed the statute or a court had invalidated the statute as unconstitutional, effectively shifting policy.

Figure 5 plots both of these estimates against each state’s population (as of 1970). In addition, I denote each state’s status quo policy as of *Roe*—states with italicized (blue) initials still retained their 19th century statute, while in the non-italicized (red) states, either the legislature had changed the statute or a court had invalidated the statute as unconstitutional, effectively shifting policy. The lines in each plot are lowess lines. The graphs show an increasing relationship between state population and more liberal state-level opinion, though the increase is largely driven by New York and California, which were by far the most populous states and had strong majorities in favor of legalizing abortion in the first trimester.

full distributions of opinion for every state. In this draft I simply work with the “point estimates” from this procedure—that is, the median level of opinion in each state, but eventually I plan to incorporate the full uncertainty into all the analyses.

Assessing whether *Roe* was counter-majoritarian, in terms of federalism, requires knowing the distribution of externalities both across and within states, which we do not know. However, Figure 5 illustrates the winners and losers of the decisions, at the state-level. In most states with median voters who favored retaining the status quo—i.e. those states below the horizontal 50% line in the left plot—the status quo was indeed in place. The average voter in these states thus suffered a direct policy loss of the Court implementing a floor well above their existing state policy, *and* the negative externalities from similar shifts in every state that had not liberalized their laws as of *Roe*. Notably, however, these states tended to have smaller populations on average.

Turning to net winners, the small number of states where a majority of residents supported allowing abortions in the first trimester but where the legislature had not updated their state statutes (e.g. Massachusetts and Michigan) gained directly from *Roe*, as the Court implement their preferred policy. This point illustrates how when the status quo lags due to inaction by the legislatures, courts can actually act in a pro-majoritarian manner through the use of judicial review. Interestingly, and by contrast, in California and New York, policy already matched majority opinion (due to legislative action in New York and both legislative and judicial decisions in California). Residents of the two largest states who favored allowing abortions in the first trimester thus received no direct policy gain from *Roe v. Wade*. However, they did receive positive externalities from the “low demand” states having to increase their protections for abortion rights to meet the new federal floor.¹³

¹³Also worth noting that in several states where majorities favored changing the status quo, such as New Jersey and Florida, state policy was only changed as a result of lower federal court and state court invalidations. While these decisions were themselves pro-majoritarian, they actually increased the counter-majoritarian-ness of *Roe*, since the other courts had already “done the work” of shifting policy to match opinion. In this sense it may be better to evaluate the effect of the judiciary as a whole on representation in a particular area of the law.

The effect of shifting floors on representation

I next examine how federal floors affect state-level representation. Following *Roe*, states sought to regulate abortion within the confines of the trimester framework. As different types of regulations emerged, federal and state courts adjudicated their constitutionality. The decisions by the U.S. Supreme Court over time both established and shifted the federal floor of protection. To study the effect of these determinations, I focus on the following eight policy areas, which, when enacted, have the described effect:

- *Bans on public funding.* The state to some extent restricts disbursement of public funds to abortion providers, usually through Medicaid programs.
- *Informed consent.* Abortion providers must provide women with specific written information, specific spoken information, or counseling before performing an abortion.
- *Waiting periods.* Following consultation with her provider or the after the woman provides her informed consent, she must wait a set period (of any length, but usually 24 or 48 hours) before obtaining an abortion.
- *Spousal consent provisions.* Women must receive the consent of their husbands before obtaining an abortion.
- *Spousal notification provisions.* Women must notify their husbands before obtaining an abortion.
- *Parental consent.* Minors must obtain the consent of one or both parents to obtain an abortion.
- *Parental notification.* Minors must notify one or both parents to obtain an abortion.
- *Partial-birth abortion* The state to some extent prohibits “partial-birth,” “late-term,” or “dilation and extraction” abortions.

For each of these policies, I measured the following quantities. First, based on the Supreme Court’s doctrine, I coded for each year whether the constitutionality of each policy was either a) unknown, because the Court had not adjudicated it yet; b) unconstitutional, or banned; c) constitutional; or allowed. For example, the Court first ruled on waiting periods in 1983, and found them unconstitutional. In 1992, the Court reversed itself and ruled them

constitutional, meaning that states have been free to implement such policies since then. (The appendix contains a complete description of the relevant cases establishing the constitutional standards over time). Figure 6 depicts the constitutional standard for each policy, from 1973 to 2012. The solid (grey) rectangles depict unknown periods; rectangles with (green) dashed lines depict allowed periods; and rectangles with (red) solid lines depict banned periods (ignore the horizontal lines for now).¹⁴ The figure depicts the well-known conservative shift in the Supreme Court’s abortion doctrine over time. Whereas several policies were ruled unconstitutional as of the late 1980s, today the only types of policies (among the eight) that are completely off-limits to states are spousal consent and notification laws.¹⁵

Next, for each policy, I sought to obtain the universe of available and useable polling data (i.e. polls with individual-level data) that asked respondents about their opinion on the *specific* policies. That is, rather than using a single summary measure of opinion on abortion (see e.g. Brace et al. 2002, Norrander 2001, Pacheco 2014), I develop specific estimates of opinion for each of the eight policies. The advantage of this approach is that I can measure the direct linkages between opinion and state policy (as mediated by the level of constitutional protections), which allows for direct tests of congruence between majority opinion and policies (Lax and Phillips 2012). To develop these estimates, I use multilevel regression and post-stratification (MRP). The full details are provided in the appendix, but, to summarize, I develop a version of MRP that pools information across both time and policies. With respect to policy, for example, knowing whether a respondent supports an informed consent law tells us something about her propensity to support a parental notification law, even if the relationship between support for the two types of restrictions is

¹⁴ The Supreme Court has ruled that parental consent provisions must contain procedures by which minors can obtain a “bypass” from a court which exempts them from having to obtain parental consent. I represent this bifurcation of the Court’s doctrine with separate boxes for “with bypass” and without bypass.

¹⁵ Note that some of the policy areas are more clear cut than others in what states may do. For example, it is clear that spousal consent provisions are absolutely banned, and no state has had one in place since 1976. By contrast, there is a continuum of informed consent provisions, and even in the period where the Court banned detailed informed consent provisions, more innocuous ones were allowed to be implemented.

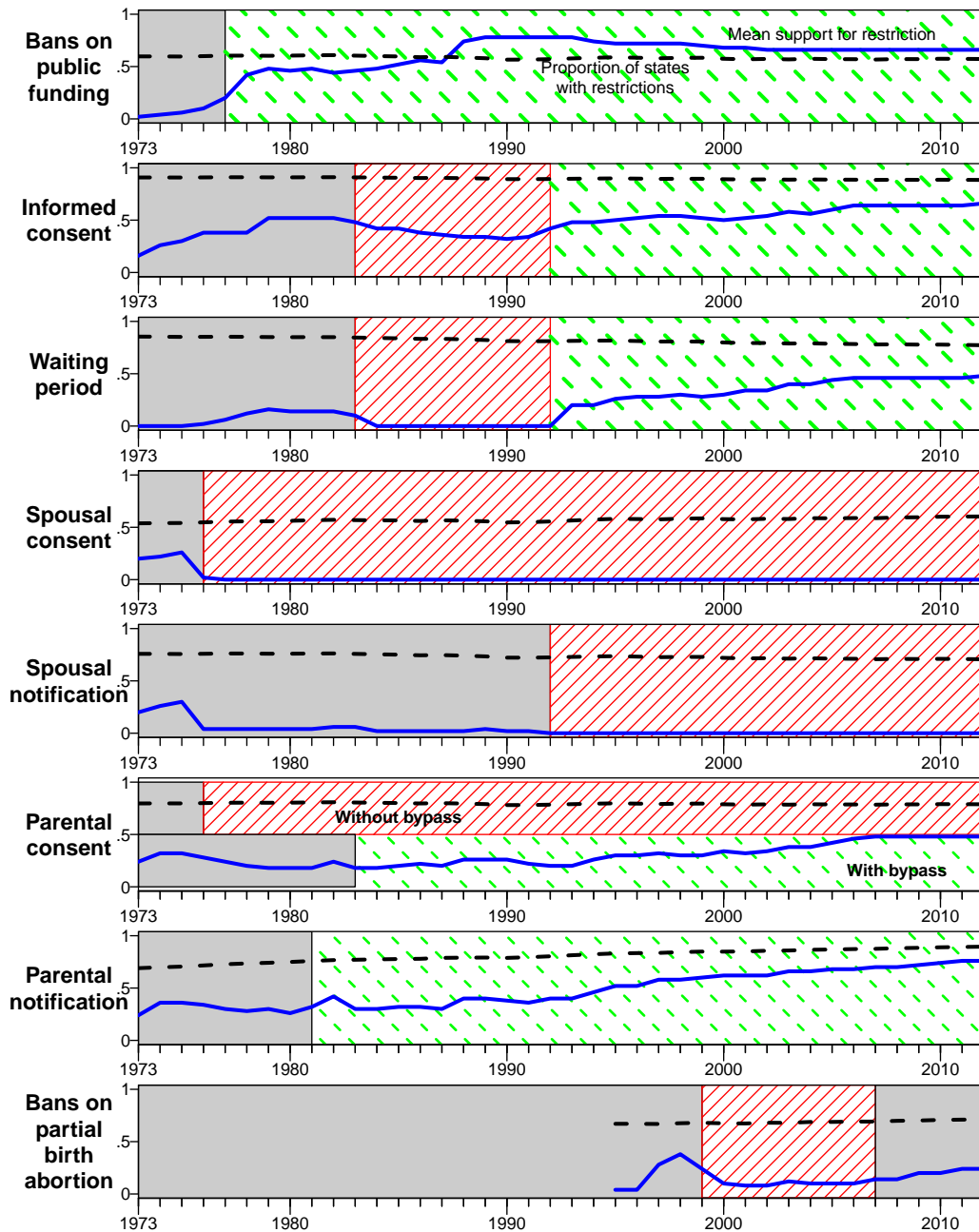


Figure 6: The federal floor for abortion restrictions, 1973-2012, as established by Supreme Court precedents. For each policy, the gray regions indicate years in which the Court had no explicit doctrine, and such policies were thus potentially constitutional. The solid (red) lines indicate years in which policy was deemed unconstitutional, while the dashed backward-sloping (green) lines indicate years in which the policy was deemed constitutional. (See fn. 14 for a discuss of the bypass distinction for parental consent restrictions.) The dotted (black) lines depict the mean of opinion (across all 50 states) for each policy over time, while the solid (blue) lines depict the mean number of states with active policies in a given area, by year.

