## Practice beyond Education: Legal Leaders and Institutions

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## Abstract

Government leaders can weaken the rule of law to favor politically connected groups. However, compared to other government leaders, a leader with professional legal experience, strengthens the rule of law and is associated with roughly 27,000 (or 20%) more convictions per year by the end of her tenure. The impact of experienced legal leaders on the rule of law is most evident for autocracies; is robust controlling for economic conditions; and occurs even relative to leaders with a legal education only. The findings suggest that experienced legal leaders facilitate equal treatment under the law while improving criminal justice system performance.

Keywords: Government Leadership, Law and Order, Legal Education, Legal Profession.

JEL Codes: D72 (Elections), E02 (Government Leadership), K42 (Criminal Justice), P14 (Institutional Development), P48 (Legal Institutions).

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## 1. Introduction

Institutions are important for economic growth (Barro, 2000; Rodrik, Subramanian, and Trebbi, 2004). For example, the rule of law (i.e., equal treatment under the law) is a legal institution that is the backbone of commerce. In its absence, a financial system would be underdeveloped (Beck and Levine, 2008), and violence would go unchecked (Hirshleifer, 1995; Dixit, 2011; Blattman and Annan, 2016; Lessing, 2021; Bruhn, 2021). Institutional quality could change over time (Blattman, Hartman, and Blair, 2014; Acemoglu et al., 2020). Recent anecdotal evidence suggests that legal and democratic institutions around the world have been weakening, with some government *leaders* tipping the scales of justice in their favor (Mehmood and Seror, 2021).<sup>1</sup>

Government leaders play an important role in choosing criminal justice personnel (Mehmood, 2021; Ali and Mehmood, 2021). Therefore, in a government's dispensation of justice (McCrary, 2002, 2010), a leader's legal skills could be important, though it is unclear whether effective legal skills are gained through professional legal experience (Berdejó and Chen, 2017) or through legal education only.<sup>2</sup> Nevertheless, if an economic leader can increase his economy's growth rate (Brown, 2020); then a legal leader, likewise, may improve her economy's legal institutions, given that she often swears an oath to the rule of law prior to an oath of office. Alternatively, legal leaders could have the specific knowledge to corrupt justice and avoid guilt (Rose-Ackerman, 2008; Fisman and Miguel, 2010); or less-talented lawyers might be attracted to public service (Burk, Kapilow, and Winston, 2014).

<sup>&</sup>lt;sup>1</sup> For example, Freedom House (2019) finds that institutional quality has been declining for 13 consecutive years. Hungary, Poland, and Turkey provide recent examples of a leader's influence on the rule of law (see Sewell Chan, "A Future Haunted by Ghosts of the Past," *The New York Times*, September 23, 2016). The case of the U.S. shows that even strong institutions can be weakened by government leadership (see David Frum, "The System Failed the Test of Trump," *The Atlantic*, May 21, 2020).

<sup>&</sup>lt;sup>2</sup> Although the individual returns to a legal education are high (Burk, 2014; Simkovic and McIntyre, 2014; Yoon, 2017), many legal scholars identify a gap between legal education and experience in the pursuit of practical legal skills (Edwards, 1992; Tokarz et al., 2013).

Do legal leaders improve the rule of law? This paper finds that compared to other government leaders, a leader with professional legal experience (an experienced-legal leader) oversees a stronger rule of law by the end of her tenure. The relation between experienced legal leadership and the rule of law is most evident for autocracies;<sup>3</sup> and is robust controlling for economic conditions. These results are muted for educated-legal leaders without professional legal experience.

In addition to providing some confirmatory evidence that (a) institutional quality has been declining in recent years,<sup>4</sup> this paper provides new evidence that (b) there has also been a decline in legal leadership. Figures I and II show that for all economies, educated-legal leadership and experienced-legal leadership have been decreasing through time, not only as a percentage of all leaders, but also as a percentage of university-educated leaders.<sup>5</sup> By exploring the relation between legal leadership and legal institutions; this paper can offer an explanation for the declining trends in institutional quality and legal leadership, based on the way leaders interact with the criminal justice system.<sup>6</sup>

To test this paper's main hypothesis, I estimate the relation of legal leadership to legal institutions by taking (i) the average difference in the rule of law (for the last regime year) in an

<sup>&</sup>lt;sup>3</sup> Given that favoritism is more likely to occur during periods of autocratic rule (Hodler and Raschky, 2014), the results suggest that experienced-legal leadership could work to strengthen the otherwise weaker legal institutions that prevail under authoritarian regimes.

