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The effect of judicial independence on entrepreneurship in the US states



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ABSTRACT

The relationship between institutional quality, entrepreneurship, and economic growth has been well documented within the literature. However, much less work has been done regarding judicial independence and how this affects, specifically, entrepreneurial activity. Therefore, this paper attempts to fill that gap by exploiting the differences in judicial independence that exist between the US states and empirically evaluating how this affects entrepreneurship. Overall, the results suggest that the method of selecting and retaining justices of both courts of last resort and intermediate appellate courts has a significant and direct effect on entrepreneurial activity, though the latter result is somewhat less robust. The presence of judicial nominating and retention commissions also has a significant and direct effect. Further, although somewhat weaker, the method of selecting the chief justice of a state court of last resort would also appear to have an impact on entrepreneurship. These results are robust to a number of specifications.

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1. Introduction

There has been a long history of trying to understand the process of economic growth and development. This issue is one that has led to significant amounts of research within the academic literature and elsewhere. Much of the academic work has been driven by the institutional approach to understanding economic development (North, 1990; Acemoglu et al., 2002; Acemoglu and Johnson,

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2005; Rodrik et al., 2004; Weingast, 1995). Here it is the institutions and “rules of the game” that individuals within jurisdictions face that play a primary role in promoting or hindering economic growth.

Thus, those economies where the institutional arrangements are conducive to growth through the protection of property rights and consistent adherence to the rule of law are generally found to expand more rapidly as opposed to others that do not have similar institutional arrangements in place. Most important in this development is the entrepreneurial process that acts as the driver of economic growth and change (Schumpeter, 1942/2003; Kirzner, 1978). With the proper institutional framework in place, the necessary incentives are created that foster productive entrepreneurial activity which then, in general, acts as a catalyst to greater long-run growth.

Although a large body of work has addressed how various institutional arrangements affect entrepreneurship which in turn affects economic growth, much less has been done to evaluate to what extent an independent judiciary might play a role in this process. Therefore, the current study attempts to fill this void by exploiting differences that exist in judicial independence (JI) and entrepreneurial activity across the US states and how the former may impact the latter. Obviously, the rule of law plays a major role in facilitating long-run growth by creating the necessary incentives for individuals to exploit entrepreneurial opportunities.¹ However, for the rule of law to properly function, there must be an independent and impartial third party arbitrator to ensure that it is adhered to and upheld.

In this light, then, an independent judiciary would be one that is free from the influence of either private interests or other branches of government (*i.e.* the executive or legislative branch). Therefore, if, as many studies have shown, the rule of law matters for economic growth and in fostering entrepreneurial activity, and that enforcement of the rule of law requires an independent judiciary, then it should be the case that greater JI in a given state will result in increased entrepreneurial activity. Although a number of studies have attempted to empirically evaluate to what extent an independent judiciary affects a multitude of economic outcomes (Feld and Voigt, 2003), few have looked specifically at its influence on entrepreneurship. Thus, by employing a panel dataset of entrepreneurial activity covering the years 1996–2012 and also several measures of judicial independence, many of which are conventional to the literature, along with several additional measures, this paper attempts to empirically evaluate to what extent an independent judiciary impacts entrepreneurship.

Overall, the results suggest that the method of selecting justices to state courts of last resort and intermediate appellate courts appears to most consistently impact entrepreneurship across the states. This is also true for the presence of both judicial nominating and retention commissions. Further, although less robust, the method of selecting the chief justice of a state’s court of last resort also plays a role in entrepreneurial activity across states. These results would appear to hold for a number of specifications.

The remainder of the paper is structured as follows: Section 2 provides a brief review of the relevant literature and theoretical considerations regarding economic growth, judicial independence, and entrepreneurship. Section 3 discusses and lays out a number of testable hypotheses. Section 4 describes the data as well as the empirical specification. Section 5 discusses the results, while section 6 concludes.

2. Review of the literature and theoretical considerations

A large body of research has clearly shown the causal link between institutional quality, entrepreneurship, and economic growth. For instance, a number of studies have demonstrated the impact that institutional quality has on economic growth and development (Acemoglu et al., 2002; Acemoglu and Johnson, 2005; Djankov et al., 2002; La Porta et al., 1997; Lopez De Silanes et al., 1998; DeSoto, 2001; North, 1994; Weingast, 1995; Besley, 1995). Much of this research has focused on the

¹ Here, for the rule of law to hold, three requirements are considered necessary. They include (1) having laws that are prospective and not retrospective, (2) ensuring that all laws are known and certain, and (3) requiring that all laws are equally applicable to similarly situated individuals without exception. This definition is loosely drawn from Fuller (1969).

causal link that exists between concepts such as the rule of law and how this leads to increased economic activity and growth.

There have also been significant contributions in the area of institutional quality and its effect on entrepreneurship and entrepreneurial activity. Here, the causal link runs from the effect that institutions have on relative types of entrepreneurship (generally between productive and unproductive activities)² and how this actually translates into economic growth through greater opportunities to engage in productive entrepreneurial activities. Such analysis has been undertaken through both cross-country and international studies (Aidis et al., 2012; Bjornskov and Foss, 2008; Laeven and Woodruff, 2007; Nystrom, 2008; Troilo, 2011; Ardagna and Lusardi, 2010; Capelleras et al., 2008; Levie and Autio, 2011) and studies focused within the US, specifically at the state level (Campbell et al., 2012; Hall and Sobel, 2008; Dove and Sobel, 2014; Kreft and Sobel, 2005; Hafer, 2013). This literature has clearly shown that where public predation is minimized and property rights clearly defined and protected, the gains from pursuing productive entrepreneurial activity are increased and, through this channel, economic activity and growth increase as well.

There are also several studies which have attempted to look specifically at the rule of law and especially JI and how this may help or hinder economic growth and development, though this literature is relatively smaller as compared to those studies that have analyzed institutional quality broadly (Feld and Voigt, 2003; La Porta et al., 1997). However, it has been shown that greater JI does have a strong and positive impact on economic growth overall. This occurs as increased JI creates a third party arbiter to enforce and referee the given rules of the game in an unbiased manner, and ensure that all parties involved in a dispute are treated in like fashion. This provides a fair and impartial means of enforcing and upholding the rule of law, which in turn increases predictability and opportunities for long-run planning and investment.

Increased JI also conveys a credible commitment by the state.³ Here, the issue is controlling the problem, inherent in a state, that a state which is powerful enough to protect property rights is also powerful enough to arbitrarily confiscate property (Weingast, 1995). With the creation of an independent, third party arbitrator the state can credibly signal its commitment to property rights protection rather than predation. In this context, it may actually be in the interest of the state to maintain an independent judiciary and bind itself to the decisions rendered by that judiciary, as doing so will act as the necessary commitment device which will increase physical and human capital investment, and importantly greater entrepreneurial activity. This will ultimately lead to higher incomes, growth, and, importantly for the state, increased tax receipts (Feld and Voigt, 2003).

In this regard, there has been a clearly established link between economic growth and JI. There are three situations then under which JI is crucial: (1) whenever conflicts arise between two private parties (contract enforcement), (2) whenever disputes between public authorities and private individuals arise (which requires a judiciary that can determine fault and also ensure that public officials properly followed procedural means of establishing laws), and (3) through conflicts that arise between two public entities (or two other branches of government) (Feld and Voigt, 2003). With JI and a properly functioning judicial branch, it should be the case that the transaction costs of dispute resolution will be lower and property rights will be better secured and protected. At the margin, this will drive individuals to seek out and capitalize on available arbitrage opportunities, given the relatively lower cost of doing so.

Therefore, greater JI increases the likelihood that each of the above discussed disputes are handled in an unbiased manner and ensures that, no matter the outcome, the judiciary is insulated from any outside influence (whether it arise from a private party or another branch of government). Given these causal mechanisms, the current paper attempts to tie all of this literature together. Specifically, if better quality institutional arrangements lead to increased entrepreneurial activity, which in turn leads to greater economic growth and development, and if greater JI also has a direct effect on economic growth, then it should be the case that JI will have a direct impact on entrepreneurial activity.

² See Baumol (1990).

³ For an overview of credible commitments see North and Weingast (1989).

This mechanism should occur as increased JI will increase both the feasibility and desirability of pursuing particular entrepreneurial activities and will also decrease the cost of exiting the shadow economy and entering the formal economy.⁴ Through this channel there should, *ceteris paribus*, be an increase in new business venturing in an economy.⁵ As noted, an independent judiciary provides the credible commitment necessary for the state to convey its desire to avoid arbitrary expropriation. In so doing it should increase the overall feasibility of pursuing formal and legally recognized entrepreneurial activities, as potential predation from both public and private parties is reduced. This, as noted, reduces the overall transactions costs associated with dispute resolution and operating in the formal economy. Overall, then, there should be a reduction in the ex ante risk associated with economic and entrepreneurial activity, which should thus increase both the feasibility and desirability of acting entrepreneurially.

Given the above considerations, this work exploits the variation in JI that exists between the fifty states of the United States. Specifically, each state has a broad range of autonomy when designing its judicial branch, and as such, there has developed a broad range of JI between states. Thus, if it is in fact true that JI has a direct impact on entrepreneurial activity, then it should be possible to pick this up by evaluating the differences that exist between state judiciaries.