not deterministic in the population. With respect to time, a state’s opinion on a particular policy in 1980 likely helps predict its support for that policy in 2000—even if it’s quite possible that opinion will trend over time on some or all of the policies. This procedure results in estimates of opinion on each policy in every state from 1973 to 2012.

Finally, for each state-year combination, I measured whether a state had an active policy in place for each of the eight policies.¹⁶ To measure this, I relied on a number of sources, including reports by interest groups that monitor state abortion legislation and policy, as well as other scholars. (See the appendix for complete details). In practice, state policies that has either been directly struck down by a court (including lower federal courts or state courts), or whose unconstitutionality is implied by a relevant Court decision remain “on the books”—I code such policies as “inactive.” Thus, active restrictions are only those that are legally enforceable by state officials.

Summarizing broad trends in the data Before moving to a state-level analysis, it is useful to examine the broad trends in opinion and policy over time. Returning to Figure 6, the dotted (black) lines depict the mean of state-level opinion (across all 50 states), for every year.¹⁷ The figure shows that all of these restrictions have been broadly popular over time (though, of course, looking at overall opinions masks considerable heterogeneity across states). There is, however, considerable variation across policies. Average support for informed consent laws has been about 90%, whereas support for spousal consent laws has increased from about 60% in 1973 to about 70% in 2012.

Given the broad support for these types of restrictions, state legislatures will be able to better match opinion majorities in “policy-years” where the Supreme Court has not ruled them unconstitutional. In other words, because the federal floor is above the average voter’s ideal point, lowering the floor should result in state legislatures implementing favored

¹⁶I exclude Washington D.C. from all analyses in this paper.

¹⁷Bans on partial-birth abortion bans were only first implemented in 1995, and thus I plot both policy and opinion starting that year.

restrictions. Indeed that is what we see. The solid (blue) lines in Figure 6 depict the mean number of states with active policies in a given area, by year. It is clear that the percentage of states with active restriction tracks average opinion levels in policies and eras where the Court has ruled them unconstitutional. For example, spousal consent laws have been off-limits since 1976—no state has had such a law since then, even though majorities in many states would have prefer to implement such policies. Conversely, the Court has allowed bans on public funding of abortion since the 1970s; the average number of states with bans has closely tracked average opinion over time.

State-level responsiveness by the level of the federal floor What, then, is the relationship between state-level opinion and state-level policy? Figure 7 examines this relationship, by breaking down the relationship between opinion and policy, for each policy, across whether a federal floor exists. Specifically, for each issue, the horizontal axis depicts the distribution state-level opinion from 1973 to 2012 (the unit is state-years). The vertical axis depicts whether a state had a given restriction in place. The data are then broken down by whether the Supreme Court had banned a given restriction (for simplicity, I pool “unknown” and “allowed” periods). The lines at the top and bottom of the plots present a “rug” of the data. The backslash (blue) lines depict observations where no floor was in place, meaning a state was permitted to implement a restriction. The forward-slash (red) lines depict observations where the federal floor for was in place, meaning that policy had been deemed unconstitutional by the Court. Finally, the solid (blue) and dashed (red) lines depict the estimated curves from bivariate logits of restrictions on policy, across periods in which each policy was allowed or banned, respectively.

Figure 7 makes evident that in periods without federal floors in a given policy, there is a strong (if imperfect) relationship between state policy and opinion—the solid are all positively sloped, meaning the likelihood of a state enacting a restriction increases as public support for that relationship increases. At the same time, many states have not had specific

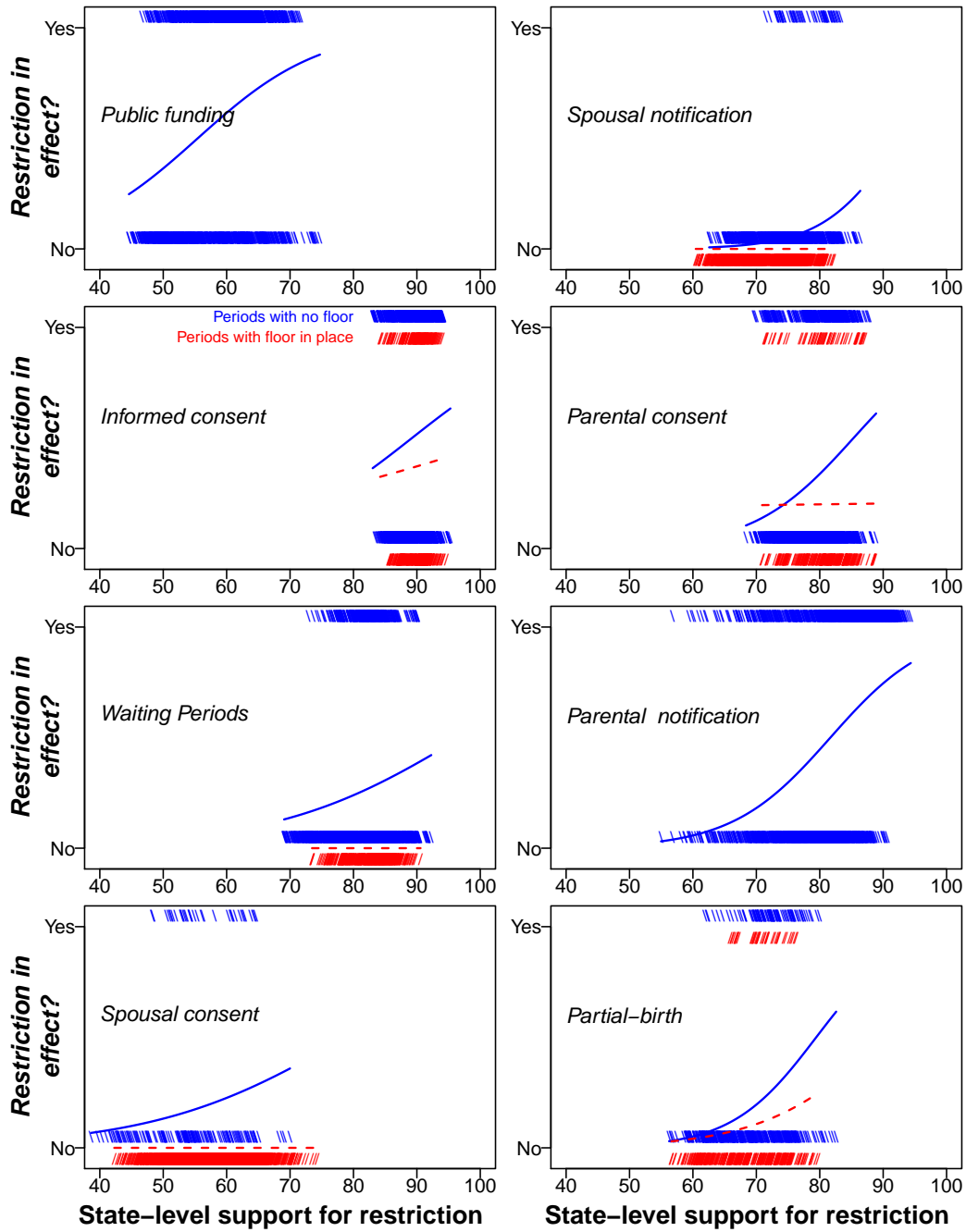


Figure 7: The relationship between state-level opinion and policy, broken down by periods where the Court banned or allowed a given policy. The lines at the top and bottom of the plots present a “rug” of the data. The backslash (blue) lines depict observations where no floor was in place, meaning a state was permitted to implement a restriction. The forward-slash (red) lines depict observations where the federal floor for was in place, meaning that policy had been deemed unconstitutional by the Court. Finally, the solid (blue) and dashed (red) lines depict the estimated curves from bivariate logits of restrictions on policy, across periods in which each policy was allowed or banned, respectively.

policies in place, even when state majorities have favored them (see e.g. the large number of state-years in which parental notification policies have not been place, even though opinion majorities always favor them).