<sup>&</sup>lt;sup>4</sup> See fns. 1 and 40.

<sup>&</sup>lt;sup>5</sup> It is unclear however, whether the decline in legal leaders is driven by demand or supply (Kronman, 1995; Bogus, 1996; Yoon, 2017). For various perspectives on legal scholarship and the lawyer labor market in the United States of America (U.S.), see Posner (2002); Ethan Bronner, "Law Schools' Applications Fall as Costs Rise and Jobs Are Cut," *The New York Times*, January 20, 2013; and Dorothy A. Brown, "Law Schools Are in a Death Spiral. Maybe Now They'll Finally Change," *The Washington Post*, March 9, 2015.

<sup>&</sup>lt;sup>6</sup> Adam Taylor, "As Democracies Backslide, Repression Transcends Borders," *The Washington Post*, February 4, 2021. U.S. intelligence professionals recognize the relation between leadership and democratic institutions in that "strongmen" regimes comprise a much greater percentage of autocracies in 2019 compared to 1988 (see Indira A. R. Lakshmanan, "Autocrats Rising, Democracies Flailing," *The Boston Globe*, February 27, 2019). Freedom House (2019) declares that with respect to legal institutions, "Authoritarian and antiliberal actors fear these movements for justice … because they challenge unfair concentrations of status and power."

economy going from a non-legal leader to a legal leader, minus (ii) the average difference in the rule of law (for the last regime year) going from a non-legal leader to another non-legal leader.

For both educated and experienced legal leadership, this difference-in-differences (DD) exercise produces statistically equivalent trends prior to the treatment and control events, thus satisfying pre-event parallel trends (Angrist and Pischke, 2010). However, the positive estimate of experienced-legal leaders is statistically significant, while the negative estimate of educated-legal leaders (without professional legal experience) is statistically insignificant. The difference between the two estimates (or the triple-difference, DDD, estimate) suggests a positive effect of practice beyond education, which is roughly one third of the typical deviation in the rule of law within an economy over time. These results occur mostly in cases where a leader has greater power to affect the criminal justice system in an economy.

Given that the outcome of a close election is uncertain or virtually random (Eggers et al., 2015), I refine the set of leader changes by focusing attention on those which occur after close elections to show that the main finding remains robust when limiting the set of leader changes to those which occur after close elections.

The rule of law as a legal institution is defined as equal treatment under the law. Therefore, a weak rule of law can be characterized as unequal treatment under the law. A common case of unequal treatment occurs when a government leader favors politically connected groups so that they are treated differently (Faccio, 2006).<sup>7</sup> This paper's model of criminal justice shows that if a government leader suffers a personal cost when the politically connected are brought to justice, then the connection frequently leads to the connected group

<sup>&</sup>lt;sup>7</sup> For example, in 2020, the government leader of the U.S. state of Illinois, Governor J.B. Pritzker accused U.S. President Donald Trump of using clemency powers to reward connected individuals, stating "President Trump has abused his pardon power in inexplicable ways to reward his friends and condone corruption..." (see Matt Ford, "The Real Message of Trump's Latest Clemency Binge," *The New Republic*, February 18, 2020; and John Kruzel, "Trump's Pardons Harshly Criticized by Legal Experts," *The Hill*, January 20, 2021).

being convicted less when compared to others (i.e., a weaker rule of law). Compared to the case of equal treatment; there is often a lower conviction probability but heavier punishment (e.g. longer prison sentences) towards all citizens regardless of whether they are connected.

Consistent with the predictions of this paper's model; I find that controlling for population, an experienced-legal leader—in addition to overseeing a stronger rule of law—is associated with roughly 27,000 (or 20%) more convictions per year by the end of his tenure.

One explanation of the conviction result is that experienced-legal leaders prefer equal treatment under the law (Ashenfelter, Eisenberg, and Schwab, 1995). Alternatively, these leaders might be "tough on crime," and in doing so, may merely relax the budget constraint by expanding a government's enforcement resources (Marvell and Moody, 1996; Levitt, 2002; Blattman et al., 2021). For example, to tackle violent crime, the United States of America (U.S.) leader William "Bill" Clinton signed the Violent Crime Control and Law Enforcement Act of 1994; a bill which authorized \$8.8 billion (U.S.) towards hiring an additional 100,000 police officers (Chernoff, Kelly, and Kroger, 1996). The idea that experienced-legal leaders are associated with a greater number of police, finds no empirical support. In fact, compared to other leaders, experienced-legal leaders are associated with *fewer* police personnel.