Anecdotal as well as empirical evidence does suggest that fairly significant differences in JI and legal quality exist between the states and that they have an impact on entrepreneurial activity. For instance, in an annual survey conducted by the Institute for Legal Reform, 70% of respondents in 2012 said that the litigation and legal environment significantly impacted important business decisions, including where to locate ([Institute for legal Reform, 2012](#)). This survey is also compiled into an index which measures legal quality between states, a major component of which is JI. This dataset runs annually from 2002 to 2008 and biannually thereafter. [Table 1](#) provides the average scores (from “0” (low) to “100” (high)) for each state’s legal environment over the period.

As can be seen, there is significant variation in the perceived legal quality and rule of law between states over time, which would make an analysis of US states especially fruitful. This divergence is also empirically corroborated by [Sobel and Hall \(2007\)](#) and [Berkowitz and Clay \(2006\)](#). The latter study found significant variation in the rule of law and JI between the states, which the authors attribute to differences in initial institutional conditions.

Given the above evidence, I more formally evaluate the effect that JI has on entrepreneurship by developing measures of JI and testable hypotheses based on those measures using an important indicator of entrepreneurship across states.

3. Hypotheses

Given the above theoretical considerations it should be possible to draw a number of testable hypotheses in order to empirically investigate to what extent JI has an effect on entrepreneurial activity. However, first it is important to operationalize JI in a manner that allows for empirical investigation. In order to do this I follow what has effectively become the convention for measuring JI within the economics literature and also include several variables unique to US state courts. The first measure involves the method of selecting justices of both state intermediate appellate courts and courts of last resort to the bench. In the US there are five main methods of selecting justices employed by the states, which include both partisan and non-partisan elections, gubernatorial and legislative appointment, and merit selection ([Hanssen, 2004a](#)).⁶

⁴ See [Ajzen \(1991\)](#) and [Shapiro \(1982\)](#) for theoretical models of entrepreneurial intentionality and [Krueger et al. \(2000\)](#) for a comparative empirical analysis of the two theories.

⁵ See [Fritsch and Storey \(2014\)](#) for a theoretical overview and literature review of new business venturing.

⁶ Merit selection plans were initially proposed as a means to insulate the judiciary from undue outside influence. Under such a system, a nominating commission will generally provide a list of qualified candidates to the governor or legislature, who then selects a nominee from that list. Once selected, many of these justices will be placed on a ballot and face regularly determined, unopposed popular retention elections with the electorate deciding in an up or down vote whether the justice should remain on the bench. As discussed in greater detail in the ensuing pages, such a method of selection best insulates judges from undue outside influence largely due to the system of checks and balances that are automatically built in.

Table 1

Average legal quality score by state 2002–2012.

State	Average score 2002–2012	State	Average score 2002–2012
Alabama	42.222	Montana	54.044
Alaska	58.111	Nebraska	70.011
Arizona	64.011	Nevada	57.478
Arkansas	52.378	New Hampshire	64.789
California	48.644	New Jersey	58.911
Colorado	64.811	New Mexico	54.089
Connecticut	63.389	New York	61.733
Delaware	75.389	North Carolina	63.011
Florida	54.033	North Dakota	65.989
Georgia	59.678	Ohio	60.433
Hawaii	53.300	Oklahoma	57.091
Idaho	63.978	Oregon	62.022
Illinois	50.367	Pennsylvania	57.322
Indiana	66.544	Rhode Island	56.900
Iowa	68.233	South Carolina	53.778
Kansas	65.233	South Dakota	65.822
Kentucky	56.633	Tennessee	61.778
Louisiana	41.500	Texas	51.333
Maine	65.367	Utah	66.200
Maryland	60.867	Vermont	62.567
Massachusetts	60.967	Virginia	68.044
Michigan	60.544	Washington	62.522
Minnesota	65.944	West Virginia	36.578
Mississippi	36.189	Wisconsin	63.867
Missouri	56.533	Wyoming	63.922
Average	59.102		
Standard deviation	8.005		
Min.	36.189		
Max.	75.389		

Importantly, each of these methods of selection places different incentives and constraints on judicial actors. These differences have led to a rich literature which considers how these incentives and constraints shape judicial behavior, with both anecdotal and empirical evidence suggesting that judges selected through merit selection are the most independent, judges selected through partisan elections are the least independent, and judges that are selected through non-partisan elections or appointment somewhere in between (Hanssen, 2004a). For instance, in a concurring opinion, former justice of the United States Supreme Court Sandra Day O'Connor in *Republican Party of Minnesota v. White* suggested that, "If the state has a problem with judicial impartiality, it is largely one the state brought upon itself by continuing the practice of popularly electing judges."⁷

Further, the preeminent American legal scholar Roscoe Pound noted even as early as 1906 that, "Putting courts into politics and compelling judges to become politicians, in many jurisdictions has almost destroyed the traditional respect for the bench" (1906). Due to these concerns the American Bar Association has become one of the most vocal proponents of suspending judicial partisan elections and actively advocates for merit selection.

Empirically, there is broad consensus within both the economics and political science literature that judges selected along partisan lines are the least independent (see Hanssen, 2004a; Berkowitz and Clay, 2006). For instance, Nagel (1973) finds that judges decide cases in a more partisan fashion if they are selected through partisan elections relative to other methods of selection. Hall (1987) concluded that partisan selection significantly reduced the likelihood that a justice would overturn or dissent in a case involving extremely controversial issues. Finally, Hall and Brace (1996) show that for a given

⁷ *Republican Party of Minnesota v. White*, 536 U.S. 765, 792 (2002).

party affiliation, partisan justices were less likely to overturn a death sentence. These latter two studies attribute their results largely to electoral pressures.

Tabarrok and Helland (1999) estimate that damage awards against out-of-state business defendants in partisan elected states average \$940,000 compared to \$275,000 in other states. They further estimated that moving a case into a partisan elected state increased the expected award by roughly 40%, translating into an average award that was \$360,000 higher than in other states. Sobel and Hall (2007) show that legal quality and rule of law are lowest in states with partisan elections. Besley and Payne (2003) find that employment discrimination suits are much higher in partisan elected states.

Given all of this overwhelming evidence suggesting that judges selected to the bench through partisan elections are the least independent, I hypothesize the following:

Hypothesis 1.a: Relative to other methods of selection, justices of state courts of last resort selected through partisan elections will be the least independent and, therefore, will result in lower rates of entrepreneurial activity.

As a corollary to this I also hypothesize the following regarding state intermediate appellate courts:

Hypothesis 1.b: Relative to other methods of selection, justices of state intermediate appellate courts selected through partisan elections will be the least independent and, therefore, will result in lower rates of entrepreneurial activity.⁸

In order to operationalize these two hypotheses for empirical investigation I include three variables representing various methods of selection. This follows Hanssen (2004a), with one variable representing whether or not a state employs partisan elections, another which represents merit selection plans, and a third which places non-partisan elections, legislative appointment, and gubernatorial appointment together. This is done because, as noted above, partisan elections seem to lead to the least independence, merit selection to the most independence, and the remaining methods somewhere in between.⁹

Another important consideration is the method by which a member of the judiciary is retained to the bench once selected. There are three general means by which a sitting judge may be retained: reelection, reappointment, and retention election. Here reelection can occur on either a partisan or a non-partisan basis, while reappointment is through either gubernatorial or legislative reappointment. Finally, retention elections are elections that periodically place a sitting judge unopposed on the ballot to face an up-or-down vote by the electorate as to whether the judge should remain on the bench. Berkowitz and Clay (2006) have shown that the method by which judges are retained has a direct effect on JI, with partisan re-election leading to the least and retention elections to the most JI. The remaining are somewhere in the middle. Given this, I hypothesize the following:

Hypothesis 2.a: Relative to other methods of retention, justices of state courts of last resort retained through partisan elections will be the least independent and, therefore, will result in lower rates of entrepreneurial activity.

Again, as a corollary to this hypothesis, I also include the following.

Hypothesis 2.b: Relative to other methods of retention, justices of state intermediate appellate courts retained through partisan elections will be the least independent and, therefore, will result in lower rates of entrepreneurial activity.

Another important consideration revolves around how the chief justice of a state court of last resort is determined. Again, within the states there are three broad methods of selecting a chief justice: popular election, gubernatorial or legislative appointment, and peer selection by other members of the court. The chief justice may have important agenda setting powers to hear particular cases, the ability to allocate budgets throughout the judiciary, and the ability to dictate and oversee the implementation of procedural rules throughout the entire judicial branch, among other duties.

⁸ Nine states do not have intermediate appellate courts and are thus excluded from the analysis of this variable. These states include Delaware, Maine, Montana, New Hampshire, Nevada, Rhode Island, South Dakota, West Virginia, and Wyoming.

⁹ One important consideration to address is the possibility that significant influences “behind the scenes” may lead to only “vetted” judges declaring themselves judicial candidates, which may compromise the judiciary. Although an issue, to the author’s knowledge there is no evidence within the literature of this issue arising systematically, except possibly for partisan elections, where many authors have noted the potential influence that outside money and campaign contributions may play (see Baschab, 2001, for evidence from the Alabama Supreme Court).