In contrast, Figure 7 shows that when a Supreme Court sets the federal floor above a given policy, meaning that is unconstitutional, responsiveness between policy and opinion is either weak or non-existent. For example, because the Court has held outrightly since 1976 that spousal consent laws are unconstitutional, no state has had such a restriction in place since then, and thus there has been a zero relationship between opinion and policy in that period. (Conversely, 35 state-years before 1976 saw spousal consent provisions in place, and there was a positive relationship in that period). For policies such as informed consent and partial-birth abortions ban, in which the Court banned particular types of statutes but states sought to implement less restrictive types of these policies (see fn. 15 above), there remains a positive relationship between opinion and policy, but the strength of this relationship is much weaker compared to periods in which the Court has deemed a policy clearly constitutional.

Modeling congruence Next, I present a statistical of congruence between opinion and policy, as mediated through the level of floors. Define a state s as having policy p being congruent (c) with opinion in year y if at least 50% of the state populations favors a given restriction and it is in effect, or fewer than 50% favor a restriction and it is not in place, and 0 otherwise. Across all state-year-policy combinations in the data, the mean level of congruence is 29%. My goal is to estimate a model of policy congruence that accounts for the level of federal floors.¹⁸

¹⁸There is a sizable literature on the relationship between public opinion and state abortion restrictions (see e.g. Goggin and Wlezien 1993, Wetstein and Albritton 1995, Norrander and Wilcox 1999, Camobreco and Barnello 2008, Kreitzer 2015); these studies generally find substantial correlations between opinion and policy, particularly in states with initiative processes (Arceneaux 2002, Bowler and Donovan 2004, Gerber 1996). However, these papers do not account for the role of courts in shaping the connection between the two. (In addition, as I discuss in the appendix, these studies tend to use highly aggregated measures of public opinion on abortion, which does not allow for a fine-grained matching of policy-specific opinion with

Following Lax and Phillips (2012) I account for the size of the opinion majority, which ranges in theory from 50 (bare majority support) to 100 (complete support); in the data it ranges from 50 to 95%. The likelihood of congruence should increase as larger opinion majorities favor or oppose a given restriction.

To measure the influence of the Supreme Court’s interpretation, let *SC-unknown* denote years in which the Court has not ruled on the constitutionality of a restriction, and *SC-allowed* denote years in which the Court has ruled a restriction constitutional. I allow these two variables to enter the model separately, with years in which the Court has ruled a restriction unconstitutional serving as the reference category.¹⁹

The structure of the data is time-series cross-sectional (TSCS)—the unit is “state-year-policy (*syp*),” and each state-policy combination can be thought of a separate time series. I use a multilevel modeling approach to account for heterogeneity across time and space (as well as policies)—see Shor et al. (2007). There are 8 unique policies, 50 unique states, and 40 unique years (1973 to 2012). To model congruence, I estimate a model of the following form:

$$\Pr(c_{pst} = 1) = \text{logit}^{-1}(\beta_0 + \beta_1 \times \text{SC-allowed} + \beta_2 \times \text{SC-unknown} \\ + \alpha_{p[i]}^{\text{policy}} + \alpha_{s[i]}^{\text{state}} + \alpha_{y[i]}^{\text{year}} + MG),$$

where:

$$\alpha_p^{\text{policy}} \sim N(0, \sigma_{\text{policy}}^2), \text{ for } p = 1, 8 \quad \alpha_s^{\text{state}} \sim N(0, \sigma_{\text{state}}^2), \text{ for } s = 1, \dots, 50 \\ \alpha_y^{\text{year}} \sim N(0, \sigma_{\text{year}}^2), \text{ for } t = 1, \dots, 40$$

particular policies). Two papers that *do* consider the role of courts on the implementation of abortion restrictions are Patton (2007) and Hinkle (2015), who show that adoption becomes more likely as either the Supreme Court or the circuit courts find a given type of restriction constitutional. Both of these studies, however, only employ public opinion as a control variable, and do not evaluate congruence between public opinion and state-level policy. (In addition, they also do not employ policy-specific measures of opinion.)

¹⁹In her study of the effect of the Court’s doctrines on state-policy diffusion, Patton (2007) uses an additional classification for years in which a the constitutionality of a restriction is “suspect.” This occurs when the Court decision suggests a restriction might be unconstitutional, but does not explicitly state so. Of the policies I evaluate, such a designation would be clearly appropriate only for one issue (parental consent) and only for a few years (1977-1983), so I opt to use the simpler tripartite classification.

M denotes a matrix of control variables, and G denote the vector of coefficients on these variables. I use the following controls, which are based on Kreitzer's (2015) study of state-level diffusion in abortion policy.

- *Religious adherence rate*: The proportion of a state's population that are members of a church in a given year.
- *Initiative process*: Coded 1 if a state has an initiative process in place, 0 otherwise. Prior work has found greater responsiveness between opinion and policy in states with initiatives (Gerber 1996, Arceneaux 2002, Bowler and Donovan 2004).
- *Democratic women* The proportion of Democratic women in a state legislature in a given year.
- *Democratic governor* Whether the governor was Democratic or not in a given year.
- *Unified Democratic legislature* Whether both state legislative chambers were controlled by Democrats in a given year.
- *State median income* The median income of a state in a given year.
- *State populations* The state's population in a given year. Both income and population size have been found to be positively associated with policy implementation in some studies (Kreitzer 2015, 50).

To improve computational efficiency and to enhance the interpretability of the coefficients, I rescale each continuous predictor by centering them such that they have mean zero and by dividing them by two standard deviations (Gelman 2008).

Table 1 presents three models of congruence.²⁰ All three include varying intercepts for policies, states and years. The first model includes only the main predictors of *SC-allowed* and *SC-banned*. The second model adds *size of opinion majority* as a predictor, while the third model adds the full set of controls.

²⁰I estimated each model using the `GLMER` function in *R* (Bates 2005). Eventually I will incorporate the full uncertainty from the opinion estimates into the regressions, but these simply use the point estimates for each state-year-policy combination.

	(1)	(2)	(3)
Constant	-2.88*	-2.88*	-2.92*
	(0.52)	(0.49)	(0.50)
SC-allowed	1.73*	1.74*	1.66*
	(0.11)	(0.11)	(0.11)
SC-unknown	0.74*	0.75*	0.80*
	(0.11)	(0.11)	(0.12)
Size of opinion majority		0.56*	0.37*
		(0.17)	(0.18)
Religious adherence rate			0.97*
			(0.19)
Initiative process			0.16
			(0.36)
Democratic women			-0.68*
			(0.11)
Democratic governor			-0.06
			(0.05)
Unified Democratic legislature			-0.36*
			(0.08)
State median income			-0.51
			(0.37)
State populations			-0.46*
			(0.23)
Observations	14,900	14,900	14,500
Log Likelihood	-5,601.00	-5,595.00	-5,405.00
Akaike Inf. Crit.	11,213.00	11,205.00	10,839.00
Bayesian Inf. Crit.	11,259.00	11,258.00	10,945.00

Table 1: Regression models of congruence. *p<0.05

Across the models, the results are clear. Congruence is significantly more likely to occur when the Supreme Court has established the constitutionality of a policy compared to when it has banned it. Congruence is also significantly higher when the constitutionality of each policy is unknown. F-tests for each model show that the coefficient on *SC-allowed* is always statistically larger than the coefficient on *SC-unknown*. Finally, congruence is more likely to occur as the size of the opinion majority increases.

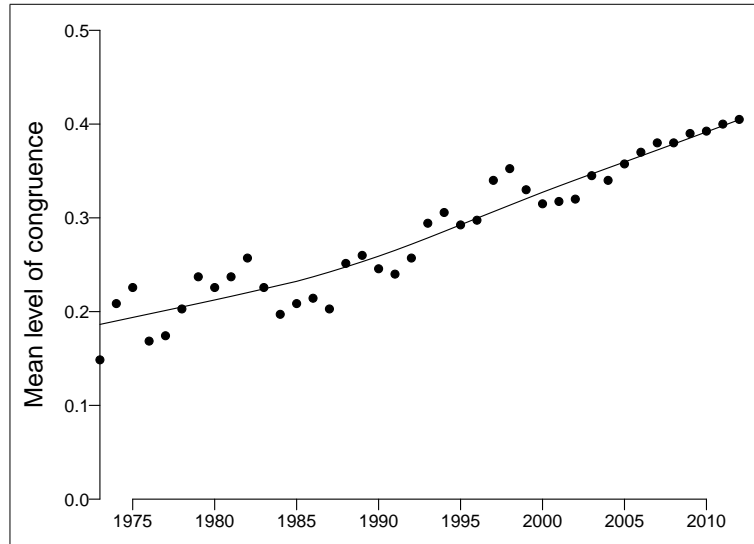


Figure 8: The mean level of congruence over time.

How substantively important are these differences? One way to answer this question is to examine the average level of congruence over time. Recall that as the Supreme Court became more conservative in its abortion decisions, it gradually lowered the federal floor for protecting the right to abortion, finding many restrictions constitutional that it had previously prohibited. This allowed more states to implement restrictions favored by opinion majorities. Figure 8 depicts the mean level of congruence by year (averaging across all eight policies); the line is a loess line. Congruence grew steadily from a low of around 20% in 1973 to about 40% in 2012, as the Court shifted its doctrine to allow for more restrictions.