Experienced-legal leaders are associated with an increase in convictions, even after controlling for the number of police, judges, and prosecutions. Therefore, the natural interpretation of the conviction result is that an experienced-legal leader is associated with a more efficient, and thus better performing, criminal justice system in his economy. Overall, the findings suggest that a government leader's professional legal experience matters for legal institutions: Rather than weaken the rule of law;<sup>8</sup> experienced-legal leaders oversee a stronger rule of law and better criminal justice system performance. The evidence implies that legal skills are important for an economy's development (Knack and Keefer, 1995). Beyond a government leader's education in law, these skills seem to be gained through the leader's practical legal experience.<sup>9</sup>

## 2. Motivation and Related Literature

Carothers (1998) argues that the quality of government leadership is important for establishing and improving legal institutions:

"The primary obstacles to such reform are not technical or financial, but political and human. Rule-of-law reform will succeed only if it gets at the fundamental problem of leaders who refuse to be ruled by the law."

In exploring cases that highlight these obstacles, I find that a government leader who refuses to be ruled by the law, can weaken the rule of law to enhance his power. For example in 2016, after a failed coup attempt which killed more than 200 people and wounded more than 1400; Turkey's leader, Recep Tayyip Erdogan—in a bid to consolidate power—responded by purging hundreds of judges and prosecutors because of their alleged links to the person who Erdogan blamed for planning the coup.<sup>10</sup> After coming to power in 2015, the Law and Justice Party in Poland weakened legal institutions by promoting the early retirement of judges, proposing a party

<sup>&</sup>lt;sup>8</sup> This economic problem shares many similarities with research that studies the corruption of the justice system (Rose-Ackerman, 2008; Voigt and Gutmann, 2015) with prominent case studies of emerging democracies (Popova 2012; Eppinger, 2015).

<sup>&</sup>lt;sup>9</sup> Ever since Becker (1962) presented the idea of investment in human capital, researchers have investigated investment through education separate and apart from investment through professional experience (e.g. on-the-job training). For example, Barron, Black, and Lowenstein (1989) and Black and Lynch (1996) show that there are positive returns to job training.

<sup>&</sup>lt;sup>10</sup> Mustafa Akyol, "Turkey's Great Purge," *The New York Times*, August 24, 2016.

loyalist to be chief justice, and preparing a series of measures designed for the government to have more control of the courts and the judiciary.<sup>11</sup> Even an economy like the U.S. with relatively strong legal institutions can experience a government leader's challenge to those institutions:<sup>12</sup> In 2017, Donald J. Trump's executive order on refugees and immigrants was met with a vigorous response from prominent members of the legal fraternity who were concerned about the rule of law.<sup>13</sup>

A recurring theme in the cases where government leaders weaken legal institutions is a leader's attack on the courts and the judiciary in particular.<sup>14</sup> Given that an economy's legal outcomes are often swayed by the sentiments of its criminal-justice personnel (Gennaioli and Shleifer, 2008; Gennaioli and Rossi, 2010; Lim, 2013; Henderson and Hubbard, 2015; Cohen and Yang, 2019; Ash, Chen, and Naidu, 2021), a legal leader having the most appropriate skills for legal reforms (Heckman and Sedlacek, 1985) could improve legal institutions by altering the makeup of the criminal-justice personnel who impart justice (Hagle 1993; Mehmood, 2021; Ali and Mehmood, 2021; Mehmood and Seror, 2021).<sup>15</sup> However, it is unclear whether the appropriate legal skills are gained through professional experience, or through legal education only (Edwards, 1992; Tokarz et al., 2013).

Although there is evidence that leaders matter (Jones and Olken, 2005; Besley et al., 2011; Brown, 2020) for economic growth; there is no existing research that studies whether

<sup>&</sup>lt;sup>11</sup> Monika Nalepa, "This Is What the Gradual Erosion of Rule of Law Looks like in Poland," *The Washington Post*, January 23, 2017.

<sup>&</sup>lt;sup>12</sup> See Preet Bharara, "Preet Bharara: Are There Still Public Servants Who Will Say No to the President?" *The Washington Post*, May 14, 2017; and Brian Fung, "Clapper Says Trump Weakening U.S. Institutions" *The Washington Post*, May 14, 2017.