Importantly, there is evidence that the most independent procedure for appointing a chief justice is through peer selection (Feld and Voigt, 2003). Therefore, I hypothesize the following:

Hypothesis 3.a: Relative to other methods of selecting a chief justice to a state court of last resort, peer selection will increase JI and as a result will have a positive impact on entrepreneurial activity.

Finally, I consider three other important factors that may have a direct impact on JI. The first is whether or not a state has a judicial nominating commission that it uses in order to assess potential judicial candidates, generally for either appointment or merit selection, though they can be employed for any method of selection. These commissions are select bodies of both legal and non-legal professionals generally tasked with providing a list of possible nominees to sit on the bench. For most states, the list compiled by this commission is binding, and the judicial nominee ultimately selected must be chosen from it. The purpose of such a commission is to avoid undue influence and concentration of power that might emerge from the source of selection (for example gubernatorial appointment). Given this, I hypothesize the following:

Hypothesis 4.a: The presence of a judicial nominating commission will, *ceteris paribus*, increase the number of checks and balances that exist over judicial selection and will therefore increase JI. Thus, the presence of a nominating commission will have a positive impact on entrepreneurial activity.

Next I consider whether or not a state also has a judicial retention commission. These bodies exist in order to increase voter awareness and to provide unbiased information about judicial candidates to the electorate. Specifically, these commissions are tasked with presenting objective, non-partisan facts about a judicial nominee and his or her overall performance while on the bench or elsewhere. Therefore, these commissions are, presumably, supposed to facilitate voter awareness and also to ensure that better qualified individuals end up on the bench in a non-partisan and apolitical fashion. Further, by increasing voter information about judicial candidates, this should also increase the checks and balances that exist between the various branches of government and the general electorate and should, therefore, increase JI. Given this I hypothesize the following:

Hypothesis 4.b: The presence of a judicial retention commission will, *ceteris paribus*, increase voter information and the number of checks and balances that exist over judicial selection and will therefore increase JI. Thus, the presence of a retention commission will have a positive impact on entrepreneurial activity.

Finally, I consider the number of procedures that are available to formally remove a sitting justice from the bench. Hayo and Voigt (2014) suggest that increasing the number of possibilities for other branches of government to remove a sitting judge from office before the expiration of his or her term is a significant detriment to JI. On the other hand, Hanssen (2004b) suggests that completely unconstrained judges may be able to pursue their own policy-making agendas, which can also be detrimental to the rule of law overall. From these two possibilities I hypothesize the following:

Hypothesis 4c: The number of formal procedures available to remove a sitting judge before the expiration of his or her term may have a countervailing effect on JI. As the number of procedures increases, it may decrease opportunistic behavior by judges to pursue their own policy goals. On the other hand, controversial decisions may be avoided altogether by judges if they could find themselves removed as a result and thus reduce JI. Given this countervailing effect, its influence on entrepreneurial activity will be ambiguous.

The next section provides the data and empirical specification employed to test all of these hypotheses.

4. Data and model specification

In order to measure entrepreneurship across states, I employ the Kauffman Index of Entrepreneurial Activity (KIEA).¹⁰ This index is a measure of entrepreneurial activity from each of the fifty states and runs from 1996 through 2012. Specifically, it is an index which evaluates new business activity and firm owners within their first month of operation, measured using the Current Population Survey from the US Census (Fairlie, 2012). Thus, the index provides the rate of

¹⁰ The data are freely available at <http://www.kauffman.org/>.

entrepreneurial activity over the sample listed above for all states, creating a panel dataset for analysis.

This index offers a number of advantages in measuring entrepreneurial activity relative to other measures and proxies that have been previously employed. First, this index has been increasingly used within the literature.¹¹ Second, the KIEA is better able to accurately capture the dynamics of entrepreneurial activity (Fairlie, 2012). This is because the KIEA is by design constructed to measure the flow of entrepreneurship from month to month rather than the stock of entrepreneurship. Further, as noted, the KIEA is based on the Current Population Survey and not on business incorporation or payroll data. This means the KIEA more accurately reflects entrepreneurial activity in general, since many entrepreneurs never incorporate or have zero employees.

Finally, and most importantly, this measure should best capture to what extent increased JI has an effect on entrepreneurial feasibility, desirability, and new business venturing. What should matter most, and where JI should have its greatest impact, is the initial decision to enter the marketplace. Again, greater JI should, at the margin, lower the relative cost of pursuing entrepreneurial endeavors and therefore should increase both the feasibility and desirability of that activity. Therefore, we would expect this to be picked up by the KIEA through higher rates of observed entrepreneurial activity. Given that the KIEA incorporates entrepreneurs that may not incorporate or ever hire employees, it is currently also the most sweeping measure of entrepreneurial activity and new firm formation.

Further, I have included a number of socioeconomic control variables that might have an influence on entrepreneurial activity and that are common to the new business venturing literature.¹² This literature has clearly and robustly found a number of socioeconomic variables that have a direct impact on new business formation. Therefore, I draw directly on this literature, which encompasses new firm formation within developed countries, as justification for the inclusion of the following control variables, all of which have been shown to clearly influence new business formation (Reynolds et al., 1994).

These variables include the median age in each state, the percent of the population that is white, the percent of the population that is male, the population density of a given state, total state population, the state's unemployment rate, the percentage of a state's population with a bachelor's degree, the annual percent change in the unemployment rate, the annual population growth rate, real gross state product, and the annual growth rate in real gross state product.¹³

I have also included regional dummy variables for the four major regions within the US as defined by the US Census Bureau, which include the Northeast, Midwest, West, and South. These regional dummy variables were included to pick up any nuances that may exist between the states within those regions. This is especially important because many of the legal institutions that exist today largely developed as a result of geographic accident and previous populations that inhabited those areas (Berkowitz and Clay, 2006; Friedman, 2007). Therefore, it would be important to control for the effect that geographic location might have.

A final set of control variables included regards federal courts and federal JI. Federalism may play an important role in mitigating decreased JI or rule of law across states due to the possibility for the federal judiciary to also potentially hear cases. Thus, the presence of the federal judiciary may act as a check on serious issues that may arise from decreased state JI, creating an overall leveling effect against serious abuses. Therefore it would be important to control for judicial independence and the rule of law within the federal judiciary.

In order to do this I incorporate two specific variables compiled by the Frasier Institute in its annual Economic Freedom of the World Index.¹⁴ These are variables that represent the level of JI within the federal judiciary as well as a measure of federal rule of law. Each of these components is given a score of between "0" (low) and "10" (high). These data run annually from 2000 to 2011 and in five year

¹¹ See Sobel and Hall (2007), Campbell et al. (2013), and Hafer (2013).

¹² See Fritsch and Storey (2014) and Reynolds et al. (1994) for an overview of the theoretical and empirical literature.

¹³ All of these control variables were taken from the US Census Bureau (<http://www.census.gov/>) except for the unemployment rate, which was taken from the Bureau of Labor Statistics (<http://www.bls.gov/>).

¹⁴ The data are freely available at www.freetheworld.com.

Table 2
Summary statistics.

Variable	Observations	Mean	Standard deviation	Min.	Max.
KIEA	850	0.302	0.097	0.080	0.720
SCElect	850	0.422	0.494	0	1
SCAppoint	850	0.469	0.499	0	1
SCMerit	850	0.380	0.486	0	1
ACElect	697	0.161	0.368	0	1
ACAppoint	697	0.449	0.498	0	1
ACMerit	697	0.390	0.488	0	1
SCReelect	850	0.085	0.279	0	1
SCRetention	850	0.380	0.486	0	1
SCReappoint	850	0.495	0.500	0	1
ACReelect	697	0.079	0.290	0	1
ACRetention	697	0.415	0.493	0	1
ACReappoint	697	0.482	0.500	0	1
Chiefelect	850	0.422	0.494	0	1
Chiefappoint	850	0.469	0.499	0	1
Chiefpeer	850	0.560	0.497	0	1
Nomcom	850	0.575	0.495	0	1
Retencom	850	0.275	0.447	0	1
Removal	850	2.460	0.699	1	4
Median age	850	36.893	2.415	26.700	43.500
% of the population that is male	850	48.937	1.406	33.348	67.210
% of the population that is white	850	82.051	12.136	25.585	97.827
% of the population with bachelors degree	850	25.891	5.017	6.100	45.600
Unemployment rate	850	5.552	2.030	2.267	13.800
Change in unemployment rate	850	0.036	0.197	-0.413	1.321
Population density (per 1000)	850	0.188	0.254	0.001	1.205
Population (per 10,000,000)	850	0.584	0.642	0.049	3.804
Population growth	850	0.0094	0.008	-0.060	0.059
Real gross state product (in hundreds of millions)	850	2776.941	3306.137	206.902	20,700
Real gross state product growth	850	0.021	0.029	-0.111	0.139
Northeast	850	0.200	0.400	0	1
Midwest	850	0.240	0.427	0	1
West	850	0.280	0.449	0	1
South	850	0.280	0.449	0	1
Federal Judicial Independence	850	7.465	0.646	6.5	8.3
Federal Legal Quality	850	8.953	0.896	7.5	10

increments prior to that. Therefore, I interpolate scores for these two variables between 1995 and 2000. The summary statistics for all of the variables discussed above are found in Table 2.