4.1 The effect of shifting floors on where challenges are brought

Finally, the model of judicial federalism makes predictions about in which types of courts challenges should be brought. Recall that once the Supreme Court has ruled a given type of restriction constitutional, challenges to such statutes in lower federal courts are likely to be futile, given that lower federal judges are generally faithful to Supreme Court precedents. State court judges, however, may increase the floor of protections by interpreting their own *state* constitutions. Which means that the distribution of challenges across state versus federal court type should vary according to level of protection established by the Supreme

Court.

To test this prediction, I collected data on every challenge to a statute that was heard in a federal or state court between 1973 and 2012, involving one of the eight policy areas. (See the appendix for further details). 412 such challenges were brought, 83% of which were in federal court. Of the state challenges, fully 90% were brought during allowed periods. This makes sense, since relief was not likely to be forthcoming from the federal courts during this period, whereas state courts were a viable option. Of these state cases, in about 50% state courts struck down the statutes. Thus, state courts provided in some instances provided an outlet for constitutional relief when such relief was unlikely to come from the federal courts.

5 Conclusion

In the United States, and increasingly around the world, courts have a substantial degree of political power. The federal structure of the U.S. political system means that that power extends both horizontally and vertically. In this paper I showed that the ability of the Supreme Court to establish constitutional floors below which states cannot set policy has real substantive bite, as it directly affects the ability of state legislatures to implement majority-preferred policies.

This results have implications for evaluating what Lax and Phillips (2012) describe as a “democratic deficit” in the correspondence between state-level public opinion and state-level policies. As do other studies (see e.g. Erikson, Wright and McIver 1993, Norrander 2000, Brace et al. 2002, Burstein 2003, Lax and Phillips 2009), they find a large degree of responsiveness of policy to opinion. However, Lax and Phillips (2012) find a significant lack of congruence between the two: in many states policies do not match what opinion majorities want.

Implicit in these papers is the notion that all of the policies under study *could theoretically be enacted by a state legislature*. Which means that policies that have been ruled off-limits by courts are not included. Thus, the levels of congruence identified in this literature papers

likely constitute an *upper bound* on congruence considered more broadly. For instance, the abortion policies that Lax and Phillips (2012) examine (as part of their larger set of policies in many issue areas)—informed consent laws, parental consent/notification, partial-birth bans, and 24-hour waiting periods—were either explicitly or implicitly ruled constitutional by the Supreme Court as of the time of their study (circa 2008). Had they included, say, spousal consent policies, which (as discussed above) have been deemed unconstitutional since 1976, the level of policy-opinion congruence in the overall area of abortion would have declined significantly. On the other hand, for policy areas where restrictions are less popular, federal courts may actually improve congruence if state policy does not match majority opinion by raising the federal floor and bring states in line with majority opinion (Kastellec 2016). This, of course, is a context-specific empirical question, the answer to which (in either direction) demonstrates the importance of evaluating courts’ effect on representation.

Finally, the theoretical model I present could be extended in a number of ways to encompass strategic behavior by judges and lawmakers, within the context of federalism. First, whereas I assume the Supreme Court does not consider any implementation costs when establishing a federal floor, one could allow the location of the floor to be affected by the distribution of state opinion (similar to the approach taken in Cameron (2005)). Second, unlike federal judges, state court judges are either elected or face re-appointment, and thus their incentives to establish *state* constitutional floors may be directly affected by the popularity of such a implementation (see e.g. Caldarone, Canes-Wrone and Clark 2009). Third, rather than assuming perfect compliance with federal floors, one could examine the conditions under which state lawmakers may either seek to go around them or to implement clearly unconstitutional laws that will be struck down by federal courts in an effort to “pander” to their constituents who favor such policies. Lastly, the structure of the model could be altered to accommodate alternative institutional arrangements in other federal systems, such as Germany (Vanberg 2004; 2010).

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A Appendix

This appendix provides information on the data and measures used in the paper.

A.1 Public Opinion

In this section I describe how I estimated the various measures of state-level public opinion in the paper.

A.1.1 Measuring opinion as of *Roe v. Wade*

These measures are based on the approach taken in Kastellec (2016). To measure opinion on changing the legal status quo, I employ the following polls. (Note this section is drawn directly—at at times verbatim—from that paper.) In 1965, and 1969, Gallup asked respondents whether or not “abortion operations should or should not be legal in the following cases: where the health of the mother is in danger; where the child may be deformed; and where the family does not have enough money to support another child.” In 1969, the following condition was added: “where the parents simply have all the children they want although there are no major health or financial problems involved in having another child.” Responding no to all conditions, or yes only to if “the health of the mother is in danger,” effectively evinces support for the status quo that emerged in the 19th century. Accordingly, I code any respondent as being “pro-liberalization” if they answer yes to any of the other conditions—deformity, not enough money, or simply all the children they want. To these polls, I add the 1972 American National Election Study (ANES), which asked respondents the following question: “Which one of the opinions on this page best agrees with your view?”

1. Abortion should never be permitted.
2. Abortion should be permitted only if the life and health of the woman is in danger.
3. Abortion should be permitted if, due to personal reasons, the woman would have difficulty in caring for the child.
4. Abortion should never be forbidden, since one should not require a woman to have a child she doesn’t want.”

I code any respondent who answered (3) or (4) as “pro-liberalization.” These polls contain a

combined 7,522 responses.

To measure opinion on legalizing abortion in the 1st trimester, I use two Gallup polls from 1969 and 1972, in which respondents were asked whether they would “favor or oppose a law which would permit a woman to go to a doctor to end pregnancy at any time during the first three months.” These polls contain a combined 2,734 observations.

To estimate state-level opinion for these two measures, I use multilevel regression and poststratification. There are two stages to MRP. In the first stage, opinion is modeled a function of demographic characteristics of respondents and geography (i.e. the state they live in), using random effects. In the second stage, the estimates are poststratified according to the true proportion of each “demographic-geographic” type in each state. In the first stage, I model response as a function of gender; one of four age groups (18-29, 30-44, 45-64, and 65+); race (white and black); and one of four education groups. To reflect the fact that Americans generally had less education in the 1960s and early 1970s, I use the following education breakdowns: less than grade 9; grade 9-11; high school grad; some college or more. In the second stage, the first-stage estimates are post-stratified according to the distribution of each type in the actual state population. For this stage, I use the “5-Percent Public Use Microdata Sample” in the Census, from the 1970 Census.

One complication of using MRP in this context is that the census does not ask about religion; in this period, Catholics were much less likely to favor abortion law liberalization than non-Catholics. Fortunately, Leemann and Wasserfallen (2014) have devised a solution to the generic problem of not having data at the Census level that is correlated with individual responses. Specifically, they show that if one knows the distribution of the “missing” variable in the Census at the state level, one can weight the joint distributions from the Census types by the marginal distribution of that variable and recover estimates that are very close to what one would recover in the presence of complete Census data. Accordingly, I first obtained the proportion of Catholics in each state from Johnson, Picard and Quinn (1974).

I then updated the 1970 “poststratification file”—the distribution of demographic types in each states—by weighting each type by the marginal distribution of Catholics in each state. With this updated poststratification file, I can thus weight the first-stage estimates by the population distribution of demographic-geographic types.

In Kastellec (2016), I estimated separate models for each measure. In order to increase efficiency, and take advantage of the correlation across the opinion measures—being in favor of legalization in the first trimester implies one supports changing the legal status quo—I here run a combined model, which allows for an intercept shift for the status quo polls.

Formally, let $y_i = 1$ denote a response in favor of liberalization, either in terms of the status quo or full repeal. I estimated the following model:

$$\Pr(y_i = 1) = \text{logit}^{-1}(\beta^0 + \beta^1 \times \text{status quo poll} + \alpha_{r[i]}^{gender} + \alpha_{k[i]}^{age} + \alpha_{l[i]}^{edu} + \alpha_{m[i]}^{Catholic} + \alpha_{s[i]}^{state})$$

The terms after the intercept are modeled effects for the various groups of respondents (modeled as drawn from a normal distribution with mean zero and endogenous variance):

$$\alpha_r^{gender} \sim N(0, \sigma_{gender}^2), \text{ for } r = 1, 2$$

$$\alpha_k^{age} \sim N(0, \sigma_{age}^2), \text{ for } k = 1, \dots, 4$$

$$\alpha_l^{education} \sim N(0, \sigma_{education}^2), \text{ for } l = 1, \dots, 4$$

$$\alpha_l^{Catholic} \sim N(0, \sigma_{Catholic}^2), \text{ for } m = 1, \dots, 2$$

The state effects are modeled as a function of two things: first, the proportion of people in each states that live in an urban area, which is positively correlated with support for abortion liberalization; second, the general measure of state-level liberalism developed by Caughey and Warshaw (2015).

$$\alpha_s^{state} \sim N(\alpha^0 + \beta^{urban} \cdot \text{urban}_s + \beta^{cw} \cdot \text{cw}_s), \text{ for } s = 1, \dots, 51$$

In the second stage, I use the coefficients that result from this estimation to calculate predicted probabilities of opinion for each demographic-geographic type. There are 6,528 combinations of demographic and state values (128 within each state). Let j denote a cell from the set of demographic-geographic types. For any j , the results above allow us to make a

prediction of support for liberalization $\hat{\theta}_j$, which is simply the predicted probability given by the results from Eq. (1). I next poststratify these results according to population frequencies derived from the 1970 Census. For each state, we then can calculate the percentage who support liberalization, aggregating over each cell j in state s . Let $\hat{\gamma}$ denote an estimate of support for liberalization in a given state s . Then, $\hat{\gamma}_s = \frac{\sum_{j \in s} N_j \hat{\theta}_j}{\sum_{j \in s} N_j}$.