<sup>&</sup>lt;sup>13</sup> Terry Carter, "Klein: Judicial Independence 'Not up for Negotiation'," *ABA Journal*, April 1, 2017. In addition, Trump's actions may, in part, be driving a renewed interest in legal education (see Sara Randazzo, "Law School Is Hot Again as Politics Piques Interest," *The Wall Street Journal*, December 15, 2017).

<sup>&</sup>lt;sup>14</sup> Tom S. Clark and Jeffrey K. Staton, "Courts Can Be Undermined in These 3 Ways. This Is How to Protect Them," *The Washington Post*, February 27, 2017.

<sup>&</sup>lt;sup>15</sup> Jess Bravin, "Breaking with Tradition, Some Judges Speak out on Racial Injustices," *The Wall Street Journal*, June 13, 2020. Alternatively, a legal leader might be ineffectual if he or she cannot change personnel at the local or municipal level. Such a constraint may weigh against my finding an effect of legal leadership on legal institutions.

leaders matter for institutions. The research question therefore remains unanswered: Compared to a non-legal leader, does a government leader with a legal background (through practice or through education only) improve an economy's rule of law? For the question to have an affirmative answer, legal skills should be a driver of institutional development at the economy level. Alternatively, legal skills may not matter; or legal leaders could have the specific knowledge to corrupt justice and avoid guilt (Rose-Ackerman, 2008; Fisman and Miguel, 2010) thereby *weakening* legal institutions (i.e., a weaker rule of law).

To study the question, this paper first presents a model of unequal treatment under the law (political connections and criminal justice); and then uses hand-collected government-leader background data for an empirical investigation of the relation between legal leadership and the rule of law.

## 3. Unequal Treatment, Politically Connected Groups, and Criminal Justice

To understand the role of government leadership in strengthening the rule of law and improving criminal justice system performance, I apply a standard theory of criminal justice (Becker, 1968) and extend the framework to capture the effect of political connections (Faccio, 2006). Here the focus is on the government's problem of justice and punishment rather than the criminal's decision-making exercise.

## 3.1 The Benchmark Criminal Justice Model (Unconstrained Equal Treatment)

Consider a basic summary of the government's problem:<sup>16</sup> Individuals commit various criminal offenses O(p, f); are convicted by the criminal justice system with probability p; and when convicted, can be punished by imprisonment f. f and p essentially determine the amount of criminal justice activity A that the society experiences.

<sup>&</sup>lt;sup>16</sup> For further details, see Becker (1968); for a dynamic treatment of the problem, see McCrary (2010).

The criminal offenses are harmful to society H(0) but can benefit criminals G(0); the difference between the harm and the benefit is D(0). There is a cost to the government for bringing criminals to justice C(p, 0) and meting out punishment bpf0. b represents the extent to which the justice system uses imprisonment rather than fines to resolve cases. For example, b is equal to zero when the justice system uses fines and penalties rather than imprisonment. The government chooses p and f to minimize the loss to society L.

[2] 
$$\min_{p,f} L = D(0) + C(p,0) + bpf0$$

The government planner then faces the following first order conditions (FOCs):

[3] 
$$L_p = D'O_p + C'O_p + C_p + bpfO_p + bfO_p$$

[4] 
$$L_f = D'O_f + C'O_f + bpfO_f + bpO$$

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The FOC [3] allows the government to change criminal offenses (through p) to set the marginal cost equal to the marginal revenue thereby characterizing the optimal conviction probability,  $p^*$ ; where  $\epsilon_p$  is the elasticity of offenses with respect to the conviction probability and is related to the preferences of individuals to take on crime risk.

$$MC_{p} = MR_{p}$$
[5]
$$D'O_{p} + C'O_{p} + C_{p} = -bpfO_{p} - bfO$$

$$D' + C' + \frac{C_{p}}{O_{p}} = -bpf\left(1 - \frac{1}{\epsilon_{p}}\right)$$
where
$$\epsilon_{p} = -\frac{O_{p}}{O}p$$

Likewise, the FOC [4] allows the government to change criminal offenses (through f) to characterize the optimal punishment by imprisonment  $f^*$ , where  $\epsilon_f$  is the elasticity of offenses with respect to punishment.

$$MC_{f} = MR_{f}$$
[6]  

$$D'O_{f} + C'O_{f} = -bpfO_{f} - bpO$$

$$D' + C' = -bpf\left(1 - \frac{1}{\epsilon_{f}}\right)$$
where  $\epsilon_{f} = -\frac{O_{f}}{O}f$ 

## 3.2 A Criminal Justice Model with Two Groups

For a nontrivial extension of the benchmark model, consider two different groups that can commit criminal offenses: a normal group n and a connected group v. Here the planner not only makes an economic decision regarding the common level of punishment; the planner also decides on the probabilities of conviction for group n and group v.

