Preliminary, please do not quote

Benito ARRUÑADA[*], Dean WILLIAMSON[**] and Giorgio ZANARONE[***]

The Influence of Interest Groups on Institutions: Evidence from the American State Courts

June 2009

Abstract

Previous work has posed a supply-side hypothesis on the nature of judicial decisions in American courts: the civil law origin of some states led them to constrain judicial independence, thus diminishing the quality of their courts. We introduce a complementary hypothesis: entrenched economic interests may use their *de facto* political power to constrain the supply of judicial decisions. The results suggest that firms representing large, *out-of-state* economic interests have a low opinion of courts in states dominated by *intra-state* interests. Further, once controlling for the impact of intra-state interests, a state's legal origin has no significant effect on court output.

Keywords: Courts, Institutions, Judicial independence, Legal origin, Interest groups.

JEL codes: K40; N41; N42

[*] Universitat Pompeu Fabra; E-mail: benito. arrunada@upf. edu. [**] US Department of Justice, Antitrust Division; E-mail: dean. williamson@usdoj. gov. [***] Colegio Universitario de Estudios Financieros; E-mail: gzanarone@cunef. edu. This study received financial support from the European Commission, through the Integrated Project CIT3-513420, and from the Spanish Ministry of Science and Innovation, through grant ECO2008-01116. The Antitrust Division of the US Department of Justice encourages independent research by its economists. The views expressed herein are entirely those of the author and are not purported to reflect those of the United States Department of Justice.

1. Introduction

Every year the US Chamber of Commerce (USCC) surveys lawyers in large corporations on how they perceive American state courts. The resulting ranking varies substantially across states, with courts in certain states consistently perceived as worse. Some researchers have used the USCC index to explain how court quality affects firms' decisions (see Kahan 2006, with respect to firms' decisions about where to incorporate), while others have tried to explain the variation in the index. Most notably, Berkowitz and Clay (2006) find that states with less independent courts tend to secure lower scores. To explain their results, they advance the hypothesis (hereafter, the Legal Origin Hypothesis) that the experience of many of those states with civil law regimes in the colonial era generated a preference for restricting the independence of judges; these preferences survived the transition of most states to common law regimes after entering the Union, and persisted to the present.

In this paper we pose a complementary hypothesis (hereafter, the Interest Groups Hypothesis): entrenched economic interests may use their political influence to constrain judicial decisions. As noted by Tabarrock and Helland (1999), many defendants in tort cases "are corporations headquartered in other states or even other countries," and "Plaintiffs … will tend to be more politically powerful than out-of-state-defendants". The Interest Groups Hypothesis implies that lawyers representing large, mostly out-of-state corporations will perceive courts in states dominated by local interests as more hostile and biased, and will therefore be inclined to assign them lower rankings in a USCC survey.

Directly measuring the strength of intra-state interests, and their ability to influence courts, is difficult: the range, mix, and relative influence of interest groups changes over time,

and most of their interaction with politicians, governments and courts is unobservable.[1] There is, however, historical evidence that interest groups have exercised disproportionate influence in certain states. Specifically, it is well understood that, from the late 19th century and into the 1960s, agricultural interests representing certain "Black Belt" socio-economic elites became entrenched and exercised *de facto* political control in the southern states (Kousser (1974), Alston and Ferrie (1993), Friedman (2008), Acemoglu and Robinson (2008b). See also chapters 24 and 25 in Key (1949)). Most importantly, there is evidence that, in these states, a systemic politics of dominant intra-state interest groups—if not the same ones as in the "Old South" era—became entrenched and has persisted since the 1960s (Thomas and Hrebrenar (1991, 1999), Hrebrenar (1992), Roscigno and Kimble (1995), Shugart *et al*. (2003)).

Building on this historical evidence, we construct a state-level measure of the strength of agricultural elites in the early 20th century, and we use it as a proxy for the strength of contemporary intra-state interest groups. As our historical measure, we use the cases of malaria reported in each state in 1930. The geographic distribution of malaria cases constitutes an incisive means of identifying agricultural elites for several reasons. First, it is well understood that, by the early 20th century, malaria was tightly linked to large-scale cotton cultivation (Breeden (1991), Duffy (1991), Humphreys (2001)). Before the mechanization of cotton-harvesting in the 1950s and 1960s, cotton cultivation was labor-intensive, and this motivated the local landlords to invest in *de facto* political power in order to preserve a system of paternalistic labor relations, thereby cutting labor costs (Alston and Ferrie (1993), Kousser (1974), Acemoglu and Robinson (2008b)). Second, the congressional representatives of states dominated by agricultural interests frustrated the extension of federal aid programs to southern states.

[1] Indeed, research on such questions persists. See, for example, the survey of Lowery and Gray (2004).

Southern congressmen may have understood that federal programs could undermine the system of paternalistic labor relations (Alston and Ferrie (1993)), but their interference had the often incidental and sometimes direct effect of undermining efforts to eradicate malaria (Breeden (1991), Humphreys (2001)).

Consistent with the Interest Groups hypothesis, we find that the historical strength of intra-state interests as measured by the Malaria variable is strongly correlated with the USCC ranking of state courts. This correlation is robust to several model specifications. The results also indicate that, once controlling for intra-state interests, states endowed with a Civil Law colonial heritage do not exhibit rankings in the USCC index that are significantly smaller than those of states with a Common Law origin; the correlation between legal origin and the USCC index is economically insignificant, and it is not robust to slight changes in model specification. Finally, the results indicate that the strength of intra-state interests is uncorrelated with rankings of state courts in alternative indices based on objective measures of judicial productivity and independence, such as those presented in Choi *et al*. (2008b).