In order to empirically assess to what extent these measures of JI might have an effect on entrepreneurial activity I consider the following models¹⁵:

$$\text{Entrepreneurship}_{it} = \alpha_0 + \pi_1 \text{appoint}_{it} + \pi_2 \text{merit}_{it} + Z'_{it} \gamma + \epsilon_{it} \quad (1)$$

where $i=1, 2, 3, \dots, 50$; $t=1996, 1997, 2012$.

$\text{Entrepreneurship}_{it}$ represents the KIEA over the entire sample 1996 through 2012, while Z'_{it} is a vector of all of the control variables listed above. The main variables of interest, appoint_{it} and merit_{it} represent whether justices of either a state court of last resort or intermediate appellate court were appointed or selected through a non-partisan election, or were selected through a merit selection plan, listed as scappoint , scmerit , acappoint , and acmerit respectively. Here, these variables are relative to whether a judge was selected through a partisan election. Thus, a positive sign coefficient on either

¹⁵ These models were broken down and categorized in the fashion they were in order to avoid issues of multicollinearity that developed between a number of the variables.

variable would suggest that such a method of selection increased entrepreneurial activity relative to judges elected through partisan elections.

The next specification addresses the method by which state courts of last resort and intermediate appellate court justices are retained to the bench. The model is structured as follows:

$$\text{Entrepreneurship}_{it} = \alpha_0 + \pi_1 \text{reappoint}_{it} + \pi_2 \text{retention}_{it} + Z'_{it} \gamma + \epsilon_{it} \quad (2)$$

Under this specification, retention_{it} represents whether a judge is retained to the bench through an unopposed retention election after initially being appointed or chosen through merit selection, while reappoint_{it} represents whether a judge is retained through a non-partisan popular election or reappointment. For state courts of last resort the variables are scretenion and screappoint and for intermediate appellate courts the variables are acretenion and acappoint . Again, here each of these variables should be interpreted as relative to retention through partisan elections, meaning a positive sign coefficient on these variables suggests that either would increase entrepreneurial activity relative to reelection within a state.

The third specification considers how a chief justice of a state's Supreme Court is selected to the bench. The equation takes the following form:

$$\text{Entrepreneurship}_{it} = \alpha_0 + \pi_1 \text{chiefelect}_{it} + \pi_2 \text{chiefappoint}_{it} + Z'_{it} \gamma + \epsilon_{it} \quad (3)$$

Under this specification, chiefelect_{it} is a variable representing whether or not a chief justice is selected through partisan election and chiefappoint_{it} represents whether a chief justice is appointed or selected through a non-partisan election. Each of these variables is reported relative to whether or not a chief justice is selected by his or her peers also serving on the bench.

Finally, Eq. (4) shows the specification for the remaining variables and is as follows:

$$\text{Entrepreneurship}_{it} = \alpha_0 + \beta_1 \text{nomcom}_{it} + \beta_2 \text{retencom}_{it} + \beta_3 \text{removal}_{it} + Z'_{it} \gamma + \epsilon_{it} \quad (4)$$

where nomcom_{it} is a variable for whether or not a judge is selected or vetted with the aid of a judicial nominating commission, retencom_{it} stands for whether or not a state has a judicial retention commission in existence, and removal_{it} is a count variable for the number of formal procedures available to remove a sitting judge from office. For each of the above equations, I consider two different specifications, the first of which is a random effects model and the second a pooled-OLS model which includes a year trend.¹⁶

5. Results and interpretation

Overall, there are a number of interesting results found from the empirical exercise. First, I analyze to what extent the method of selecting both Supreme Court justices and intermediate appellate judges have an effect on entrepreneurial activity from Eq. (1). These results are shown in Tables 3 and 4 for the random effects and pooled OLS results respectively.

Columns 1 through 4 of both Tables 3 and 4 provide the results for SCAppoint and SCMerit and columns 5 through 8 show the results for ACAppoint and ACMerit . Further, for each of these specifications I run four separate regression estimates, the first only including the main variables of interest without any controls, the second including all controls except the regional dummies and the third also including regional dummy variables, while the fourth includes each of the above controls along with the federal legal quality measures.

As can be seen from Tables 3 and 4, first from Supreme Court selection, both merit selection and appointment clearly increase the level of entrepreneurial activity relative to partisan elections and each is statistically significant under every specification. Specifically, depending on the specification, for SCAppoint entrepreneurial activity increases by anywhere from 0.0261 to 0.0311, and SCMerit increases entrepreneurship between 0.0346 and 0.460. Interpretation of these results would imply that entrepreneurial activity increases by 0.0261–0.0311 percent of the adult population for SCAppoint , and by 0.0346 and 0.0466 for SCMerit , meaning that there are 26–31 and 35–46 out of

¹⁶ Unfortunately, due to time invariance in many of the variables it was not possible to analyze a fixed effects model.

Table 3
Random effects regression results from Eq. (1) estimates.

Variables	Dependent variable=Kauffman Index of entrepreneurial activity							
	1	2	3	4	5	6	7	8
Constant	0.277 ^{***} (0.00613)	0.408 ^{**} (0.201)	0.396 ^{***} (0.152)	0.272 (0.234)	0.291 ^{***} (0.00572)	0.487 ^{**} (0.197)	0.356 ^{**} (0.155)	0.0827 (0.305)
SCAppoint	0.0261 ^{***} (0.00557)	0.0270 ^{***} (0.00628)	0.0311 ^{***} (0.00723)	0.0310 ^{***} (0.00800)				
SCMerit	0.0346 ^{***} (0.00636)	0.0368 ^{***} (-0.00767)	0.0459 ^{***} (0.00846)	0.0459 ^{***} (0.00942)				
ACAppoint					0.00150 (0.00546)	0.00321 (0.00613)	0.00364 (0.00777)	0.00265 (0.00910)
ACMerit					0.0298 ^{**} (0.00633)	0.0254 ^{***} (0.00848)	0.0319 ^{**} (0.00924)	0.0313 ^{**} (0.0103)
Median age		-0.00508 ^{***} (0.00107)	-0.00277 ^{**} (0.00138)	-0.00287 [*] (0.00150)		-0.00518 [*] (0.000956)	-0.00219 [*] (0.00124)	-0.00158 (0.00173)
% of the population that is male		-0.000536 (0.00377)	-0.00236 (0.00272)	-0.000153 (0.00326)		-0.00162 (0.00358)	-0.00156 (0.00298)	0.00188 (0.00386)
% of the population that is white		0.000400 (0.000234)	0.00110 ^{**} (0.000235)	0.00122 ^{***} (0.000199)		0.000418 (0.000297)	0.00146 (0.000311)	0.00156 (0.000315)
Population density (per 1000)		-0.133 ^{***} (0.0136)	-0.108 ^{**} (0.0108)	-0.104 ^{**} (0.0138)		-0.0864 ^{***} (0.0143)	-0.0611 ^{***} (0.0127)	-0.0608 ^{***} (0.0141)
Population (per 10,000,000)		-0.124 ^{***} (0.0178)	-0.0801 ^{***} (0.0208)	-0.0798 ^{***} (0.0309)		-0.160 ^{***} (0.0228)	-0.136 ^{***} (0.0233)	-0.145 ^{***} (0.0338)
Population growth		1.009 ^{**} (0.491)	-1.032 ^{**} (0.455)	-1.016 ^{**} (0.509)		2.704 ^{***} (0.879)	0.117 (0.611)	0.115 (0.647)
Unemployment rate		0.00801 ^{***} (0.00172)	0.00233 (0.00182)	0.00247 (0.00285)		0.00976 ^{***} (0.00178)	0.00465 ^{***} (0.00166)	0.00618 ^{**} (0.00308)
Change in unemployment rate		-0.0165 (0.0215)	0.00114 (0.0199)	-0.00280 (0.0216)		-0.0329 (0.0230)	-0.0158 (0.0230)	-0.0215 (0.0230)
Real gross state product (in hundreds of millions)		2.44e-05 ^{***} (3.47e-06)	1.78e-05 ^{***} (4.17e-06)	1.77e-05 ^{***} (6.05e-06)		3.05e-05 ^{***} (4.02e-06)	2.70e-05 ^{***} (4.49e-06)	2.87e-05 ^{***} (6.38e-06)
Real gross state product growth		-0.0816 (0.211)	-0.0763 (0.184)	-0.0820 (0.189)		-0.240 (0.272)	-0.190 (0.255)	-0.196 (0.260)
% of the population with a bachelors degree		0.00102 [*] (0.000610)	0.000962 (0.000629)	0.00124 ^{**} (0.000579)		-0.000298 (0.000717)	-0.000770 (0.000723)	-0.000290 (0.000699)
Northeast			-0.0313 ^{***} (0.00874)	-0.0369 ^{***} (0.00818)			-0.0408 ^{***} (0.00841)	-0.0484 ^{***} (0.0101)
Midwest			-0.0553 ^{***} (0.00857)	-0.0559 ^{***} (0.00921)			-0.0625 ^{***} (0.00982)	-0.0641 ^{***} (0.0104)
West			0.0454 ^{***} (0.0109)	0.0409 ^{**} (0.0110)			0.0326 ^{**} (0.0107)	0.0255 [*] (0.00992)

Table 3 (Continued)

Variables	Dependent variable=Kauffman Index of entrepreneurial activity							
	1	2	3	4	5	6	7	8
Federal Judicial Independence				-0.00197 (0.0115)				0.00606 (0.0111)
Federal Rule of Law				0.00214 (0.00853)				0.00161 (0.00662)
Observations	850	850	850	800	697	697	697	656
R-squared	0.013	0.190	0.278	0.280	0.023	0.204	0.278	0.279

Robust standard errors in parentheses.