The key economic assumption in the two-group model is that the planner is subject to a personal bias. It is a natural assumption in a world where the planner is a connected politician or if justice officials are appointed by connected politicians (Pérez-Liñán and Castagnola, 2009).<sup>17</sup> The biased planner recognizes that compared to the actions surrounding the normal group, the actions surrounding the connected group exhibit an additional personal cost function for the planner.

Iran provides an example of the costs associated with enforcing the rule of law when a government leader is expected to support his connected group. Prior to the revolutionary overthrow of the Pahlavi dynasty in 1979, there was an effort to secularize a legal code that was originally based on religious Islamic (or sharia) tradition. After the revolution, militants offered a vigorous rebuke of the secularization movement, and in doing so formed their own police force

<sup>&</sup>lt;sup>17</sup> For example, in 2020, Brazil justice minister, Sergio Moro, resigned his post claiming that President Jair Bolsonaro removed the head of the federal police because the federal police launched an investigation of the president's son, Carlos Bolsonaro. A video recording of a cabinet meeting seemed to confirm Moro's claim: President Bolsonaro was recorded saying "I'm not going to wait for them to fuck my whole family or my friends just for shits and giggles." (see Tom Phillips, "Horror Show: Critics Hope Bolsonaro's Foul Tirade Could End Rule," *The Guardian*, May 24, 2020).

which targeted individuals—particularly women—who were thought to violate proper Islamic conduct.<sup>18</sup> Akbar Hashem Rafsanjani walked a fine line in his reforming of the criminal justice system. He was expected to strengthen the rule of law and satisfy his religious supporters at the same time. Amid a populist uproar in 1992, the chief justice communicated his leader's commitment clearly:

"The law is from now on the only legal framework in the country, and no individual initiative... will be tolerated."

In the model, individuals within group n[v] commit criminal offenses  $O^n[O^v]$  and are convicted with probability  $p_n[p_v]$ . Both types of criminal offenses can be combined to give the total number of criminal offenses.

$$[7] O^T = O^n + O^i$$

While some things in this environment are group specific, there are others which are common. I assume a common marginal loss and a common marginal activity cost;  $D'(O^n)$  equal to  $D'(O^v)$ ;  $C'(O^n)$  equal to  $C'(O^v)$ . I also assume a common form of punishment *b* and a common perperson punishment *f*. The net loss due to criminal offenses is  $D(O^n, O^v)$ ; the cost of bringing criminals to justice is  $C(p_n, p_v, O^n, O^v)$ ; and the cost of meting out punishment to group n [v] is  $bp_n f O^n [bp_v f O^v]$ .

Consistent with the key economic assumption; the planner incurs a personal cost  $c(p_v, O^v)$  from convicting people in the connected group, and from the criminal offenses that those people commit. The connection is a double-edged sword: While the personal cost is increasing in the conviction probability for the connected group,  $c_{p_v} > 0$ , there is the potential for the crimes committed by the connected group to reflect poorly on the planner, c' > 0.

<sup>&</sup>lt;sup>18</sup> Kianousche Dorranie, "Justice Condemns Moslem Vigilantes," Agence France-Presse, May 29, 1992.

Given the two types of criminal offenses and the personal cost, the planner chooses  $p_n$ ,  $p_v$ , and f to minimize the loss L.

[8] 
$$\min_{p_n, p_v, f} L = D(O^n, O^v) + C(p_n, p_v, O^n, O^v) + c(p_v, O^v) + bp_n f O^n + bp_v f O^v$$

The government planner then faces the following first order conditions (FOCs):

[9] 
$$L_n = D'O_{p_n}^n + C'O_{p_n}^n + C_{p_n} + bp_n fO_{p_n}^n + bfO^n$$

$$[10] L_v = D'O_{p_v}^v + C'O_{p_v}^v + C_{p_v} + c'O_{p_v}^v + c_{p_v} + bp_v fO_{p_v}^v + bfO^v$$

[11] 
$$L_f = D'O_f^n + D'O_f^v + C'O_f^n + C'O_f^v + c'O_f^v + bp_n fO_f^n + bp_n O^n + bp_v fO_f^v + bp_v O^v$$

The FOC [9] allows the government to change criminal offenses (through  $p_n$ ) to set the marginal cost equal to the marginal revenue thereby characterizing the optimal conviction probability for group n,  $p_n^*$ ; where  $\epsilon_{p_n}^n$  is the elasticity of offenses with respect to the conviction probability for members of the normal group.