I estimated the model in a fully Bayesian manner using the program Stan, as called from R, using the `rstanarm` package (Gabry 2016, Stan Development Team 2016a, 2016b). I used weakly informative $N(0,5)$ priors for each parameter. I ran the model on four separate chains for 500 iterations, and saved the last 250 iterations on each, to form a posterior sample size of 1,000. Standard diagnostics indicated good convergence among the four chains.

A.1.2 Measuring opinion of separate abortion restrictions

To develop public opinion measures on the eight abortion policies analyzed in the paper, I searched the *iPoll* archives (available at `ropercenter.cornell.edu/CFIDE/cf/action/ipoll/index.cfm`). I used a variety of search terms to look for questions that specifically asked about opinion on a given policy, and *not* just general opinion on abortion policy. For example, a typical question about opinion on spousal notification was worded: “Do you favor or oppose each of the following.... A law requiring that the husband of a married woman be notified if she decides to have an abortion.” To give another example, a typical question on informed consent restrictions asked: “(Next, do you favor or oppose each of the following proposals.) How about...a law requiring doctors to inform patients about certain possible risks of abortion before performing the procedure?”²¹

Only polls in which the underlying data was available and that data contained the state of residence for respondents were retained. I also coded demographic information for each respondent, including their race, age, gender, and level of education. This procedure left me with 60 unique, usable polls—the first was conducted in 1977, the last in 2011. For com-

²¹A complete inventory of poll information and question wording is available upon request.

putational simplicity, I drop respondents with missing data on any geographic-demographic predictors, or who did not answer “yes” or “no” to the given policy question. Across all eight policies, the missing rate in terms of the policy questions was less than 10% for every policy except spousal consent, for which the rate was 15%. This procedure left me with 105,984 individual responses across all policy areas.

Issues in estimating state-level opinion over time

Given the structure of this data, estimating state-level opinion is not straightforward. To see this, it is useful to compare existing research that has developed state-level estimates. There are two points of comparisons to note. First, at what level is opinion estimated—is it general opinion on abortion policies, or is it policy-specific? Second, how is state-level opinion estimated, given a particular choice of opinion?

Most researchers have estimated general attitudes of abortion, rather than opinion on specific policies. In addition, most estimates have been created using disaggregation—that is, calculating mean levels of opinion by state either in a single survey with sufficient sample sizes, or by pooling together several surveys in order to generate sufficient responses from states with smaller populations (Erikson, Wright and McIver 1993). Brace et al. (2002), for example, use data from the General Social Survey to estimate a measure of opinion; they pool all responses from 1974 to 1998 on six questions and then use disaggregation to estimate an index of state opinion on the following question.²² Other scholars have used the American National Election Studys survey of Senate races in 1988, 1990, and 1992, which contained larger within-state sample sizes than most national surveys. Using disaggregation, Norrander (2001) develops a general measure of abortion opinion, while Gerber (1996) develops a specific measure of support for parental consent replications.

While disaggregation is certainly useful, the method has its limitations. First, to generate

²²Arceneaux (2002) uses this measure in his study showing that states which have initiatives and referenda are more responsive to public opinion on abortion policy.

reliable estimates of opinion in states with smaller population, it requires pooling many surveys together.²³ As a result, it is difficult to develop dynamic measures of opinion at the state-level. (Recall, for example, above that the Brace et al. (2002) estimates are based on pooling responses across 25 years). This limitation has spurred the growing use of multi-level regression and poststratification (MRP), which allows for reliable estimates of opinion using a much smaller amount of data.²⁴

To date, most applications of MRP have been used to generate static estimates of opinion. Recent work, however, has shifted toward using the method to develop dynamic estimates. First, Caughey and Warshaw (2015) develop a group-level item-response model to estimate the overall liberalism of each state from 1972 to 2012. Second, Pacheco (2011; 2014) uses a “rolling-MRP” approach to generate dynamic estimates of opinion on several issues, including abortion. Specifically, using the GSS and the NES, Pacheco develops state-level estimates of the proportion of Americans who favored legalized abortion regardless of the situation or who felt that abortion should always be permitted from 1980 to 1998. To measure dynamics, Pacheco conducts MRP within a “moving window” of the data—that is, sequentially implementing MRP over every possible consecutive five-year period.

While useful, there are two limitations to this approach. First, it requires the use of question that are asked at regular intervals over time; as I discuss shortly, a salient feature of my opinion data is that polls on particular policies are asked irregularly over time. Second, while using general questions on abortion tells us something important about important opinion, it is not straightforward how to map these estimates to opinion on *specific* abortion regulations.²⁵ For example, knowing that a person who thinks it should be possible for a

²³Or, alternatively, only analyzing opinion in large states—see e.g. Cook, Jelen and Wilcox (1993).

²⁴See Lax and Phillips (2009) and Warshaw and Rodden (2012) for validations of MRP.

²⁵The GSS has asked the following battery of abortion questions since 1972 (more or less). ‘Please tell me whether or not you think it should be possible for a pregnant woman to obtain a legal abortion if:

- a) If there is a strong chance of serious defect in the baby?
- b) If she is married and does not want any more children?

pregnant woman to obtain a legal abortion if she is she is married and does not want any more children—which would be a liberal position—does not tell us whether that person would favor parental notification laws or not, even if the two views are surely correlated. More generally, general indices of abortion policy correlate only loosely (in theoretical terms) with the choices that legislators faced in implemented abortion restrictions following *Roe v. Wade*. (Similarly, the estimates developed in Caughey and Warshaw (2015) are based on a model that reduces overall liberalism among the public to a single dimension.)

One article that *does* measure opinion on specific abortion policies using MRP is Lax and Phillips (2012), who develop state-level estimate of opinion on support for laws mandating informed consent, parental consent, and parental notification, waiting periods, as well as laws barring partial-birth notification. These estimates are static, however, as Lax and Phillips use the estimates to study responsiveness between opinion and state policies in a fixed period of time (i.e. around 2008). In addition, the authors do not model any correlation in opinion across these policies.²⁶

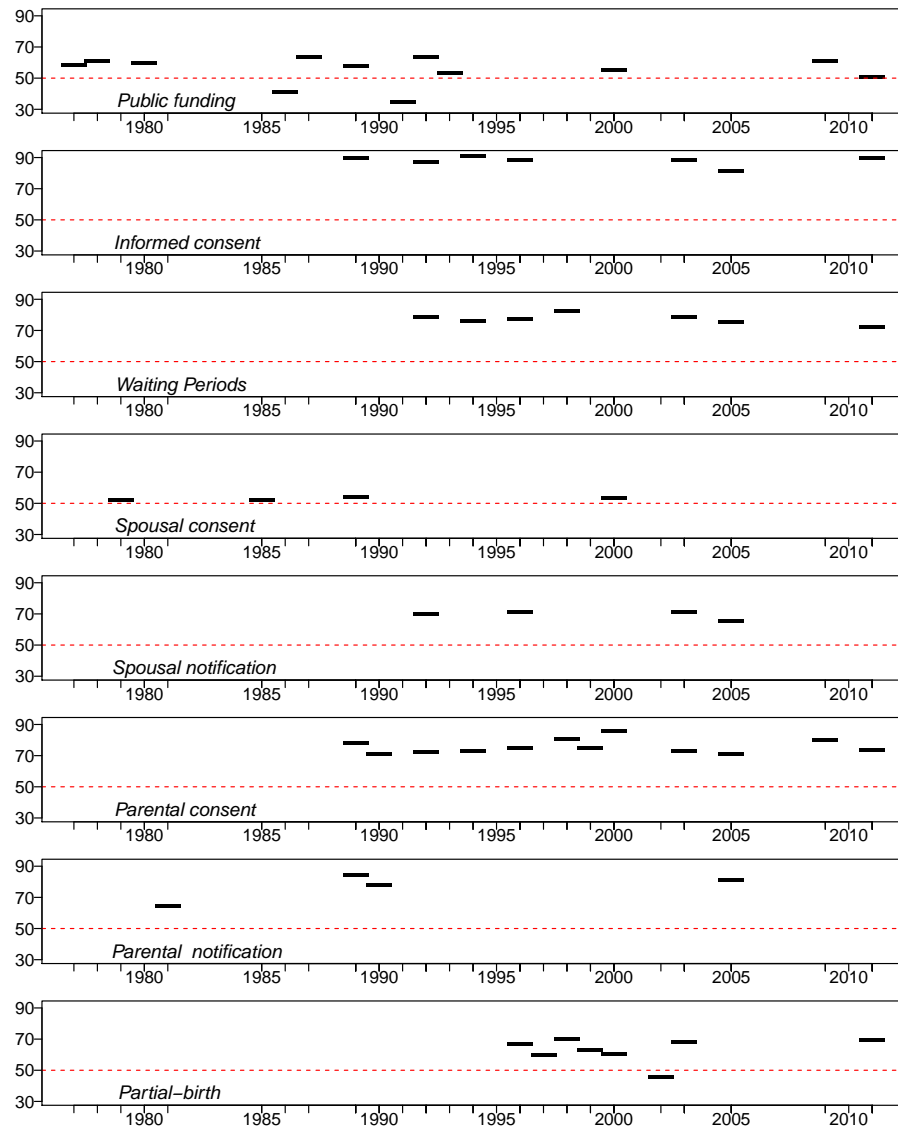
A.2 Modeling public opinion

To estimate state-level opinion on the eight types of restrictions from 1973 to 2012, I develop a model that pools information across time and policies. Figure A-1 gives a sense of when polls were conducted, along with raw national opinion for each issue over time. Specifically, for each policy, the tick marks depict the mean level of support for the restriction; ticks marks only appear in years in which opinion on a given policy was polled.