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

Regional dummy results are all relative to “South”.

Table 4
Pooled-OLS regression results from Eq. (1) estimates.

Variables	Dependent variable=Kauffman Index of entrepreneurial activity							
	1	2	3	4	5	6	7	8
Constant	0.308 ^{***} (0.0170)	0.299 (0.241)	0.351 [*] (0.190)	0.201 (0.421)	0.324 ^{***} (0.0187)	0.444 [*] (0.231)	0.317 (0.214)	0.171 (0.459)
SCAppoint	0.0265 ^{**} (0.0108)	0.0246 ^{**} (0.0103)	0.0316 ^{***} (0.0102)	0.0309 ^{***} (0.0106)				
SCMerit	0.0348 ^{***} (0.0112)	0.0373 ^{***} (0.0111)	0.0462 ^{***} (0.0109)	0.0459 ^{***} (0.0112)				
ACAppoint					0.00157 (0.0114)	0.000818 (0.0108)	0.00337 (0.0111)	0.00275 (0.0114)
ACMerit					0.0299 ^{**} (0.0118)	0.0252 ^{**} (0.0112)	0.0318 ^{***} (0.0111)	0.0312 ^{**} (0.0112)
Median age		-0.00383 ^{**} (0.00175)	-0.00205 (0.00196)	-0.00194 (0.00205)		-0.00435 ^{**} (0.00213)	-0.00113 (0.00220)	-0.000947 (0.00229)
% of the population that is male		0.000754 (0.00450)	-0.000970 (0.00348)	0.00192 (0.00411)		-0.00146 (0.00417)	-0.000607 (0.00390)	0.00288 (0.00475)
% of the population that is white		0.000355 (0.000245)	0.00109 ^{**} (0.000296)	0.00120 ^{***} (0.000301)		0.000419 (0.000269)	0.00151 ^{***} (0.000269)	0.00160 ^{***} (0.000269)
Population density (per 1000)		-0.144 ^{***} (0.0151)	-0.108 ^{***} (0.0154)	-0.105 ^{***} (0.0159)		-0.0953 ^{***} (0.0168)	-0.0641 ^{***} (0.0217)	-0.0625 ^{***} (0.0223)
Population (per 10,000,000)		-0.135 ^{***} (0.0335)	-0.0812 ^{**} (0.0354)	-0.0841 ^{**} (0.0370)		-0.173 ^{***} (0.0362)	-0.145 ^{***} (0.0363)	-0.148 ^{***} (0.0378)
Population growth		0.874 [*] (0.454)	-1.366 ^{***} (0.449)	-1.340 ^{***} (0.450)		2.630 ^{***} (0.746)	-0.275 (0.565)	-0.309 (0.561)
Unemployment rate		0.0130 ^{***} (0.00284)	7.45e-05 (0.00304)	0.000589 (0.00322)		0.0152 ^{***} (0.00333)	0.00304 (0.00338)	0.00387 (0.00353)
Change in unemployment rate		0.00592 (0.0289)	0.0403 (0.0279)	0.0374 (0.0282)		-0.0185 (0.0309)	0.0146 (0.0292)	0.0132 (0.0293)
Real gross state product (in hundreds of millions)		2.61e-05 ^{***} (6.33e-06)	1.84e-05 ^{***} (6.82e-06)	1.89e-05 ^{***} (7.18e-06)		3.23e-05 ^{***} (6.72e-06)	2.92e-05 ^{***} (6.94e-06)	2.98e-05 ^{***} (7.28e-06)
Real gross state product growth		-0.0672 (0.150)	-0.114 (0.152)	-0.119 (0.152)		-0.256 (0.193)	-0.256 (0.186)	-0.256 (0.187)
% of the population with a bachelors degree		0.00180 ^{**} (0.000802)	0.00115 (0.000757)	0.00149 [*] (0.000822)		0.000360 (0.000850)	-0.000474 (0.000819)	-9.61e-05 (0.000913)
Northeast			-0.0359 ^{***} (0.0120)	-0.0419 ^{***} (0.0123)			-0.0491 ^{***} (0.0166)	-0.0551 ^{***} (0.0167)

Table 4 (Continued)

Variables	Dependent variable=Kauffman Index of entrepreneurial activity							
	1	2	3	4	5	6	7	8
Midwest			-0.0596 ^{***} (0.00860)	-0.0606 ^{***} (0.00889)			-0.0681 ^{***} (0.00896)	-0.0696 ^{***} (0.00918)
West			0.0469 ^{***} (0.0110)	0.0414 ^{***} (0.0115)			0.0338 ^{***} (0.0113)	0.0273 ^{**} (0.0119)
Federal Judicial Independence				0.158 (0.163)				0.203 (0.171)
Federal Rule of Law				-0.131 (0.164)				-0.172 (0.172)
Observations	850	850	850	800	697	697	697	656
R-squared	0.040	0.219	0.307	0.312	0.048	0.228	0.301	0.305

Robust standard errors in parentheses.

^{*} $p < 0.1$.

^{**} $p < 0.05$.

^{***} $p < 0.01$.

Regional dummy results are all relative to "South".

100,000 more adults undertaking new business startups every month within a state. Given that in 2012 on average there were roughly 300 out of 100,000 adults engaged in new business creation per month in the US (Fairlie, 2012), this represents a significant increase in business formation of between 8.7% and 10% in those states that appoint or select their supreme court justices through non-partisan elections and between 11.6% and 15.3% for merit selection, each relative to states that elect their justices through partisan elections.

Next, the method of selecting intermediate appellate court judges also appears to have a profound impact on entrepreneurial activity, especially when comparing merit selection to partisan elections. Here, both *ACAppoint* and *ACMerit* increase entrepreneurial activity, although *ACAppoint* is not statistically significant under any specification in Table 3 or Table 4 and is, generally, not an economically significant result. However, *ACMerit* is statistically significant under every specification, suggesting an increase in entrepreneurial activity of between 0.025 and 0.035.

The next variables of interest are those found in Tables 5 and 6, which show the results from Eq. (2).

This table follows the formatting as discussed for Table 2, and here I report the results obtained for judicial retention through reappointment and also through an unopposed retention election, each relative to reelection.

Specifically, for *SCReappoint*, all eight of the results obtained between the two variables suggest it increases entrepreneurial activity within a state, all of which are statistically significant. *SCRetention* also indicates that such a method of retaining a judge increases entrepreneurial activity relative to reelection, also with every specification statistically significant. Next are the results obtained for the method of retaining intermediate appellate justices, indicating that both *ACReappoint* and *ACRetention*, each relative to reelection, increase overall entrepreneurial activity in every specification for both tables, except for *ACReappoint* under one specification in Table 6. However, only the results for *ACRetention* are statistically significant, with 7 of 8 specifications indicating this.

Finally, Tables 7 and 8 show the findings from Eq. (3) and (4).

These tables list both *chiefelect* and also *chiefappoint*, each relative to peer selection of a Supreme Court chief justice. Here, *chiefelect* appears to reduce entrepreneurial activity in all eight specifications, with six results statistically significant. Further, *chiefappoint* would appear to increase entrepreneurial activity in all eight specifications, only one of which, however, is statistically significant. *Nomcom* and *retencom* both seem to increase entrepreneurial activity across all specifications, with each statistically significant. Finally, *removal* also seems to increase entrepreneurial activity, with six of the specifications resulting in a positive sign coefficient, though with only four of the eight results being statistically significant and none returning an economically significant result.

As seen, all of the results for each of those main variables of interest seem to indicate that the presence of each actually increases entrepreneurship within a state. Further, as the number of formal methods available to remove a sitting judge increases, so too does entrepreneurial activity. The results for the presence of a judicial nominating commission appear to be the most unambiguous with all eight of the specifications showing a statistically significant result. Finally, judicial retention commissions are statistically significant in six of the eight specifications, while the results for the formal removal of judges were significant in four of the eight specifications obtained.

Overall, these findings suggest some interesting implications regarding the impact that the relative independence of a given state's judiciary might have on entrepreneurial activity. Most importantly, it would seem that greater judicial independence, as measured across a number of different aspects, does in fact appear to have a significant impact on entrepreneurship. The method of selecting judges of both the state courts of last resort and intermediate appellate court would appear to be one of the most important determinants of JI's effect on entrepreneurship. Specifically, states that employ merit selection plans (which are, as much of the literature recognizes, the most independent) have increased rates of entrepreneurship over time. Further, both judicial retention and judicial nominating commissions also have a consistently significant impact on entrepreneurial activity. These latter two bodies generally reduce the concentration of power that either the legislative or executive branch as well as the general public might have over the judicial branch and judicial independence in general.

These findings bring out several important insights and opportunities for future research. Specifically, very little research has been conducted in evaluating the importance of JI at the intermediate appellate court level, with most studies focusing exclusively on state supreme courts.