These results suggest several points. First, judicial decisions may reflect the power of entrenched interest groups, and their ability to capture and coopt courts. To our knowledge, this is a largely unexplored topic, and we hope our contribution will motivate further research. Second, the coalition of agricultural elites in the American "Old South" seems to have projected persistent effects on the institutional development of those states—effects that persisted even after peculiar southern institutions such as slavery, *de jure* racial segregation, and one-party politics had long disappeared. While this is broadly consistent with the emerging literature on institutional persistence (see, for instance, Acemoglu *et al*. (2001)), to which Berkowitz and Clay (2006) also belong, the results presented here illuminate a specific type of persistence:

strong coalitions of interests may offset institutional changes that redistribute *de jure* political power by exerting *de facto* political power (Acemoglu and Robinson (2008a, b)). Third, different court rankings may capture different dimensions of and concerns about judicial decisions. In particular, the results suggest that, while judges in states with strong, entrenched interest groups are viewed unfavorably by the large, mostly out-of-state firms surveyed in the USCC index, they need not be less productive or less frequently cited than judges in other states. This is consistent with Choi *et al*. (2008b), who find that their objective measures of court quality are uncorrelated with the USCC index. Our data suggest an additional explanation for why that is the case: the USCC index reflects the views, and the interests of large, mostly inter-state firms, which are wary of entrenched intra-state coalitions of interests. Finally, the results provide little support for the Legal Origin hypothesis: once controlling for the effect of intra-state interest groups, courts in states endowed with Civil Law colonial heritage do not perform significantly worse than other states in the USCC ranking. This last result suggests a broader, methodological point: while legal origin may be interestingly correlated with various institutional outcomes (La Porta *et al*. (1999, 2008)), the causal relation between legal origins and institutions should be put at a more stringent test, and the test should be tailored to the specific institutions under study. Incidentally, this may strengthen the appeal to legal origin in those cases where its theoretical motivations are stronger.

The rest of the paper is organized as follows: section 2 discusses the Legal Origin and Interest Groups hypotheses on the determinants of state courts' outputs. Section 3 presents the data. Section 4 discusses the empirical methodology and the results. Section 5 concludes.

2. Hypotheses

In this paper, we test two complementary hypotheses on the determinants of judicial decisions in American states. According to a Legal Origin Hypothesis, states settled by Civil Law colonizers, such as France and Spain, inherited a preference for less independent judiciaries, and this preference survived the transition of those states to Common Law regimes upon entering the Union. These persistent preferences may induce contemporary policies and institutions that reduce judicial independence, such as low judicial budgets, and especially the partisan election of judges (Berkowitz and Clay (2006)). Subordinate courts may be perceived as less impartial and professional by corporate lawyers, either because they are incompetent and poorly trained, or because they protect local interests; therefore, courts in states with a Civil Law colonial heritage should exhibit lower rankings in the USCC index. Moreover, these states should be more likely to elect their judges, rather than selecting them through methods that insulate them from local politics, such as merit plans.

According to the Interest Groups Hypothesis, local interest groups maintained *de facto* political control in states that were dominated by agricultural elites in the early 20th century, even though formal political processes have been markedly liberalized in many of those states since the 1960s. Strong local interests may influence courts indirectly, by influencing judicial elections and appointments. For instance, Tabarrock and Helland (1999) find that elected judges are more sensitive to the concerns of local plaintiffs, who contribute importantly to judicial election campaigns. In addition, local interests may influence courts directly, through personal ties with judges and corruption. As a consequence, judges in states dominated by local interest groups may be perceived as biased and unfavorable by lawyers in out-of-state corporations, and,

all else equal, should receive lower scores in the USCC index. Moreover, states with strong local interest groups should be more likely to elect their judges, as that allows those groups to influence courts more incisively, via campaign contributions.

3. Data

Our main dependent variable is the logarithm of the USCC index of court quality, averaged across the 2005-2008 period. The index ranges from a minimum of 39.23 in West Virginia to a maximum of 74.00 in Delaware, the score of the average state being 60.82. The index is based on the responses of lawyers in corporations with a turnover greater than $100 million, who are asked to rate judges in state courts they are familiar with across several dimensions, such as professionality, willingness to admit scientific evidence in court, independence, timeliness, and the like. While the USCC index is, literally speaking, a measure of how favorable courts are to large firms, it is usually interpreted as a measure of state courts' quality. To check the robustness of this interpretation, we include as additional dependent variables the objective measures of court performance proposed by Choi *et al*. (2008b), who rank state courts on the basis of the number of opinions per judge (productivity), the number of out-of-state citations per judge (quality), and the propensity of judges to vote against co-partisans in their panel (independence).

Our main independent variables include the historical strength of local interest groups in a state, the state's legal origin, and whether the state selects and retains judges through partisan elections. To measure the historical strength of local interest groups, we use the number of malaria cases reported by each state in 1930. As explained in the introduction, we find this a

good measure of the power of agricultural elites, because malaria was tightly linked to large-scale cotton cultivation (Breeden (1991), Duffy (1991), Humphreys (2001)), and survived longer in states where the local elites, in order to preserve the southern system of labor relations, opposed federal programs that were also aimed to eradicate malaria (Breeden (1991), Humphreys (2001)). We measure legal origin through a dummy variable that takes value 1 if a state had Civil Law before joining the Union, and 0 otherwise. In classifying Civil Law and Common Law states, we follow the criteria used by Berkowitz and Clay (2006). We also follow Berkowitz and Clay (2006) in constructing dummies for whether a state held partisan elections of judges in each year between 1970 and 1990, and taking the average as an overall index of the state's preference for partisan elections.

We also allow for the possibility that the structure of a state's economy affects how favorably the corporate lawyers surveyed in the USCC index perceive that state's courts. This may occur because states specialized in certain industries demand less sophisticated courts, or because firms in those industries influence courts in a way that runs against the preferences of the USCC respondents. To take that into account, we include as independent variables the portions of a state's GSP (gross state product) generated by industries that arguably involve simpler, standardized litigations, and that are underrepresented in the sample of lawyers surveyed in the USCC index. In the econometric analysis that follows, we use mining & extraction (oil and gas). In unreported specifications, available upon request, we have also used water transportation, accommodation, textiles and garment manufacturing, obtaining consistent results.