 $MC'_n = MR'_n$ 

[12] 
$$D' + C' + \frac{c_{p_n}}{o_{p_n}^n} = -bp_n f\left(1 - \frac{1}{\epsilon_{p_n}^n}\right)$$
where  $\epsilon_{p_n}^n = -\frac{o_{p_n}^n}{o^n} p_n$ 

The FOC [10] allows the government to change criminal offenses (through 
$$p_v$$
) to set the marginal cost to the marginal revenue thereby characterizing the optimal conviction probability for group  $v$ ,  $p_v^*$ ; where  $\epsilon_{p_v}^v$  is the elasticity of offenses with respect to the conviction probability for members of the connected group.

$$MC'_{\nu} = MR'_{\nu}$$
[13] 
$$D' + C' + c' + \frac{c_{p_{\nu}} + c_{p_{\nu}}}{o_{p_{\nu}}^{\nu}} = -bp_{\nu}f\left(1 - \frac{1}{\epsilon_{p_{\nu}}^{\nu}}\right)$$
where  $\epsilon_{p_{\nu}}^{\nu} = -\frac{o_{p_{\nu}}^{\nu}}{o^{\nu}}p_{\nu}$ 

The FOC [11] allows the government to change criminal offenses (through f) to characterize the optimal punishment by imprisonment  $f^*$ , where  $\epsilon_f^n$  and  $\epsilon_f^v$  are the elasticities of offenses with respect to punishment for members of the normal group and members of the connected group.

$$MC_f' = MR_f'$$

[14] 
$$D' + C' + c'\theta_f = -bp_n f\left(\left(1 - \theta_f\right) - \frac{1}{\epsilon_f^n}\right) - bp_v f\left(\theta_f - \frac{1}{\epsilon_f^v}\right)$$

where 
$$\theta_f = \frac{O_f^v}{O_f^n + O_f^v}$$

and 
$$\epsilon_f^n = -\frac{o_f^n + o_f^v}{o^n} f$$
;  $\epsilon_f^v = -\frac{o_f^n + o_f^v}{o^v} f$ 

## 3.2.1. The Similar-Agent Assumption

I assume that the agents in the benchmark model and the agents in the two-group model are similar in the way that they respond to incentives. For all groups, the elasticities are the same ( $\epsilon_f$ ,  $\epsilon_f^n$ , and  $\epsilon_f^v$  are the same; and  $\epsilon_p$ ,  $\epsilon_{p_n}^n$ , and  $\epsilon_{p_v}^v$  are the same); the marginal effect of the conviction probability on the social cost is the same ( $C_p$ ,  $C_{p_n}$ , and  $C_{p_v}$  are the same); the marginal effect of the conviction probability on criminal offenses is the same ( $O_p$ ,  $O_{p_n}^n$ , and  $O_{p_v}^v$  are the same); and the marginal effect of common punishment on criminal offenses is the same ( $O_f$ ,  $O_f^n$ , and  $O_f^v$  are the same; and  $\theta_f$  is 0.5). Given the similar-agent assumption, the propositions are straightforward.

## 3.2.2. Model Propositions

The first proposition states that the conviction probability that the government implements for members of the connected group (relative to that for the normal group) depends on the nature of the government planner's personal cost ( $c_{p_v}$  relative to c'). In the case where the conviction probabilities are equal, these probabilities are lower than the probability for the benchmark case.

The second [third] proposition states that the conviction probability [the amount of punishment overall] can increase or decrease relative to the benchmark case depending on the nature of the planner's personal cost. For these propositions, the equilibrium level of punishment increases with  $c_{p_v}$  (relative to c'); and the equilibrium mean conviction probability decreases with  $c_{p_v}$  (relative to c').

**Proposition 1a (An Unequal Conviction Probability between the Two Groups)**: If the marginal cost of a probable conviction for the connected group is less [greater] than the marginal cost of a probable conviction for the normal group (or if the planner's marginal personal cost of a probable conviction for the connected group is relatively high [low]), then the government chooses a lower [greater] conviction probability for the connected group;  $p_v < p_n [p_v > p_n]$ .