Table 5
Random effects regression results from Eq. (2) estimates.

Variables	Dependent variable=Kauffman Index of entrepreneurial activity							
	1	2	3	4	5	6	7	8
Constant	0.255 ^{***} (0.00832)	0.386 [*] (0.204)	0.366 ^{**} (0.163)	0.238 (0.245)	0.284 ^{***} (0.00927)	0.482 ^{**} (0.197)	0.353 ^{**} (0.162)	0.0595 (0.313)
SCReappoint	0.0438 ^{***} (0.00650)	0.0196 ^{**} (0.00565)	0.0314 ^{***} (0.00595)	0.0318 ^{***} (0.00566)				
SCRetention	0.0661 ^{***} (0.0102)	0.0321 ^{***} (0.00885)	0.0430 ^{***} (0.00831)	0.0439 ^{***} (0.00840)				
ACReappoint					0.00947 (0.00838)	0.00117 (0.00677)	0.00672 (0.00768)	0.00665 (0.00735)
ACRetention					0.0343 ^{***} (0.0107)	0.0163 [*] (0.00901)	0.0229 ^{**} (0.00917)	0.0236 ^{***} (0.00847)
Median age		-0.00486 ^{***} (0.00102)	-0.00290 ^{**} (0.00135)	-0.00309 ^{**} (0.00155)		-0.00453 ^{***} (0.000960)	-0.00209 [*] (0.00125)	-0.00137
% of the population that is male		-0.000203 (0.00384)	-0.00172 (0.00300)	0.000706 (0.00352)		-0.00173 (0.00365)	-0.00114 (0.00318)	0.00262 (0.00418)
% of the population that is white		0.000416 (0.000220)	0.00116 ^{**} (0.000231)	0.00127 ^{***} (0.000186)		0.000363 (0.000279)	0.00121 ^{***} (0.000276)	0.00130 ^{***} (0.000263)
Population density (per 1000)		-0.115 ^{***} (0.0119)	-0.0851 ^{***} (0.0107)	-0.0807 ^{***} (0.0134)		-0.0877 ^{***} (0.0135)	-0.0798 ^{***} (0.0123)	-0.0804 ^{***} (0.0153)
Population (per 10,000,000)		-0.139 ^{***} (0.0193)	-0.0959 ^{***} (0.0217)	-0.0955 ^{***} (0.0323)		-0.183 ^{***} (0.0236)	-0.149 ^{***} (0.0239)	-0.160 ^{***} (0.0365)
Population growth		1.155 ^{**} (0.512)	-0.938 [*] (0.496)	-0.919 [*] (0.550)		2.821 ^{***} (0.886)	0.498 (0.692)	0.448 (0.735)
Unemployment rate		0.00815 ^{***} (0.00165)	0.00237 (0.00180)	0.00253 (0.00276)		0.00921 ^{***} (0.00161)	0.00438 ^{***} (0.00165)	0.00565 [*] (0.00298)
Change in unemployment rate		-0.0163 (0.0207)	0.00245 (0.0192)	-0.00183 (0.0209)		-0.0316 (0.0223)	-0.0152 (0.0215)	-0.0186 (0.0234)
Real gross state product (in hundreds of millions)		2.61e-05 ^{***} (3.68e-06)	1.93e-05 ^{***} (4.25e-06)	1.91e-05 ^{***} (6.17e-06)		3.42e-05 ^{***} (4.31e-06)	2.88e-05 ^{***} (4.63e-06)	3.08e-05 ^{***} (6.87e-06)
Real gross state product growth		-0.0776 (0.212)	-0.0690 (0.191)	-0.0717 (0.195)		-0.250 (0.273)	-0.204 (0.258)	-0.208 (0.266)
% of the population with a bachelors degree		0.00101 [*] (0.000538)	0.000942 [*] (0.000573)	0.00115 ^{**} (0.000479)		-0.000289 (0.000707)	-0.000711 (0.000715)	-0.000231 (0.000659)

Table 5 (Continued)

Variables	Dependent variable=Kauffman Index of entrepreneurial activity							
	1	2	3	4	5	6	7	8
Northeast			–0.0324 ^{***} (0.00911)	–0.0375 ^{***} (0.00838)			–0.0198 ^{**} (0.00800)	–0.0276 ^{***} (0.00788)
Midwest			–0.0574 ^{***} (0.00850)	–0.0581 ^{***} (0.00918)			–0.0581 ^{***} (0.00983)	–0.0605 ^{***} (0.0106)
West			0.0428 ^{***} (0.0103)	0.0379 ^{***} (0.0104)			0.0304 ^{***} (0.0105)	0.0230 ^{**} (0.00984)
Federal Judicial Independence				–0.00217 (0.0112)				0.00530 (0.0108)
Federal Rule of Law				0.00202 (0.00867)				0.00253 (0.00676)
Observations	850	850	850	800	697	697	697	656
R-squared	0.027	0.186	0.273	0.276	0.021	0.196	0.265	0.267

Robust standard errors in parentheses.

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

Regional dummy results are all relative to "South".

Table 6
Pooled-OLS regression results from Eq. (2) estimates.

Variables	Dependent variable=Kauffman Index of entrepreneurial activity							
	1	2	3	4	5	6	7	8
Constant	0.286 ^{***} (0.0162)	0.269 (0.255)	0.330 (0.206)	0.145 (0.441)	0.318 ^{***} (0.0189)	0.411 [*] (0.245)	0.306 (0.226)	0.149 (0.479)
SCReappoint	0.0440 ^{***} (0.00975)	0.0163 [*] (0.00969)	0.0316 ^{***} (0.0103)	0.0315 ^{***} (0.0108)				
SCRetention	0.0662 ^{***} (0.0103)	0.0314 ^{***} (0.0105)	0.0425 ^{***} (0.0111)	0.0434 ^{***} (0.0115)				
ACReappoint					0.00975 (0.0113)	−0.00324 (0.0108)	0.00657 (0.0117)	0.00720 (0.0121)
ACRetention					0.0345 ^{***} (0.0119)	0.0141 (0.0109)	0.0230 [*] (0.0119)	0.0240 [*] (0.0123)
Median age		−0.00340 [*] (0.00184)	−0.00230 (0.00199)	−0.00215 (0.00209)		−0.00309 (0.00217)	−0.000860 (0.00220)	−0.000713 (0.00231)
% of the population that is male		0.00115 (0.00477)	−0.000417 (0.00384)	0.00286 (0.00458)		−0.00119 (0.00447)	−5.82e−05 (0.00418)	0.00366 (0.00517)
% of the population that is white		0.000349 (0.000245)	0.00115 ^{***} (0.000297)	0.00125 ^{***} (0.000301)		0.000343 (0.000262)	0.00126 ^{***} (0.000315)	0.00135 ^{***} (0.000319)
Population density (per 1000)		−0.127 ^{***} (0.0155)	−0.0849 ^{***} (0.0156)	−0.0817 ^{***} (0.0162)		−0.0994 ^{***} (0.0169)	−0.0826 ^{***} (0.0203)	−0.0812 ^{***} (0.0209)
Population (per 10,000,000)		−0.152 ^{***} (0.0353)	−0.0958 ^{**} (0.0374)	−0.0995 ^{**} (0.0390)		−0.202 ^{***} (0.0381)	−0.159 ^{***} (0.0396)	−0.163 ^{***} (0.0413)
Population growth		1.042 ^{**} (0.463)	−1.256 ^{***} (0.452)	−1.244 ^{***} (0.456)		2.802 ^{***} (0.746)	0.0927 (0.570)	0.0341 (0.573)
Unemployment rate		0.0131 ^{***} (0.00280)	7.22e−05 (0.00306)	0.000623 (0.00324)		0.0141 ^{***} (0.00322)	0.00214 (0.00339)	0.00293 (0.00353)
Change in unemployment rate		0.00686 (0.0289)	0.0411 (0.0279)	0.0396 (0.0281)		−0.0153 (0.0308)	0.0185 (0.0291)	0.0184 (0.0292)
Real gross state product (in hundreds of millions)		2.80e−05 ^{***} (6.65e−06)	1.97e−05 ^{***} (7.11e−06)	2.03e−05 ^{***} (7.46e−06)		3.72e−05 ^{***} (7.09e−06)	3.12e−05 ^{***} (7.51e−06)	3.19e−05 ^{***} (7.88e−06)
Real gross state product growth		−0.0652 (0.147)	−0.104 (0.150)	−0.107 (0.150)		−0.282 (0.189)	−0.280 (0.183)	−0.275 (0.184)
% of the population with a bachelors degree		0.00181 ^{**} (0.000805)	0.00110 (0.000762)	0.00140 [*] (0.000825)		0.000345 (0.000871)	−0.000465 (0.000831)	−0.000105 (0.000928)

Table 6 (Continued)

Variables	Dependent variable=Kauffman Index of entrepreneurial activity							
	1	2	3	4	5	6	7	8
Northeast			−0.0367*** (0.0132)	−0.0424*** (0.0135)			−0.0287* (0.0168)	−0.0345** (0.0169)
Midwest			−0.0613*** (0.00878)	−0.0627*** (0.00908)			−0.0642*** (0.00932)	−0.0662*** (0.00964)
West			0.0446*** (0.0108)	0.0385*** (0.0113)			0.0323*** (0.0113)	0.0252** (0.0119)
Federal Judicial Independence				0.146 (0.169)				0.195 (0.178)
Federal Rule of Law				−0.119 (0.170)				−0.165 (0.178)
Observations	850	850	850	800	697	697	697	656
R-squared	0.071	0.215	0.301	0.307	0.045	0.220	0.288	0.293

Robust standard errors in parentheses.