As control variables, we include states' GSP per capita; population density; climate (measured by average humidity throughout the year and the maximum temperature in January); the degree of income inequality, alternatively measured by the 1949 and 1989 Gini coefficients;

and the dominance of the Democratic party in state house and gubernatorial elections measured by the average unfolded Ranney index between 2000 and 2007.[2] Controlling for income inequality and Democratic political preferences is especially important, because they may be correlated with both our main independent variable—Malaria—and with the USCC ranking of state courts. For instance, southern states used to be malarious due to their agricultural economy based on cotton cultivation; at the same time, one might expect that they maintained a more unequal income distribution than northern states, partly because of the heritage of slavery and *de jure* segregation, and a political system historically dominated by the Democratic Party. In turn, Democratic states may be less pro-business, and, therefore, their courts may be perceived as less appealing to the corporate lawyers surveyed in the USCC index. Similarly, politicians and courts in states with unequal income distributions may be more pressed to redistribute income, and this may negatively affect the way they are perceived by the corporate lawyers surveyed in the USCC index.

The descriptive statistics for our dependent and independent variables are displayed in Table 1.

<TABLE 1 HERE>

[2] The Ranney index (Ranney(1965) constitutes a measure of intra-state political competition between the two major parties. The index equally weights four dimensions: (1) the proportoion of state senate seats occupied by the Democratic party;(2) the proportion of lower house seats in a given state occupied by the Democratic party; (3) the proportion of votes in gubernatorial elections secured by the Democratic candidates; (4) the proportion of years both houses of a state's congress were controlled by the Democratic party. The index varies between 0 and 1 with 0 indicating dominance by the Republican party, 1 indicating dominance by the Democratic party, and 0.5 indicating vigorous political competition between the two parties. We calculated each of these four dimensions for the interval 2000 – 2007. Some authors use the Folded Ranney Index = 1 - |Ranney Index - 0.5|. The folded index varies between 0.5 and 1 with a value of 0.5 indicating a competitive political landscape and a value of 1 indicating complete dominance by one or the other major party.

4. Empirical model and results

To translate the Legal Origin and the Interest Groups hypotheses into a tractable econometric model, we pose a simple structural system of linear equations, representing the supply and demand of judicial outputs, and the mode of selecting and retaining judges. Let *C* indicate the court index score, *P* a state's average likelihood to select and retain judges by partisan election between 1970 and 1990, *L* a dummy variable taking value 1 in states with a "Civil Law" origin, and M the number of malaria cases per 100,000 people reported in a state in 1930. Also, let *N* indicate the share of a state's GSP occupied by "endogenous" industries, such as financial services, which have the option to locate in and out of a state, and let *X* indicate "exogenous" industries, such as mining or oil extraction, which are more likely to be tied to locations with certain physical endowments. Finally, let *Z* indicate a vector of additional state characteristics.

The demand and supply of judicial decisions, and the mode of selecting judges, are then given by the following three equations:

Supply: $C = a_C + b_{PC}P + g_{XC}X + g_{MC}M + g_{ZC}Z + e_C$

Demand: $N = a_N + b_{CN}C + g_{XN}X + g_{ZN}Z + e_N$

Judicial Selection: $P = a_P + b_{NP}N + g_{XP}X + g_{MP}M + g_{LP}L + g_{ZP}Z + e_P$

For instance, persistent interest groups, as captured by *M*, and specific industrial interests, as captured by *X* and *N*, may affect judicial decisions, and consequently the ranking of state courts in the index, by lobbying in favor (or against) maintaining partisan elections of judges, and also through other, unobserved institutional channels. Similarly, a state's legal origin may

affect its preference for independent courts through the partisan election of judges, and possibly through other unobserved channels. Finally, the choice of firms in an "endogenous" industry to locate in a given state may be affected by the characteristics of that state's courts as summarized by the ranking *C*: for instance, a large financial corporation may choose not to locate in a state whose courts are unprofessional, anti-business, or parochial.

The structural system yields the following reduced-form equations:

$$C = b_1 + b_2 X + b_3 M + b_4 L + b_5 Z + u$$

$$P = d_1 + d_2 X + d_3 M + d_4 L + d_5 Z + w$$

In the appendix, we show that, under reasonable assumptions, the Legal Origin hypothesis predicts $b_4 < 0$ and $d_4 > 0$, and the Interest Groups hypothesis predicts $b_3 < 0$ and $d_3 > 0$. Hence, we begin our analysis by estimating the reduced-form equations above as OLS regressions. To complement these results, and to check their robustness, we also present estimates based on the assumption that firms that have the option of locating in and out of a state cannot easily influence the mode of selecting and retaining judges, that is, $b_{NP} = 0$. In the appendix we show that, under this assumption, the system is triangular, and one can obtain unbiased and efficient estimates of the structural coefficients in the judicial election equation by OLS. Applying OLS to the triangular system also yields unbiased estimates of the structural coefficients in the supply equation, allowing to assess the effect of partisan elections of judges on the ranking of state courts. However, since the OLS estimates may not be asymptotically efficient, we also present 2SLS estimates obtained using the 1949 Gini coefficient as an instrument for the partisan election of judges. Estimates for the USCC ranking of state courts

and for the states' propensity to hold partisan elections of judges are displayed in tables 2 and 3, respectively.

<TABLE 2 HERE>

<TABLE 3 HERE>

A preliminary observation, suggested by tables 2 and 3, is that our main control variables—the dominance of the Democratic Party as measured by the 2000-07 Ranney Index, and the degree of income concentration as measured by the 1949 and 1989 Gini coefficients—importantly affect both the USCC index of state courts, and the states' propensity to hold partisan eletions of judges. In all models in Table 2, the coefficients corresponding to the Ranney Index are negative and statistically significant at either the 1% or 5% level, and the estimates corresponding to the 1989 Gini coefficient are negative and significant at either the 1%, 5% or 10% level. The effects are also economically significant: for instance, in model (2), an increase of one standard deviation in the Ranney Index corresponds to a decrease of more than 3. 2 points in the USCC index, while an increase of one standard deviation in the 1989 Gini coefficient corresponds to a decrease of more than 2. 2 points in the USCC index. The controls also have statistically significant, and economically large positive effects on the states' propensity to hold partisan elections of judges.