-
- c) If the woman’s own health is seriously endangered by the pregnancy?
 - d) If the family has a very low income and cannot afford any more children?
 - e) If she became pregnant as a result of rape?
 - f) If she is not married and does not want to marry the man?
 - g) The woman wants it for any reason?’

²⁶In practice, however, state-level opinion across the abortion policies in their data is substantially correlated; the pairwise correlations range from .71 to .92 .

Figure A-1: For each policy, the tick marks depict the mean level of support for the restriction; ticks marks only appear in years in which opinion on a given policy was polled.



The figure makes clear that polls on each policy were conducted irregularly over time; for some policies, like parental consent, polls were not conducted until around 1990.

To account for this, I estimate a model that assumes opinion on abortion restrictions is correlated across both policies and time. With respect to policy, for example, knowing whether a person supports an informed consent law tells us something about her propensity

to support a parental notification law, even if the relationship between support for the two types of restrictions is not deterministic in the population. With respect to time, a state's opinion on a particular policy in 1980 likely helps predict its support for that policy in 2000—even if it's quite possible that opinion will trend over time on some or all of the policies.

I build on existing specifications that estimate MRP statically in order to develop that estimates that incorporate the information available by linking responses across time and policies. To conduct the first stage of MRP, I estimate a multilevel model that estimates random effects for state and policy that vary over time. The model also includes random effects for age, race, gender, and education that do *not* vary time. Specifically, with respect to these non-varying random effects, I model response as a function of gender; one of four age groups (18-29, 30-44, 45-64, and 65+); race (white and black)²⁷; and one of four education groups (less than high school, high school graduate, some college, and college graduate).

To provide better estimates of the state effects, I include two state-level predictors. The first is the general measure of state-level liberalism developed by Caughey and Warshaw (2015). Importantly, this measure both varies over time and does *not* utilize responses to abortion questions (see fn. 9 in their paper), meaning that the predictor and the dependent variable are not measuring the same thing. Second, an important predictor of opinion on abortion restrictions is religion, with Catholics and Evangelical Christians more likely to support abortion restrictions than mainline protestants or Americans with no religious affiliation (see e.g. Cook, Jelen and Wilcox 1992, pp.102-3). Unfortunately, a sizable number of polls do not ask about respondents' religion, and thus it is not feasible to use religion as a individual-level predictor.²⁸ As a second-best approach, I include the proportion of Catholics

²⁷Many MRP applications also include a category for Hispanics. Most polls did not include a coding for Hispanic before the 1980s, so for the purposes of consistency I use the simpler coding protocol of white and black.

²⁸A second problem is that the Census does not ask about religion, which complicates the poststratification phase of MRP. Kastle et al. (2016) utilizes the approach of Leemann and Wasserfallen (2014), who have devised

in each state as a second state-level predictor.²⁹

Formally, let i denote individual response, and let $y_i = 1$ denote a response in favor of a given restriction (I coded the data such that responses in favor of a given restriction are always coded 1). Let n denote the number of respondents in the data. Let p , s , a , and e denote, respectively, indices for policies, states, age, and education. Let f denote the interaction of gender and race; this variable takes on one of four values: female black, female white, male black, and male white. Next, let t denote a time trend; this variable takes on the value of the year the poll was taken minus 1977 (the year of the first poll in the dataset). For computational efficiency, I center this variable by subtracting each observation from the mean in the dataset, such that the average value is zero. Denote the Caughey and Warshaw measure of liberalism as cw , and the proportion of Catholics by state as $cath$.

I estimated the following model:

$$\begin{aligned} \Pr(y_i = 1) = \text{logit}^{-1} & (\beta^0 + \beta^{time} \cdot t_i \\ & + \alpha_{f[i]}^{female,race} + \alpha_{a[i]}^{age} + \alpha_{e[i]}^{edu} \\ & + \delta_{s[i]}^{state} + \theta_{s[i]}^{state} \cdot t \\ & + \phi_{p[i]}^{policy} + \zeta_{p[i]}^{policy} \cdot t), \text{ for } i = 1, \dots, n \end{aligned}$$

The random effects are modeled as follows:

$$\alpha_f^{female,race} \sim N(0, \sigma_{female,race}^2), \text{ for } f = 1, \dots, 4$$

$$\alpha_a^{age} \sim N(0, \sigma_{age}^2), \text{ for } a = 1, \dots, 4$$

$$\alpha_e^{edu} \sim N(0, \sigma_{edu}^2), \text{ for } e = 1, \dots, 4$$

$$\begin{pmatrix} \delta_p \\ \theta_p \end{pmatrix} \sim N \left(\begin{pmatrix} \gamma_0^\delta + \gamma_1^\delta cw + \gamma_2^\delta cath \\ \gamma_0^\theta + \gamma_1^\theta cw + \gamma_2^\theta cath \end{pmatrix}, \begin{pmatrix} \sigma_\delta^2 & \rho_s \sigma_\delta \sigma_\theta \\ \rho_s \sigma_\delta \sigma_\theta & \sigma_\theta^2 \end{pmatrix} \right), \text{ for } s = 1, \dots, 50$$

a solution to the generic problem of not having data at the Census level that is correlated with individual responses. Still, this approach requires individual-level data on religion.

²⁹This data is taken from the “Churches and Church Membership in the United State” survey, which was been conducted in 1971, 1980, 1990, 2000, and 2010. I use a simple linear interpolation to estimate the proportion of Catholics in a given state in the years between each survey. See <http://www.rcms2010.org/> for more details on these surveys.

$$\begin{pmatrix} \phi_p \\ \zeta_p \end{pmatrix} \sim N \left(\begin{pmatrix} \mu_\phi \\ \mu_\zeta \end{pmatrix}, \begin{pmatrix} \sigma_\phi^2 & \rho_p \sigma_\phi \sigma_\zeta \\ \rho_p \sigma_\phi \sigma_\zeta & \sigma_\zeta^2 \end{pmatrix} \right), \text{ for } p = 1, \dots, 8$$

The α 's denote coefficients that only have varying intercepts. δ and θ denote respectively the varying intercepts and slopes for states, while ϕ and ζ do the same for issues. The ρ terms capture the between-group correlations for states and policies. Finally, due to the inclusion of the state-level predictors, the model does not force the state intercepts and slopes to vary linearly with time (see Gelman and Hill 2006, 314).

I estimated the model in a fully Bayesian manner using the program Stan, as called from R, using the `rstanarm` package (Gabry 2016, Stan Development Team 2016a, 2016b). I used weakly informative $N(0,5)$ priors for each parameter. I ran the model on four separate chains for 500 iterations, and saved the last 250 iterations on each, to form a posterior sample size of 1,000. Standard diagnostics indicated good convergence among the four chains. For every parameter, the potential scale reduction factor was less than 1.02, which indicates good mixture among the chains (Gelman and Rubin 1992). The effective sample size of the parameters ranged from 132 to 1,000; the minimum is well above the recommended number (Gelman et al. 2014); and for most parameters the effective sample size is 1,000.³⁰

Post-stratification The second stage of MRP estimates requires post-stratifying the results from the first-stage model, according to the true population proportion of “demographic-state” types. To do this, I use the population frequencies from the Census Public Use Microdata Area (PUMA) data for 1980, 1990, and 2000. I augmented this with data from the 2009 Census American Community Survey (the 2010 PUMA sample was never released). To estimate frequencies between these years, I use simple linear interpolation. (For years after 2009 in the opinion data, I simply use the 2009 data.) The resulting combined dataset gives

³⁰As a robustness check, I estimated the model using the `GLMER` command in *R* (Bates 2005), which “approximately” Bayesian and only returns point estimates, rather than full posterior distributions. The median parameter estimates from the Stan model were very similar to the point estimates returned by `GLMER`.

the estimated population frequency for every demographic-state type for every year from 1970 to 2012. (The Caughey-Warshaw estimates of state liberalism and the data on church affiliation is then merged with this data).