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

Regional dummy results are all relative to "South".

Table 7

Random effects regression result from Eqs. (3) and (4) estimates.

Variables	Dependent variable=Kauffman Index of entrepreneurial activity							
	1	2	3	4	5	6	7	8
Constant	0.302*** (0.00482)	0.381* (0.213)	0.381** (0.162)	0.282 (0.241)	0.293*** (0.0130)	0.308 (0.208)	0.287* (0.161)	0.163 (0.251)
Chiefelect	-0.00106 (0.00517)	-0.0204*** (0.00577)	-0.0236*** (0.00529)	-0.0232*** (0.00516)				
Chiefappoint	0.00166 (0.00412)	0.00774* (0.00420)	0.00629 (0.00423)	0.00625 (0.00476)				
Nomcom					0.0117*** (0.00401)	0.0155*** (0.00456)	0.0222*** (0.00394)	0.0215*** (0.00441)
Retencom					0.0185*** (0.00452)	0.0188*** (0.00611)	0.0141*** (0.00588)	0.0133** (0.00588)
Removal					-0.00126 (0.00396)	-0.000451 (0.00344)	0.00995*** (0.00360)	0.00990** (0.00403)
Median age		-0.00514*** (0.00103)	-0.00232* (0.00129)	-0.00270* (0.00152)		-0.00472*** (0.00105)	-0.00136 (0.00127)	-0.00154 (0.00148)
% of the population that is male		0.000592 (0.00397)	-0.00178 (0.00295)	0.000489 (0.00346)		0.00123 (0.00396)	-0.00132 (0.00297)	0.000885 (0.00365)
% of the population that is white		0.000457*** (0.000233)	0.00113*** (0.000236)	0.00125*** (0.000202)		0.000598*** (0.000270)	0.00117*** (0.000264)	0.00128*** (0.000238)
Population density (per 1000)		-0.136*** (0.0141)	-0.103*** (0.0114)	-0.0985*** (0.0138)		-0.129*** (0.0138)	-0.0988*** (0.0109)	-0.0950*** (0.0128)
Population (per 10,000,000)		-0.114*** (0.0181)	-0.0656** (0.0208)	-0.0656** (0.0308)		-0.112*** (0.0173)	-0.0698*** (0.0186)	-0.0709*** (0.0267)
Population growth		1.113** (0.493)	-0.792* (0.470)	-0.805 (0.513)		0.964** (0.482)	-1.230* (0.505)	-1.135** (0.556)
Unemployment rate		0.00836*** (0.00167)	0.00271 (0.00180)	0.00247 (0.00269)		0.00819*** (0.00156)	0.00128 (0.00182)	0.00178 (0.00264)
Change in unemployment rate		-0.0173 (0.0215)	0.000514 (0.0194)	-0.00300 (0.0210)		-0.0134 (0.0211)	0.00865 (0.0185)	0.00170 (0.0206)
Real gross state product (in hundreds of millions)		2.17e-05*** (3.46e-06)	1.45e-05*** (4.14e-06)	1.38e-05** (5.98e-06)		2.22e-05*** (3.39e-06)	1.54e-05*** (3.81e-06)	1.54e-05*** (5.41e-06)
Real gross state product growth		-0.0881 (0.209)	-0.0856 (0.180)	-0.0918 (0.185)		-0.0417 (0.214)	-0.0379 (0.185)	-0.0403 (0.189)
% of the population with a bachelors degree		0.00104* (0.000618)	0.000926 (0.000627)	0.00115** (0.000545)		0.000805 (0.000609)	0.000651 (0.000598)	0.000872* (0.000498)
Northeast			-0.0324*** (0.00874)	-0.0373*** (0.00856)			-0.0353*** (0.00865)	-0.0397*** (0.00835)

Table 7 (Continued)

Variables	Dependent variable=Kauffman Index of entrepreneurial activity							
	1	2	3	4	5	6	7	8
Midwest			-0.0444*** (0.00843)	-0.0450** (0.00910)			-0.0458*** (0.00821)	-0.0455*** (0.00912)
West			0.0537*** (0.0102)	0.0494*** (0.0101)			0.0569*** (0.0101)	0.0522*** (0.0101)
Federal Judicial Independence				-0.00308 (0.0109)				-0.00327 (0.0110)
Federal Rule of Law				0.00137 (0.00831)				0.00352 (0.00868)
Observations	850	850	850	800	850	850	850	800
R-squared	0.001	0.185	0.270	0.271	0.015	0.192	0.278	0.279

Robust standard errors in parentheses.

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

Regional dummy results are all relative to "South".

Table 8

Pooled-OLS regression result from Eqs. (3) and (4) estimates.

Variables	Dependent variable=Kauffman Index of entrepreneurial activity							
	1	2	3	4	5	6	7	8
Constant	0.332*** (0.0158)	0.288 (0.258)	0.354* (0.204)	0.205 (0.440)	0.324*** (0.0205)	0.211 (0.258)	0.245 (0.205)	0.0892 (0.439)
Chiefelect	0.000417 (0.00708)	-0.0188** (0.00753)	-0.0201*** (0.00696)	-0.0190*** (0.00719)				
Chiefappoint	0.00138 (0.00682)	0.00465 (0.00675)	0.00571 (0.00646)	0.00476 (0.00670)				
Nomcom					0.0118* (0.00682)	0.0170** (0.00703)	0.0226*** (0.00661)	0.0222*** (0.00681)
Retencom					0.0183** (0.00782)	0.0166** (0.00765)	0.0137* (0.00707)	0.0123* (0.00737)
Removal					-0.00126 (0.00457)	-0.000469 (0.00456)	0.0110** (0.00451)	0.0111** (0.00469)
Median age		-0.00424** (0.00182)	-0.00202 (0.00199)	-0.00184 (0.00208)		-0.00359** (0.00172)	-0.000513 (0.00183)	-0.000455 (0.00192)
% of the population that is male		0.00164 (0.00479)	-0.000619 (0.00377)	0.00262 (0.00451)		0.00249 (0.00483)	-2.01e-05 (0.00385)	0.00312 (0.00475)
% of the population that is white		0.000429* (0.000243)	0.00112*** (0.000295)	0.00122*** (0.000300)		0.000535** (0.000262)	0.00115*** (0.000304)	0.00125*** (0.000311)
Population density (per 1000)		-0.145*** (0.0152)	-0.102*** (0.0152)	-0.0989** (0.0158)		-0.139** (0.0150)	-0.0987*** (0.0152)	-0.0957*** (0.0159)
Population (per 10,000,000)		-0.124*** (0.0354)	-0.0677* (0.0374)	-0.0716 (0.0391)		-0.123** (0.0333)	-0.0713** (0.0348)	-0.0753** (0.0362)
Population growth		0.970** (0.451)	-1.108** (0.444)	-1.087** (0.446)		0.846* (0.447)	-1.522*** (0.477)	-1.514*** (0.481)
Unemployment rate		0.0133*** (0.00288)	0.000410 (0.00310)	0.000857 (0.00328)		0.0125*** (0.00273)	-0.00128 (0.00307)	-0.000877 (0.00326)
Change in unemployment rate		0.00659 (0.0293)	0.0406 (0.0284)	0.0385 (0.0286)		0.0111 (0.0295)	0.0456 (0.0283)	0.0430 (0.0285)
Real gross state product (in hundreds of millions)		2.29e-05*** (6.71e-06)	1.46e-05** (7.20e-06)	1.53e-05** (7.57e-06)		2.37e-05*** (6.25e-06)	1.61e-05** (6.63e-06)	1.68e-05** (6.96e-06)
Real gross state product growth		-0.0690 (0.147)	-0.119 (0.149)	-0.124 (0.149)		-0.0271 (0.147)	-0.0721 (0.152)	-0.0825 (0.152)
% of the population with a bachelors degree		0.00182** (0.000839)	0.00114 (0.000793)	0.00151* (0.000858)		0.00148* (0.000807)	0.000741 (0.000755)	0.00106 (0.000828)

Table 8 (Continued)

Variables	Dependent variable=Kauffman Index of entrepreneurial activity							
	1	2	3	4	5	6	7	8
Northeast			-0.0348*** (0.0125)	-0.0408*** (0.0128)			-0.0396*** (0.0120)	-0.0452*** (0.0122)
Midwest			-0.0480*** (0.00876)	-0.0492*** (0.00908)			-0.0499*** (0.00866)	-0.0511*** (0.00896)
West			0.0553*** (0.0108)	0.0496*** (0.0113)			0.0591*** (0.0109)	0.0537*** (0.0115)
Federal Judicial Independence				0.147 (0.168)				0.152 (0.166)
Federal Rule of Law				-0.124 (0.168)				-0.126 (0.167)
Observations	850	850	850	800	850	850	850	800
R-squared	0.026	0.212	0.295	0.299	0.040	0.221	0.308	0.311

Robust standard errors in parentheses.