The data also shed light on the Legal Origin and Interest Group hypotheses outlined in section 2. Legal origins do not appear to have any discernible effect on the USCC ranking of state courts. The coefficient corresponding to the Civil origin dummy appears significant only in model (1) in Table 2, where the court score is regressed on Malaria, Civil, and a constant term. Once adding the Ranney index and the 1989 Gini coefficient as controls, the effect of Civil legal origin is markedly diminished and statistically insignificant. Similar results obtain in model (4),

which features the weight of mining and extraction in a state's economy as an additional control, and in model (5), where the 1949 Gini coefficient replaces the 1989 one. The results also indicate that legal origins do not affect the USCC ranking of state courts indirectly, through the mode of selecting and retaining judges: As shown in Table 3, the positive effect of Civil Code heritage on a state's propensity to hold partisan elections of judges disappears after controlling for income inequality and the Ranney index. All together, these results do not support the Legal Origins hypothesis, according to which the civil law heritage of some states persistently induced them to constrain judicial independence through institutions such as the partisan election of judges, thus "condemning" them to receive low scores in the USCC ranking.

Consistent with the Interest Groups hypothesis, the data suggest that the presence of entrenched interest groups exerts a direct, negative influence on the USCC ranking of state courts. Models (1) through (10) in Table 2 test the direct effect of interest groups on the USCC index. The coefficient corresponding to Malaria is negative and significant at the 1% level in all models, which is consistent with the hypothesis that interest groups exert a negative influence on the USCC ranking. The effect of interest groups on the USCC index is also significant in magnitude. For instance, in model (3), the estimates imply a difference of 12. 54 points in the USCC index between a hypothetical state of average quality and no malaria cases and a state with the highest proportion of cases.

The data suggest the effect of interest groups on the USCC index does not work through the partisan election of judges. This is a striking result. States with entrenched interest groups do not elect judges more frequently than other states: the coefficient corresponding to Malaria becomes insignificant both statistically and in magnitude after controlling for the dominance of the Democratic Party and the degree of income inequality (models (2) through (8) in Table 3).

Indeed, as previously noted, it is the control variables, and not the presence of entrenched interest groups, what seems to influence the use of judicial elections. Second, and contrary to the findings in Berkowitz and Clay (2006), partisan elections of judges do not seem to affect the USCC ranking of state courts. Model (8) in Table 2 provides OLS estimates for the effect of partisan elections on the USCC index, while models (9) and (10) provide 2SLS estimates obtained by using the 1949 Gini coefficient as an instrument for partisan elections.[3] All models yield point estimates for the effect of partisan elections on the USCC index, which are insignificant both statistically and in magnitude. A hypothesis consistent with these results is that entrenched interest groups may be able to game selection and retention systems designed to increase judicial independence, for instance by influencing congressional and gubernatorial judicial appointments, or by corrupting judges. We leave for future research a more tailored test of this hypothesis.

To conclude our empirical investigation, we check how measures of court output other than the USCC index relate to the strength of entrenched interest groups, and to our other explanatory variables. In the OLS regressions in table 4, we replace the USCC index as a dependent variable with the objective measures of court outputs proposed by Choi *et al*. (2008b), who rank state courts on the basis of the number of opinions per judge (productivity), the number of out-of-state citations per judge (quality), and the propensity of judges to vote against co-partisans in their panel (independence).

<TABLE 4 HERE>

[3] We employ various tests for the validity and strength of the instrument under the assumptions of homoskedasticity or arbitrary heteroskedasticity. In the latter case, we employ the Kleibergen-Paap (2006) tests for underidentification and weak identification. These tests are consistent with the conclusion that the Gini coefficient for 1949 constitutes an effective instrument for Retention.

The results are striking: none of the three R-squares exceed 12.5%, and neither entrenched interest groups, income inequality, nor the strength of the Democratic Party exert robust effects, if any effects, on judges' productivity, on how often they are cited, and on their authonomy from co-partisans. This is not surprising. Whether courts are captured by local interests may negatively affect how they are perceived by lawyers in out-of-state corporations, which translates into low scores in the USCC index. However, there are no reasons to expect that captured judges will write fewer opinions or poorer ones. Indeed, the reverse may be true: in order for their decisions in favor of local interests to avoid a US Supreme Court review, captured judges may need to be especially skilled, and to write subtle and sophisticated opinions.

The results are consistent with those of Choi *et al*. (2008b), who show that their objective rankings of state courts are uncorrelated with the USCC subjective ranking, which suggests that the two types of rankings measure different court outputs. However, while Choi *et al*. (2008b) take this as evidence that objective rankings of state courts are preferable to subjective ones, our results advise a more cautionary interpretation. It may well be that an objective ranking of courts, based, for instance, on the number out-of-state citations they secure, fails to reflect the extent to which these courts are captured by local interests, which would be unfortunate, if one assumes impartial courts are preferable.

5. Conclusion

Why do corporate lawyers perceive courts in the American South as worse? And why do court rankings based on these lawyers' perceptions differ from those based on objective measures of court performance, such as productivity? According to the empirical results in this

paper, lawyers representing inter-state corporations dislike courts in the (mostly southern) states where entrenched interest groups have been historically influential. This remains true after controlling for potentially confounding factors, such as industry structure, climate, income distribution, and political preferences. On the other hand, and not surprisingly, the strength of local interest groups does not affect objective rankings of state courts based on judicial productivity or received citations.

In contrast with previous work (Berkowitz and Clay (2006)), the results in this paper also indicate that, controlling for the historical power of interest groups, courts in states that experienced civil law systems before entering the Union are not perceived as worse by corporate lawyers, nor are they more likely to constrain judicial independence by selecting and retaining judges through partisan elections.

Overall, the results in this paper are consistent with an emerging literature that emphasizes institutional persistence (Acemoglu *et al*. (2001), Acemoglu and Robinson (2008a)). In particular, they are consistent with the idea that, in order to maintain a pool of cheap labor, the southern agricultural elites instituted mechanisms for maintaining political control, which survived the decay of the southern agricultural model and the subsequent political liberalization, and persisted to the present (Aston and Ferrie (1992), Thomas and Hrebrenar (1992, 1999), Acemoglu and Robinson (2008b)). While this idea is not new *per se*, this is, to our knowledge, the first paper that explores its consequences for the differential development of judicial institutions in the United States.