#### **Proof of Proposition 1a**

See Appendix B ■

Proposition 1a shows that the probability of conviction, for one group relative to the other, depends on the relative impact of the two dimensions of a planner's personal cost  $(c', c_{p_v})$  and the extent to which a probable conviction deters criminal activity,  $O_{p_v}^v$ .

Region I of Figure III shows a graphical representation of the case of favoritism: If the planner is sufficiently averse towards a probable conviction of the connected group, then the government will implement a conviction probability for the connected group that is less than the conviction probability for the normal group,  $p_v < p_n$ . Regions II to IV of Figure III show a graphical representation of the case of shame: If the planner suffers a sufficient amount of "shame" when the connected group commits a criminal offense (and if a probable conviction is a sufficiently effective deterrent), then the government will choose a conviction probability for the connected group that is greater than the conviction probability for the normal group,  $p_v > p_n$ .

Proposition 1a therefore shows that in a model with two groups, unequal treatment (or a weaker rule of law) is a likely outcome, whether it be a lower or greater probability of being convicted for the connected group compared to the normal group.

Proposition 1b (Equal Conviction Probabilities for the Two Groups but Lower Relative to the Benchmark, and Heavier Punishment Relative to the Benchmark): If the marginal cost of a probable conviction for the connected group is equal to the marginal cost of a probable conviction for the normal group, then the government chooses the conviction probabilities to be equal to each other;  $p_v = p_n$ . Under this scenario however, punishment is heavier relative to the benchmark case,  $f > f^*$ ; and both probabilities are lower than the conviction probability for the benchmark case,  $p_n = p_v < p^*$ .

#### **Proof of Proposition 1b**

See Appendix B ■

Function (a) of Figure III shows a graphical representation of Proposition 1b. The proposition states that under equal marginal cost functions, the common conviction probability [punishment] is lower [heavier] relative to the benchmark case. The reason is that equal conviction probabilities merely mask, but do not get rid of, the planner's personal cost. If the

planner suffers "shame" because of crimes committed by the connected group, then the government will increase the level of common punishment and reduce the common probability of conviction relative to the benchmark model of unconstrained equal treatment.

**Proposition 2 (Equal Punishment and a Greater Average Conviction Probability Relative to the Benchmark)**: In a two-group model, relative to the benchmark one-group model; there is an equilibrium where the government chooses an equal level of punishment. In this equilibrium, there must be a greater average probability of conviction.

#### **Proof of Proposition 2**

See Appendix B

Function (c) of Figure III shows a graphical representation of Proposition 2. The proposition states that there must be shame when the level of punishment in the two-group model is equal to the level of punishment in the benchmark model. Under "extreme shame" for the planner where the conviction probability for the connected group is relatively high, the level of punishment in the two-group model is lower than the punishment level in the benchmark model.

**Proposition 3 (An Equal Average Conviction Probability and Greater Punishment Relative to the Benchmark)**: In a two-group model, relative to the benchmark one-group model; if the government chooses an equal mean conviction probability, then there is heavier punishment.

## **Proof of Proposition 3**

See Appendix B ■

Function (b) of Figure III shows a graphical representation of Proposition 3. The proposition states that even if the average conviction probability in the two-group model is equal to the conviction probability in the benchmark case, there will be heavier common punishment relative to the benchmark case.

Figure III shows that punishment is likely to increase in a two-group model compared to the benchmark model of unconstrained equal treatment. The U.S. provides an example of this phenomenon: On July 14th, 2015, Barack Obama in introducing his criminal justice reform proposal to the American people, described the justice system as "a source of inequity ...;" and "not as fair as it should be." In his speech to the National Association for the Advancement of Colored People (NAACP), the experienced-legal leader referred to the unequal treatment of young minorities and called for decarceration (a lower level of punishment).<sup>19</sup>

## 3.2.3. The Testable Hypotheses of the Model

A leader who prefers a stronger rule of law (i.e., equal treatment under the law, exhibiting less recognition of connected groups under the law) is likely to oversee an environment with a stronger rule of law. The model's predictions suggest that a leader who supports a stronger rule of law is also likely to oversee a greater conviction rate overall if, in her absence, connected groups face a lower probability of conviction—or even the same probability—relative to normal groups.

This paper explores government leadership changes which could result in changes in the government's preferences for a stronger rule of law (i.e., equal treatment under the law). In particular, I explore how a change in the legal background of an economy's government leader (reflecting an understanding of legal institutions and a preference for equal treatment under the

<sup>&</sup>lt;sup>19</sup> See Juliet Eilperin, "Obama Tells NAACP That Justice Reform is Long Overdue," *The Washington Post*, July 14, 2015; and Geoff Earle, "Obama Urges Congress to Act on Criminal-Justice Reform," *New York Post*, July 14, 2015.

law) relates to the rule of law and the conviction rate.