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

Regional dummy results are all relative to "South".

However, from the findings above, it is apparent that intermediate appellate courts may also play an important role, not just on entrepreneurial activity, but potentially also on an array of other economic measures. The impact that both judicial nominating and retention commissions have has also received little attention within the literature, but would seem to have significant effects on JI and the ability to check other branches of government from unduly influencing the bench within a given state as well. Again, although further evaluation of these issues is beyond the scope of the current paper, they would be worthy of future research.

6. Conclusion

Institutional arrangements have been shown to have a significant effect on a number of different economic outcomes, including growth and development. This work has added to this literature by addressing one particularly under-researched institution: an independent judiciary. Specifically, although a large body of work has considered how given institutional arrangements can impact entrepreneurship and how this, in turn, impacts economic growth, little attention has been paid to the importance that an independent judiciary can have in fostering entrepreneurship.

This study has attempted to fill that gap by evaluating JI within the states of the US and how this has helped or hindered entrepreneurial activity. Overall, the results indicate that the method of selecting both state supreme court justices and intermediate appellate judges have the most profound effect on entrepreneurial activity, as does the presence of judicial selection and nominating committees. Specifically, merit selection and appointment of justices seems to increase overall entrepreneurial activity relative to partisan elections, which suggests (as noted in the literature) that relatively more independent judicial branches would appear to have a significant and direct impact on entrepreneurship across the states. These results provide an important initial evaluation of JI and entrepreneurship and should open up new avenues for future research.

References

- Acemoglu, D., Johnson, S., Robinson, J.A., 2002. Reversal of fortune: geography and institutions in the making of the modern world income distribution. *Q. J. Econ.* 117, 1231–1294.
- Acemoglu, D., Johnson, S., 2005. Unbundling institutions. *J. Polit. Econ.* 113, 949–995.
- Aidis, R., Estrin, S., Mickiewicz, T.M., 2012. Size matters: entrepreneurial entry and government. *Small Bus. Econ.* 39, 119–139.
- Ardagna, S., Lusardi, A., 2010. Heterogeneity in the effect of regulation on entrepreneurship and entry size. *J. Eur. Econ. Assoc.* 8, 594–605.
- Ajzen, I., 1991. The theory of planned behavior. *Organ. Behav. Hum. Decis. Process.* 50, 179–211.
- Baschab, P.W., 2001. The walking judge from Alabama. *Fordham Urban Law J.* 29, 827–834.
- Baumol, W.J., 1990. Entrepreneurship: productive, unproductive, and destructive. *J. Polit. Econ.* 98, 893–921.
- Berkowitz, D., Clay, K., 2006. The effect of judicial independence on courts: evidence from the American states. *J. Legal Stud.* 35, 399–440.
- Besley, T., 1995. Property rights and investment incentives: theory and evidence from Ghana. *J. Polit. Econ.* 103, 903–937.
- Besley, T., Payne, A., 2003. Judicial Accountability and Economic Policy Outcomes: Evidence from Employment Discrimination Charges. *IFS Working Papers Series*.
- Bjornskov, C., Foss, N.J., 2008. Economic freedom and entrepreneurial activity: some cross-country evidence. *Public Choice* 134, 307–328.
- Campbell, N.D., Heriot, J.A., Mitchell, D.T., 2012. Which state policies lead to U.S. firm exits? Analysis with the economic freedom index. *J. Small Bus. Manag.* 50, 87–104.
- Campbell, N.D., Mitchell, D.T., Rogers, T.M., 2013. Multiple measures of US entrepreneurial activity and classical liberal institutions. *J. Entrep. Public Policy* 2, 4–20.
- Capelleras, J.L., Mole, K.F., Greene, F.J., Storey, D.J., 2008. Do more heavily regulated economies have poorer performing new ventures? Evidence from Britain and Spain. *J. Int. Bus. Stud.* 39, 688–704.
- DeSoto, H., 2001. *The Mystery of Capital*. Black Swan Publishing, London.
- Djankov, S., La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2002. The regulation of entry. *Q. J. Econ.* 117, 1–37.
- Dove, J.A., Sobel, R.S., 2014. Entrepreneurial creative destruction and legal federalism. In: Klick, J., Parisi, F., Posner, R. (Eds.), *The Research Handbook of Federalism*. Edward Elgar Publishing (in press).
- Fairlie, R.W., 2012. Kauffman Index of Entrepreneurial Activity. Ewing Marion Kauffman Foundation.
- Feld, L.P., Voigt, S., 2003. Economic growth and judicial independence: cross-country evidence using a new set of indicators. *Eur. J. Polit. Econ.* 19, 497–527.
- Friedman, L.M., 2007. *A History of American Law*, third ed. Touchstone, New York.
- Fritsch, M., Storey, D.J., 2014. Entrepreneurship in a regional context: historical roots, recent development and future challenges. *Reg. Stud.* 48 (6), 939–945.
- Fuller, R.L., 1969. *The Morality of Law*. Yale University Press.
- Hafer, R.W., 2013. Entrepreneurship and state economic growth. *J. Entrep. Public Policy* 2, 67–79.

- Hall, J.C., Sobel, R.S., 2008. Institutions, entrepreneurship, and regional differences in economic growth. *Am. J. Entrep.* 1, 69–96.
- Hall, M.G., 1987. Constituent influence in state supreme courts: conceptual notes and a case study. *J. Polit.* 49, 1117–1124.
- Hall, M.G., Brace, P., 1996. Justices' responses to case facts: an interactive model. *Am. Polit. Res.* 24, 237–261.
- Hanssen, F.A., 2004a. Learning about judicial independence: institutional change in the state courts. *J. Legal Stud.* 33, 431–473.
- Hanssen, F.A., 2004b. Is there a politically optimal level of judicial independence. *Am. Econ. Rev.* 94, 712–729.
- Hayo, B., Voigt, S., 2014. Mapping constitutionally safeguarded judicial independence – a global survey. *J. Empir. Legal Stud.* 11, 159–195.
- Institute for legal Reform, 2012. 2012 State Liability Systems Survey Lawsuit Climate: Ranking the States.
- Kirzner, I.M., 1978. *Competition and Entrepreneurship*. The University of Chicago Press.
- Kreft, S.F., Sobel, R.S., 2005. Public policy, entrepreneurship, and economic freedom. *Cato J.* 25, 595–615.
- Krueger Jr., N.F., Reilly, M.D., Carsrud, A.L., 2000. Competing models of entrepreneurial intentions. *J. Bus. Ventur.* 15, 411–432.
- Laeven, L., Woodruff, C., 2007. The quality of the legal system, firm ownership, and firm size. *Rev. Econ. Stat.* 89, 601–614.
- La Porta, R., Lopez-De-Silanes, F., Shleifer, A., Vishny, R.W., 1997. Legal determinants of external finance. *J. Financ.* 52, 1131–1150.
- Levie, J., Autio, E., 2011. Regulatory burden, rule of law, and entry of strategic entrepreneurs: an international panel study. *J. Manag. Stud.* 48, 1392–1419.
- Lopez De Silanes, F., La Porta, R., Shleifer, A., Vishny, R., 1998. Law and finance. *J. Polit. Econ.* 106, 1113–1155.
- Nagel, S.S., 1973. *Comparing Elected and Appointed Judicial Systems*. Sage Publications, Beverly Hills.
- North, D.C., 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge University Press.
- North, D.C., 1994. Economic performance through time. *Am. Econ. Rev.* 84, 359–368.
- North, D.C., Weingast, B.R., 1989. Constitutions and commitment: the evolution of institutional governing public choice in seventeenth-century England. *J. Econ. Hist.* 49, 803–832.
- Nystrom, K., 2008. The institutions of economic freedom and entrepreneurship: evidence from panel data. *Public Choice* 136, 269–282.
- Pound, R., 1906. The causes of popular dissatisfaction with the administration of justice. *Am. Bar Assoc.* 29, 395.
- Reynolds, P.D., Storey, D.J., Westhead, P., 1994. Cross national comparison of the variation in new firm formation rates. *Reg. Stud.* 28, 443–456.
- Rodrik, D., Subramanian, A., Trebbi, F., 2004. Institutions rule: the primacy of institutions over geography and integration in economic development. *J. Econ. Growth* 9, 131–165.
- Schumpeter, J.A., 1942/2003. *Capitalism, Socialism, and Democracy*. George Allen and Unwin Ltd..
- Shapero, A., 1982. Social dimensions of entrepreneurship. In: Kent, C., Sexton, D., Vesper, K. (Eds.), *The Encyclopedia of Entrepreneurship*. Prentice Hall, Englewood Cliffs.
- Sobel, R.S., Hall, J.C., 2007. The effects of judicial selection processes on judicial quality: the role of partisan politics. *Cato J.* 27, 69–82.
- Tabarrok, A., Helland, E., 1999. Court politics: the political economy of tort awards. *J. Law Econ.* 42, 157–188.
- Troilo, M., 2011. Legal institutions and high-growth aspiration entrepreneurship. *Econ. Syst.* 35, 158–175.
- Weingast, B.R., 1995. The economic role of political institutions: market-preserving federalism and economic development. *J. Law Econ. Organ.* 11, 1–31.