An issue that remains unexplored in this paper is the precise mechanisms through which local interests influence the judiciary in the American South and how these mechanisms have

survived political liberalization in the 1960s and the decay of the traditional agricultural elites. We hope to address these questions in future research.

Appendix: A structural model of the supply and demand of judicial decisions

We have introduced two complementary hypotheses indicated hereafter as the Legal Origins Hypothesis and the Interest Groups Hypothesis. Both hypotheses suggest how the persistence of certain quantities—if not the persistence of institutions *per se*—map into a particular measure of court outputs. Indeed, both hypotheses feature the persistence of quantities that is nonetheless masked by the apparent change of certain formal institutions. The Legal Origins Hypothesis features preferences that have survived the Civil Law colonial heritage of various states even though almost all of those same states have long made the transition to Common Law regimes. The Interest Groups Hypothesis features the persistence of a state politics in which interest groups exercise *de facto* political control even though formal political processes had been markedly liberalized in many of those same (Southern) states since the 1960s.

The Legal Origins Hypothesis suggests that the mode by which states retain judges for state courts influences the independence of those same state courts. One can, for example, draw on research such as Tabarrock and Helland (1999) suggesting that the selection and retention of judges by partisan election, as opposed to, say, the appointment of judges, induces judges to be more sensitive to the concerns of the kinds of parties who would be interested enough to make important contributions to judicial election campaigns. As formulated in Berkowitz and Clay (2006), the Legal Origins Hypothesis identifies "state officials in the legislative and executive branches" as interested parties and suggests that partisan elections afford such parties "the most control over judges." Yet, the hypothesis indicates neither the precise mechanisms by which

parties influence judicial elections nor how these same parties impose partisan elections over other modes of selecting and retaining judges.

As a matter of course, the Interest Groups Hypothesis identifies "interest groups" as the parties interested in the functioning of state courts, but, absent further elaboration, it leaves one agnostic about how interest groups exert their influence. In what follows, we leave open the prospect that, similar to Legal Origins, interest groups exert an indirect influence on quality by influencing the mode of selecting judges. Indeed, it is natural to suggest that interest groups as characterized by Thomas and Hrebenar (1991) or Hrebenar (1992) could influence elections in the way identified by Tabarrock and Helland (1999).[4] We also accommodate the prospect that interest groups exert a direct influence on the supply of quality.

The Legal Origins Hypothesis and the Interest Groups Hypothesis speak to the *supply* of quality: principally, interested parties exploit the mode of retaining judges to influence the supply of judicial outputs. We make allowances for demand-side considerations: firms in certain industries may condition their decisions to locate operations in a given state on that state's attributes, such as court quality.

To formalize these hypothesized effects on the supply and demand of quality and, ultimately, to motivate econometric analysis we pose a simple, linear, structural model. We pose a system of three equations, one indicating supply of quality, a second reflecting demand for quality, and a third indicating the selection of the mode of retaining judges. Let C indicate the quality index, P indicate the proportion of judges in a given state retained by partisan election, L indicate colonial legal heritage with $L = 1$ indicating "Civil Law" origins, and M indicate the

[4] Thomas and Hrebenar (1991, p. 98) observe that "three of the five interests prevalent in the South up until the early 1960s have maintained or enhanced their power, while two appear to have lost ground. Business, local governments, and education – especially teachers' unions – remain influential. Traditional labor unions, however, have experienced a decline of influence, and and so has agriculture."

proportion of a given state's population afflicted with malaria in 1930. We also accommodate the prospect that attributes of a state's economy may affect the supply and demand for quality: Let *N* indicate the share of state GSP occupied by "endogenous" industries—industries that had the option, and exercised the option, to locate in the state. (Consider, for example, financial services firms or other such entities in transactions-intensive, services-oriented industries.) Let *X* indicate "exogenous" industries—industries in resource extraction such as mining or oil extraction that are more likely to be tied to physical locations and thus reflect physical endowments. Finally, let *Z* stand in for any yet-unspecified attribute of a state's economy.

With these variables in hand, consider the following structural system of equations:

Supply: $C = a_C + b_{PC}P + g_{XC}X + g_{MC}M + g_{ZC}Z + e_C$

Demand: $N = a_N + b_{CN}C + g_{XN}X + g_{ZN}Z + e_N$

Judicial Selection: $P = a_P + b_{NP}N + g_{XP}X + g_{MP}M + g_{LP}L + g_{ZP}Z + e_P$

where the terms a_i indicate coefficients on exogenous variables, the b_{ij} indicate coefficients on endogenous variables, and the e_i indicate error processes.

The supply equation accommodates hypotheses both about how the retention of judges by partisan election and interest groups may influence quality. The demand equation accommodates the prospect that court quality really does affect patterns of economic development. The retention equation accommodates hypotheses about how legal origins or interest groups may influence the selection of the mode of retaining judges.

Equilibrium quality corresponds to the reduced form $C = b_1 + b_2X + b_3M + b_4L + b_5Z + u$ where

$$b_1 = \left[\frac{a_C + b_{NP}b_{PC}a_N + b_{PC}a_P}{1 - b_{PC}b_{CN}b_{NP}}\right],\ b_2 = \left[\frac{g_{XC} + b_{NP}b_{PC}g_{XN} + b_{PC}g_{XP}}{1 - b_{PC}b_{CN}b_{NP}}\right],\ b_3 = \left[\frac{g_{MC} + b_{PC}g_{MP}}{1 - b_{PC}b_{CN}b_{NP}}\right],$$

$$b_4 = \left[\frac{b_{PC}g_{LP}}{1 - b_{PC}b_{CN}b_{NP}}\right],\ b_5 = \left[\frac{g_{ZC} + b_{PC}b_{NP}g_{ZN} + b_{PC}g_{ZP}}{1 - b_{PC}b_{CN}b_{NP}}\right], \text{ and } u = \left[\frac{e_C + b_{NP}b_{PC}e_N + b_{PC}e_P}{1 - b_{PC}b_{CN}b_{NP}}\right].$$