There are 3,200 combinations of demographic and state values: 50 states \times 4 age groups \times 4 education groups \times 4 race-gender combinations. From the individual-response model, I first calculate the predicted probabilities of nominee support for each demographic-state type, for every policy and every year. There are thus 3,200 demographic-geographic types \times eight issues \times 40 years = 1,024,000 cells—which we can denote “demographic-state-year-issue” types—in which to make a prediction. Let j denote a cell from the set of “demographic-state-year-issue” types, each of which has a predicted value of supporting a given restriction at a given point in time. Denote this prediction $\hat{\lambda}$, which comprises a matrix of 1,024,000 rows and 1,000 columns (one for each draw from the posterior distribution).

The final step is to post-stratify these predictions using the estimated population frequencies from the combined Census data, which we can denote N_j . Let $\hat{\omega}$ denote an estimate of support in a given state s , for each policy (p) and year (y); $\hat{\omega}$ is a matrix comprising 16,000 rows (50 states \times eight issues \times 40 years) and 1,000 columns. Then, $\hat{\omega}_{s\{y,p\}} = \frac{\sum_{j \in s\{y,p\}} N_j \hat{\lambda}_j}{\sum_{j \in s\{y,p\}} N_j}$. The result is 1,000 estimates of opinion for every “state-year-issue” combination. I use the median estimate from the 1,000 draws to summarize the distribution of each combination.³¹ (For example, the median estimated support (across all simulations) for parental consent laws in New York in 1990 is 73%.)

A.3 Validation checks

As a simple validity check, it is useful to compare the MRP estimates to those produced by disaggregation—that is, simply taking the mean level of opinion in each state for every policy in every year. Figure A-2A depicts a scatterplot of the estimates for every state-year-policy combination that appears in the data (i.e. combinations that are completely

³¹The estimates from using the mean of the draws correlate at .94 from the estimates based on the median.

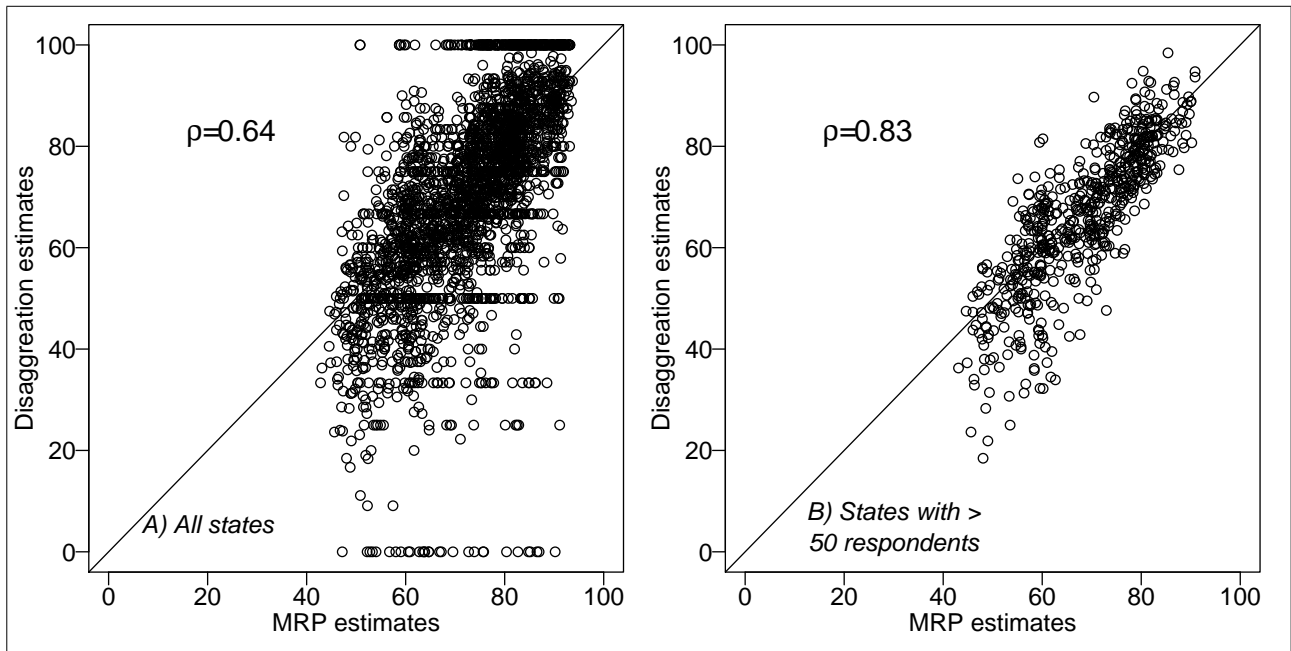


Figure A-2: *Panel A plots the correlation of the MRP and disaggregation estimates for every state-year-policy combination that appears in the data. Panel B plots the correlation only among state-year-policy combinations with at least 50 respondents.*

model-dependent are dropped). The overall correlation between the disaggregation and MRP estimates is .64 (the solid line is a 45-degree line). Of course, for many combinations with small numbers of respondents, the disaggregation estimates will suffer from large amounts of measurement error (25% of the the disaggregation estimates in Figure A-2A are based on fewer than 10 respondents, and 47% are based on fewer than 20 respondents); this can clearly be seen in the cluster of points at 0 and 100. A more useful comparison is to look at state-year-policy combinations with at least 50 respondents; most such combinations occur in the states with the largest populations, such as California, New York and Texas. Figure A-2B presents a scatterplot of the MRP and disaggregation estimates among such combinations. The correlation, at .83, is significantly stronger.

As a second validity check, I compare the MRP estimates to those generated by Pacheco (2011; 2014) (discussed above). Because Pacheco estimates a single dimension of abortion support, to make my estimates comparable I take the mean level of opinion across all eight policies for every state-year combination. We would not necessarily expect a perfect corre-

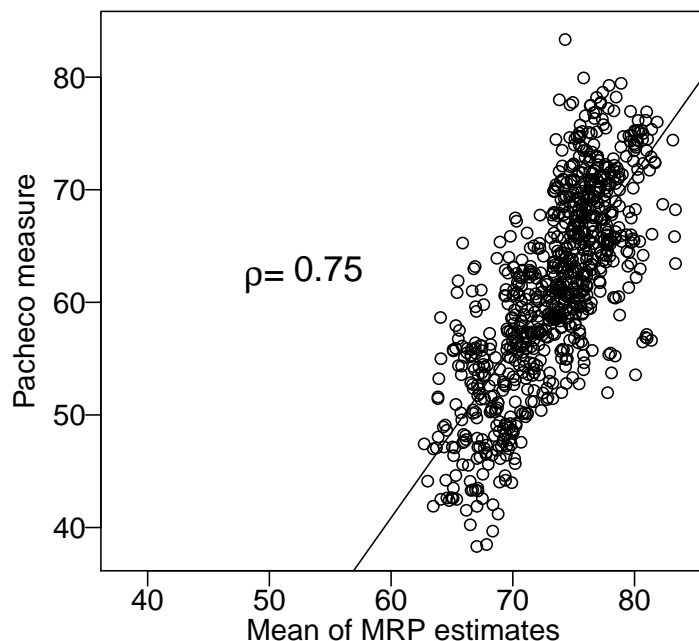


Figure A-3: *A scatterplot of the mean level of opinion across all eight policies for every state-year combination versus Pacheco’s estimates of support for the legality of abortion. The solid line depicts the estimated bivariate regression line.*

lation between the two, as Pacheco measures general support for the legality of abortion, whereas I measure support for specific restrictions. (In addition, I model temporal dynamics in a different manner.) Nevertheless, both measures should tap into a common dimension of opinion on abortion policy. Figure A-3 presents a scatterplot of the two estimates—I rescale her measure such that higher values indicate lack of support for the legality of abortion. The solid line depicts the estimated bivariate regression line. The correlation between the two measures is .75, which helps validate the MRP estimates.

As a third validity check, I compare the estimates from presidential election years (again using the mean opinion across all eight policies in each state) to the Republican candidate’s share of the two-party vote in every presidential election from 1976 to 2012. As has been well documented, in the 1960s and 1970s, opinion on abortion was not neatly sorted by partisanship; polarization in support for abortion restrictions among Democrats and Republicans (at both the mass and elite level) has occurred gradually over time (Carmines, Gerrity and Wagner 2005, Noel 2013, 158). Accordingly, the correlation between estimated support for