Inspection of the system will reveal that, absent further "exclusion restrictions," it would not satisfy the order condition for identification. Accordingly, it would not be possible to recover estimates of all of the structural coefficients. Yet, in what follows, we estimate reduced-form quality and reduced-form retention thus allowing one to be largely agnostic about exclusions and the signs of included variables. Indeed, accommodating the Legal Origins Hypothesis and the Interest Group Hypothesis amounts to indicating signs for just a few selected structural-form coefficients and determining what these signs imply for the signs of the reduced-form coefficients. The assignments proceed as follows: Both hypotheses appeal to the subordinate hypothesis that retention (*P*) induces lower quality supply: $b_{PC} < 0$. Legal origins affects quality indirectly through partisan elections: states with Civil Code heritage are more likely to impose the retention of judges by partisan election: $g_{LP} > 0$. Similarly, interest groups also affect quality indirectly: $g_{MP} > 0$. We also pose the hypothesis that interest groups directly affect the supply quality negatively: $g_{MC} < 0$. Finally, we maintain the hypothesis that indirect effects on quality (through demand for quality and the retention of judges) do not dominate direct effects such that $1 - b_{PC}b_{CN}b_{NP} > 0$. Taken all together, the Legal Origins Hypothesis implies $b_4 < 0$ and the Interest Groups Hypothesis implies $b_3 < 0$.

Now suppose that one can give up being entirely agnostic about the structure of the system and can pose $g_{ZC} = 0$ and $g_{ZP} \neq 0$. That is, suppose there is some factor *Z* that one could

use as an instrument for *P* in estimating the supply equation. One could potentially apply a single-equation method (e.g., two-stage least squares) to the supply equation and recover estimates of the structural coefficients b_{PC} and g_{MC}.

Now consider the retention equation. Reduced-form "retention" corresponds to $P = d_1 + d_2 X + d_3 M + d_4 L + d_5 Z + w$ where

$$d_1 = \left[\frac{b_{CN} b_{NP} a_C + b_{NP} a_N + a_P}{1 - b_{PC} b_{CN} b_{NP}} \right],\ d_2 = \left[\frac{b_{CN} b_{NP} g_{XC} + b_{NP} g_{XN} + g_{XP}}{1 - b_{PC} b_{CN} b_{NP}} \right],\ d_3 = \left[\frac{b_{CN} b_{NP} g_{MC} + g_{MP}}{1 - b_{PC} b_{CN} b_{NP}} \right],$$

$$d_4 = \left[\frac{g_{34}}{1 - b_{PC} b_{CN} b_{NP}} \right],\ d_5 = \left[\frac{b_{CN} b_{NP} g_{ZC} + b_{NP} g_{ZN} + g_{ZP}}{1 - b_{PC} b_{CN} b_{NP}} \right], \text{ and } w = \left[\frac{b_{CN} b_{NP} e_C + b_{NP} e_N + e_P}{1 - b_{PC} b_{CN} b_{NP}} \right].$$

The Legal Origins Hypothesis imposes $g_{LP} > 0$ and thus implies $d_4 > 0$. It is not immediate what the Interest Groups Hypothesis implies without more structure. The direct effect of interest groups on retention is positive ($g_{ZN} > 0$), but there is an indirect effect that works through quality and endogenous industry. The indirect effect is also positive if the following two additional assumptions hold: industry is more likely to locate in states with higher quality judiciaries ($b_{CN} \geq 0$); these same industries represent interests that are likely to disfavor and frustrate the retention of judges by partisan election ($b_{NP} \leq 0$). Under these assumptions, $d_3 > 0$.

Now pose the hypothesis that industries that have the option of locating in a given state or locating elsewhere do not represent interests that are well situated to influence the mode of retaining judges. That is, impose the restriction $b_{NP} = 0$. The demand-side becomes irrelvant, the supply-side dictates equilibrium quality, and the supply and retention equations correspond to

a triangular system of two equations by which retention influences supply absent feedback from supply. The reduced forms correspond to structural-form retention

$$P = a_P + b_{NP}N + g_{XP}X + g_{MP}M + g_{LP}L + g_{ZP}Z + e_P \text{ and}$$

$$C = [a_C + b_{PC}a_P] + [g_{XC} + b_{PC}g_{XP}]X + [g_{MC} + b_{PC}g_{MP}]M + [b_{PC}g_{LP}]L + [g_{ZC} + b_{PC}g_{ZP}]Z + [e_C + b_{PC}e_P]$$

.

Given $b_{NP} = 0$ and absent correlation between the error processes e_C and e_P, the two structural equations constitute a "recursive" structure, and one may estimate the structural supply equation directly.

One can recount the various hypotheses as follows:

Legal Origins	$b_4 < 0$, $b_{PC} < 0$, $g_{LP} > 0$
Interest Groups	$b_3 < 0$, $d_3 > 0$ $b_{PC} < 0$, $g_{MC} < 0$, $g_{MP} > 0$

To evaluate the Legal Origins and Interest Groups, one can estimate reduced-form equations for quality and retention, and one may potentially estimate the supply equation directly by two-stage least squares (2SLS). Imposing the hypothesis that supply of quality and mode of retention constitute a recursive system may allow to substitute estimation by 2SLS with direct estimation of supply by ordinary least squares (OLS).

In what follows, we also evaluate the magnitudes of the hypothesized effects. That is, we characterize marginal effects. We measure quality by the logarithm of the USCC quality index,

and we regress the logarithm of quality on various quantities, some of which are also measured in logarithmic scale. Consider, for example, a generic regression of the form $\ln Q = a + bX + cY + d\ln Z + e$ where X and Z are real-valued and Y is binary. We will evaluate marginal effects according to the expression $\Delta Q \approx bQ\Delta X + c\overline{Q} + d\left(\overline{Q} / \overline{Z}\right)\Delta Z$ where ΔQ indicates the marginal effect, $\overline{Q}$ and $\overline{Z}$ indicate mean quantities, $\Delta Y = 1$, and ΔX and ΔZ are respectively indicated by a single standard deviation of the quantities X and Z.

References

ALSTON, L., and J. FERRIE, (1993), "Paternalism in Agricultural Labor Contracts in the U. S. South: Implications for the Growth of the Welfare State," *American Economic Review* 83: 852-876.

ACEMOGLU, D., and J. ROBINSON, (2008a), "Persistence of Power, Elites, and Institutions," *American Economic Review* 98: 267-293.

ACEMOGLU, D., and J. ROBINSON, (2008b), "The Persistence and Change of Institutions in the Americas," *Southern Economic Journal* 75: 282-299.

ACEMOGLU, D., S. JOHNSON, and J. ROBINSON, (2001), "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review* 91: 1369-1401.

BERKOWITZ, D., and K. CLAY, (2006), "The Effect of Judicial Independence on Courts: Evidence from the American States," *Journal of Legal Studies* 35: 399-440.

BREEDEN, J., (1991), "Disease as a Factor in Southern Distinctiveness," in SAVITT, T. and J. YOUNG (eds.), Disease and Distinctiveness in the American South, Knoxville: University of Tennessee Press, pp. 1-28.

CHOI, S., G. GULATI, and E. POSNER, (2008a), "Professionals or Politicians: The Uncertain Empirical Case for Elected Rather than Appointed Judges," forthcoming *Journal of Law, Economics and Organization.*

CHOI, S., G. GULATI, and E. POSNER, (2008b), "Which States Have the Best (and Worst) High Courts?" *John Olin Law & Economics Working paper* 405.

DUFFY, J., (1991), "The Impact of Malaria on the South," in SAVITT, T., and J. YOUNG (eds.), Disease and Distinctiveness in the American South, Knoxville: University of Tennessee Press: 29-54.

FRIEDMAN, T., (2008), "Exploiting the North-South Differential: Corporate Power, Southern Politics, and the Decline of Organized Labor after World War II," *Journal of American History*: 323-348.

HREBRENAR, R., (1992), "Change, Transition, and Growth in Southern Interest Group Politics," in HREBRENAR, R. , and C. THOMAS (eds.), *Interest Group Politics in the Southern States*, Tuscaloosa and London: The University of Alabama Press, pp. 321-388.

HUMPHREYS, M., (2001), *Malaria: Poverty, Race, and Public Health in the United States*, Baltimore: Johns Hopkins University Press.

KAHAN, M., (2006), "The Demand for Corporate Law: Statutory Flexibility, Judicial Quality, or Takeover Protection?" *Journal of Law, Economics and Organization* 22: 340-365.

KEY, V., (1984[1949]), *Southern Politics in State and Nation*, Knoxville: Tennessee University Press.

KLEIBERGEN, F, and R. PAAP, (2006), "Generalized Reduced Rank Tests Using the Singular Value Decomposition," *Journal of Econometrics* 133: 97-126.

KOUSSER, M., (1974), *The Shaping of Southern Politics: Suffrage Restriction and the Establishment of the One-Party South, 1880-1910*, Yale University Press.

LA PORTA, R., F. LOPEZ-DE-SILANES, and A. SHLEIFER, (2008), "The Economic Consequences of Legal Origins," *Journal of Economic Literature* 46: 285-332.

LA PORTA, R., F. LOPEZ-DE-SILANES, A. SHLEIFER, and R. VISHNY, (1999), "The Quality of Government," *Journal of Law, Economics and Organization* 15: 222-279.

LOWERY, D. and V. GRAY, (2004), "A Neopluralist Perspective on Research on Organized Interests," *Political Research Quarterly* 57: 163-175.

POZEN, D., (2008), "The Irony of Judicial Elections," *Columbia Law Review* 108: 265-330.

RANNEY, A., (1965), "Parties in State Politics," in JACOB, H. and K. VINES (eds.), *Politics in the American States*, Boston, Little, Brown and Company: 61-99.

Report for Certification and Registration of Malaria Eradication from United States of America, December 1969, Pan American Health Organization.

ROSCIGNO, V., and M. KIMBLE, (1995), "Elite Power, Race, and the Persistence of Low Unionization in the South," *Work and Occupations* 22: 271-300.

SHUGART, F., R. TOLLISON, and Z. YAN, (2003), "Rent Seeking into the Income Distribution," *Kyklos* 56: 441-456.

THOMAS, C., and R. HREBRENAR, (1991), "Interest Group Politics in the New South," *Midsouth Political Science Journal* 12: 80-113.

THOMAS, C., and R. HREBRENAR, (1999), "Who's Got Clout? Inerest Group Power in the States," *State Legislatures* 25(4): 29-34.

TABARROCK, A., and E. HELLAND, (1999), "Court Politics: The Political Economy of Tort Awards," *Journal of Law and Economics* 42: 157-188.

Table 1. Descriptive Statistics

	Obs.	Mean	Std. Dev.	Minimum	Maximum
USCC Index	49	60.82	7.16	39.23	74.00
Retention	49	19.05%	37.19%	0.00%	100.00%
Mining & Extraction ($millions)	49	$2,248.82	$6,278.76	$5.50	$42,221.17
Malaria cases in 1930 per 100,000	47	99.11	397.99	0.00	2,505.65
Civil	49	0.27	0.45	0	1
Ranney Index 2000 - 2007	48	0.42	0.12	0.20	0.72
Gini Coefficient 1949	48	0.44	0.03	0.40	0.51
Gini Coefficient 1989	49	0.42	0.02	0.38	0.47
Maximum January Temperature	49	40.90	11.65	19.90	70.35
Average Humidity	49	67.15%	8.41%	36.00%	77.00%
Population Density	49	181.76	252.75	1.10	1,134.40
GSP per capita	49	$33,592	$6,023	$23,106	$54,498