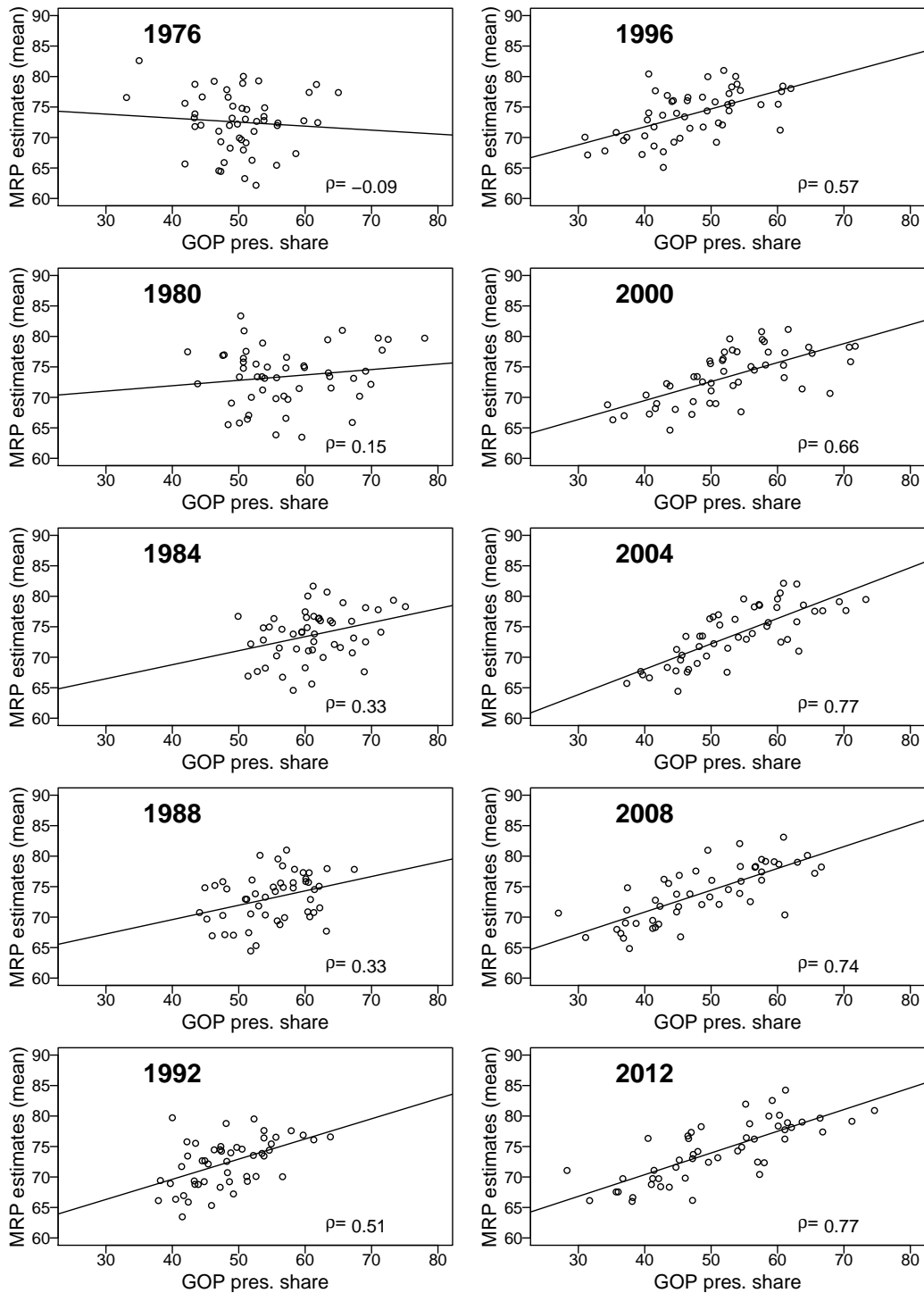


Figure A-4: *Mean of MRP estimates for support for abortion restrictions versus Republican percent of the two-party presidential vote in each state, from 1976 to 2012.*

abortion restrictions and presidential vote breakdowns by party should increase over time. Figure A-4 shows exactly that. In 1976 and 1980, the correlation was basically zero. Starting

in 1984, a weak correlation developed (.33); it increased to a moderate size in 1992, 1996, and 2000, and has been above .75 in the last three presidential elections.

B State policy

To measure state policy across all eight policy domains, I relied on a variety of sources, including:

- The *Family Planning/Population Reporter*, published by Planned Parenthood several times per year from 1973-1981 and listing all abortion statutes passed in state legislatures.
- *Reporter on Human Reproduction and the Law*, published by Legal-Medical Studies several times per year from 1971 until the 1990s and listing many abortion statutes passed in state legislatures.
- Data from Hinkle (2015), which records nearly every passage of a statute from 1973-2010 for waiting periods, parental consent, parental notification, public funding, and partial birth.
- The judicial decisions reviewing abortion statutes (see below) often list the year the statute in question was adopted, and always indicate when a court decision invalidates a statute.
- NARAL has published its “Who Decides” report nearly every year since 1989; the 1989 report cites the most recent update to state abortion laws for many types of abortion restriction.
- For 2001-2012, the Guttmacher Institute has published “State Policies in Brief”—these fact sheets list which states enforce which type of restriction.

For each state-year, a potential abortion policy was given one of four classifications:

- “no restriction”—There is no law of this type in place.
- “active”—A law is in place and currently being enforced.
- “specifically enjoined”—A court has stepped in to permanently stop this particular law from being enforced.
- “presumably enjoined”—A court has invalidated a similar law, so this states law is presumably also invalid and not enforced even though it hasnt been specifically challenged in court. Often accompanied by an official determination of unenforceability by the state attorney general.

Each type of restriction is coded as either an active or enjoined law. If a law is only temporarily enjoined by a court (usually pending a hearing and decision by that court), I coded the policy as active for that state-year. If the data source lists a law as simply “not enforced” or “deemed unenforceable,” then I code it “presumably enjoined” for that state-year.

C Judicial Decisions

C.1 Determining the Supreme Court’s doctrine on the eight abortion policies

Figure 6 in the paper depicts the constitutional status of each abortion restriction across time. In this subsection I briefly describe the relevant cases in each area.

Bans on public funding In three decisions in 1977—*Beal v. Doe* (432 U.S. 438), *Maher v. Roe* (432 U.S. 464), and *Poelker v. Doe* (432 U.S. 519)—the Court respectively upheld the following policies as constitutional: Banning Medicaid funds for non-therapeutic abortions, limiting Medicaid funds to medically necessary abortions, and denying funds for abortions in public hospitals. In the 1980 case of *Harris v. McRae* (448 U.S. 297) the Court respectively upheld the “Hyde Amendment,” which barred the use of federal funds to pay for an abortion except in the cases of rape, incest, or to save the life of the woman. Also that year, in *Williams v. Zbaraz* (448 U.S. 358), the Court upheld a statute that prohibited state medical assistance payments for abortions except necessary to save the life of the woman.

Informed consent In 1983, in *City of Akron v. Akron Center for Reproductive Health, Inc.* (462 U.S. 416), the Court struck down a detailed informed consent provision. The Court ruled that “while a state may require a physician to make certain that his patient understands the physical and emotional implications of having an abortion,[the statute] goes far beyond merely describing the general subject matter relevant to informed consent. By insisting upon recitation of a lengthy and inflexible list of information, the section unreasonably has placed obstacles in the path of the physician” (quoting from the case syllabus). The Court overturned this decision in 1992 in *Planned Parenthood of Southeastern Pennsylvania v.*

Casey (505 U.S. 833), and ruled detailed informed consent regulations constitutional.

Waiting periods Similar to the informed consent doctrine, the Court ruled waiting periods unconstitutional in 1983 in *City of Akron v. Akron Center for Reproductive Health, Inc.* and then found them constitutional in 1992 in *Planned Parenthood of Southeastern Pennsylvania v. Casey*.

Spousal consent provisions The Court ruled unconstitutional a spousal consent law in 1976 in *Danforth v. Planned Parenthood of Central Missouri* (428 U.S. 52). It upheld this decision in 1992 in *Planned Parenthood of Southeastern Pennsylvania v. Casey*.

Spousal notification provisions The Court did not directly address the question of Spousal notification provisions until 1992, when it ruled them unconstitutional in *Planned Parenthood of Southeastern Pennsylvania v. Casey*.

Parental consent In a series of decisions between 1976 and 1983, the Court incrementally articulated its doctrine on parental consent laws. In 1976 in *Danforth v. Planned Parenthood of Central Missouri* (428 U.S. 52), the Court ruled that a consent provision must include a judicial bypass option. In 1979 in *Bellotti v. Baird* (443 U.S. 622), the Court struck down a statute that allowed minors to pursue a judicial bypass only after her parents had already denied consent. In 1983, in *Planned Parenthood Ass'n of Kansas City, Mo., Inc. v. Ashcroft* (462 U.S. 476), the Court upheld a consent provision with a judicial bypass. The Court then affirmed this ruling in *Casey* in 1992.

Parental notification The Court ruled parental notification laws constitutional in the 1981 case of *H.L. v. Matheson* (450 U.S. 398)

Partial-birth abortion In the 1999 case of *Stenberg v. Carhart* (530 U.S. 914), the court struck down a state partial-birth abortion statute as unconstitutional. In 2007, the Court upheld a *federal* ban on partial-birth abortion in the case of *Gonzalez v. Carhart* (550 U.S. 124). However, the Court did not explicitly overrule *Stenberg v. Carhart*, and

the constitutionality of state partial-birth bans remains uncertain. I have thus coded the 2008-2012 period as unknown.

C.2 Data on lower federal court and state court challenges

As part of a larger project, I sought to collect data on every challenge to a state or federal abortion statute that was heard in a federal or state court between 1973 and 2012. I used Westlaw, and employed the following search: “4 abortion” and constitution! unconstitution!” 4 is the Westlaw key number for Abortion and Birth Control. Each search result was examined to determine if the case involved a constitutional challenge to an abortion statute. “Regular” abortion cases—such as minors suing to have an adverse parental consent bypass determination overturned by a higher court—were discarded. For each case that did meet the criterion of a constitutional challenge, I coded the issues at stake, and how the Court ruled on each issue. For this paper, I retained only challenges involves the eight sub-policies analyzed in the paper.