Table 2. Determinants of State Courts' Rankings in the USCC Index

	(1)	(2)	(3)	(4)	(5)
Dependent Variable: Average USCC Score (2005-2008)	Reduced Form (OLS)	Reduced Form (OLS)	Reduced Form (OLS)	Reduced Form (OLS)	Reduced Form (OLS)
Retention					
Mining & Extraction			**-0. 023*** **	**-0. 021*** **	**-0. 028*** **
			0. 007	0. 008	0. 008
Malaria	**-10. 857*** **	**-6. 042*** **	**-8. 238*** **	**-7. 939*** **	**-9. 767*** **
	1. 469	2. 069	1. 883	1. 906	2. 203
Civil	**-0. 120*** **	**-0. 047**		**-0. 031**	**-0. 048**
	0. 040	0. 037		0. 038	0. 039
Ranney Index		**-0. 366** **	**-0. 445*** **	**-0. 436*** **	**-0. 511*** **
		0. 150	0. 143	0. 157	0. 176
Gini Coefficient 1949					**-0. 109**
					0. 425
Gini Coefficient 1989		**-2. 697*** **	**-1. 810** **	**-1. 594** **	
		0. 873	0. 746	0. 784	
Log Max January Temp					
Average Humidity					
Log Population Density					
Log Per Capita GSP					
Constant	**4. 143*** **	**5. 403*** **	**5. 194*** **	**5. 097*** **	**4. 554*** **
	0. 018	0. 386	0. 288	0. 328	0. 205
N	47	46	46	46	45
R-squared	0. 342	0. 628	0. 672	0. 680	0. 654

The notations ***, **, and * indicate significance at the 1%, 5% and 10% levels, respectively.

Table 2 (continued)

	(6)	(7)	(8)	(9)	(10)
Dependent Variable: Average USCC Score (2005-2008)	Reduced Form (OLS)	Reduced Form (OLS)	Structural Form (OLS)	Structural Form (2SLS)	Structural Form (2SLS)
Retention			**-0. 044**	**0. 078**	**-0. 039**
			0. 052	0. 095	0. 078
Mining & Extraction	**-0. 025*** **	**-0. 021*** **	**-0. 031*** **	**-0. 024*** **	**-0. 031*** **
	0. 008	0. 007	0. 008	0. 007	0. 007
Malaria	**-7. 827*** **	**-8. 093*** **	**-9. 980*** **	**-9. 281*** **	**-10. 174*** **
	1. 819	2. 249	2. 130	1. 997	2. 462
Civil					
Ranney Index	**-0. 432*** **	**-0. 485*** **	**-0. 476*** **	**-0. 511*** **	**-0. 493*** **
	0. 157	0. 170	0. 146	0. 173	0. 174
Gini Coefficient 1949					
Gini Coefficient 1989	**-1. 416***	**-1. 857** **		**-2. 440** **	
	0. 757	0. 769		1. 031	
Log Max January Temp	**-0. 025**				
	0. 051				
Average Humidity	**-0. 002**				
	0. 001				
Log Population Density		**0. 009**			
		0. 009			
Log Per Capita GSP		**0. 015**			
		0. 079			
Constant	**5. 238*** **	**5. 025*** **	**4. 507*** **	**5. 483*** **	**4. 512*** **
	0. 300	0. 943	0. 091	0. 440	0. 100
N	46	46	46	45	45
R-squared	0. 681	0. 679	0. 639	0. 645	0. 641

The notations ***, **, and * indicate significance at the 1%, 5% and 10% levels, respectively.

Table 3. Determinants of the States' Propensity to Select and Retain Judges through Partisan Elections

	(1)	(2)	(3)	(4)	(5)
Dependent Variable = Average Likelihood of Partisan Judicial Elections (1970-1990)	Reduced Form OLS	Reduced Form OLS	Reduced Form OLS	Reduced Form OLS	Reduced Form OLS
Mining & Extraction					
Malaria	**25. 945*** **	**0. 064**	**12. 270***		
	7. 400	10. 425	6. 952		
Civil	**0. 265***	**0. 106**	**0. 061**		
	0. 133	0. 104	0. 122		
Ranney Index		**0. 913** **	**0. 841** **	**1. 074*** **	**1. 073*** **
		0. 412	0. 379	0. 382	0. 390
Gini Coefficient 1949		**6. 334*** **		**6. 645*** **	
		1. 676		1. 361	
Gini Coefficient 1989			**8. 168*** **		**8. 707*** **
			2. 678		2. 396
Log Population Density					
Log Per Capita GSP					
Constant	**0. 078***	**-2. 975*** **	**-3. 640*** **	**-3. 147*** **	**-3. 929*** **
	0. 046	0. 706	1. 109	0. 537	0. 961
N	47	45	46	47	48
R-squared	0. 2374	0. 5719	0. 5089	0. 5473	0. 4495

The notations ***, **, and * indicate significance at the 1%, 5% and 10% levels, respectively.

Table 3 (continued)

	(6)	(7)	(8)
	Reduced Form OLS	Reduced Form OLS	Reduced Form OLS
Mining & Extraction	**0. 034**	**0. 039**	**0. 028**
	0. 026	0. 025	0. 028
Malaria	**2. 546**	**3. 130**	**2. 262**
	9. 945	10. 056	9. 345
Civil	**0. 053**		**0. 063**
	0. 110		0. 112
Ranney Index	**0. 962****	**0. 985*****	**1. 126****
	0. 383	0. 355	0. 430
Gini Coefficient 1949	**5. 850*****	**5. 986*****	**5. 605*****
	1. 655	1. 587	1. 718
Gini Coefficient 1989			
Log Population Density			**-0. 034**
			0. 028
Log Per Capita GSP			**0. 065**
			0. 213
Constant	**-2. 983*****	**-3. 068*****	**-3. 440**
	0. 740	0. 694	2. 196
N	45	45	45
R-squared	0. 5933	0. 59	0. 6055

The notations ***, **, and * indicate significance at the 1%, 5% and 10% levels, respectively.

Table 4. Regressions on Objective Measures of Court Outputs

	Independence	Quality	Productivity
Mining & Extraction	**0.002**	**0.203**	**-0.120**
	0.011	0.721	1.033
Malaria	**0.723**	**-6.256**	**663.351****
	2.087	91.069	289.068
Ranney Index	**0.218***	**10.046**	**-14.609**
	0.120	7.728	11.622
Gini Coefficient 1989	**0.259**	**-80.561**	**132.502**
	1.110	50.569	106.282
Constant	**-0.237**	**42.510****	**-23.368**
	0.401	17.150	39.386
N	41	46	46
R-squared	0.0874	0.0866	0.1242

The notations ***, **, and * indicate significance at the 1%, 5% and 10% levels, respectively.