## 4. Data and Sample Statistics

For a sample of economies over the years 1980 to 2014, this paper studies the role of a government leader's legal background (education and professional) in his economy's legal institutions (e.g., the rule of law) and criminal justice outcomes (e.g., the conviction rate). The initial sample of economies is taken from the Financial Development and Structure (FDS) database maintained by the World Bank (WB). Given the availability of data, the final sample consists of 147 economies governed by 1016 different leaders. An economy's government leader is defined as the chief executive responsible for domestic government policymaking for *most* of the year. For example, consider a leader transition from Leader [A] to Leader [B] in a given year. If Leader [B] assumes power after the midpoint of the year (normally July  $2^{nd}$ ), then Leader [A] is designated as the leader for the year (*t*), and Leader [B] is designated as the leader for the data sources are presented in Appendix A.

#### 4.1 Sample Statistics

The sample consists of an unbalanced panel of 4211 economy-year observations for the years 1980 to 2014. The panel is unbalanced because some economies do not have the relevant data throughout the entire sample period. The variable definitions and sample summary statistics for the economy-year observations are presented in Table I. The mean for the rule-of-law index is approximately 3.8. For the entire sample period, approximately 29% of the economy-year observations are associated with educated-legal leadership; and 16% of the observations are associated with experienced-legal leadership.

## 4.2 The Differences in the Average Rule of Law

For the economy-year observations, Table II presents differences in the average rule of law based on various indicators. Compared to non-experienced-legal leaders, experienced-legal leaders oversee a stronger rule of law. The mean for experienced-legal leaders is nearly 4.16 and is greater than the mean for non-experienced-legal leaders, which is approximately 3.71. The difference in means between experienced-legal leaders and non-experienced-legal leaders is statistically significant at the 1% level. The difference in means between educated-legal leaders and non-educated-legal leaders is also significant; however, this difference is significant because of experienced-legal leaders. The difference in the average rule of law between non-educated-legal leaders and educated-legal leaders who have no professional experience is less than 0.01 and is not statistically significant.

Democracies experience a stronger rule of law compared to autocracies; while rightleaning leaders oversee a stronger rule of law compared to non-right-leaning leaders. The differences in the average rule of law between democracies and autocracies; and between rightleaning leaders and non-right-leaning leaders, are both statistically significant at the 1% level.

## 5. Empirical Methods and Analysis

This paper examines whether legal leadership is unrelated to the rule of law. To test the main hypothesis, I use a difference-in-leader-changes (DL) approach (Brown, 2020). Leader changes along the time dimension bring about a change in an economy's legal-leader status across the treatment dimension when the economy experiences a change from a non-legal leader to a legal leader or from a legal leader to a non-legal leader ("Legal" leader change). The alternative is no change in the economy's legal-leader status ("No Change" leader change). The difference-in-leader-changes (DL) estimate is the average difference between the two leader change events

("Legal" minus "No Change").

This DL approach is similar to the difference-in-differences (DD) estimation method (Angrist and Pischke, 2010). The key identification assumption of a DD test is that the trend in the left-hand-side (LHS) variable is not statistically different between the treatment group and the control group prior to an "exogenous" event (the pre-event parallel trends assumption). In this paper, all else equal, one group receives the treatment of a legal leader change while the control group does not receive the treatment.

#### 5.1 The Residual Method of Analyzing the Difference in Leader Changes

I investigate the rule of law around leader changes by organizing the data in terms of pre-leaderchange observations and post-leader-change observations.

Consider a specification with a LHS variable  $y_{it}$  (rule of law). Here i=1,...,M is an index for states (or economies); and t=1,...,H, an index for time periods (years).  $u_{it}$  is a mean zero noise term.  $s_i$  and  $a_t$  are economy and year fixed effects.

$$[15] y_{it} = s_i + a_t + u_{it}$$

If economy and year fixed effects determine a benchmark level for the rule of law, then to study otherwise similar observations, it becomes necessary to remove these fixed effects to produce estimates of the abnormal rule of law.<sup>20</sup> These deviations from the "normal" rule of law,  $\hat{u}_{it}$ , are the fitted residuals from the regression.

## 5.2 An Event-Time Visual Representation of Leader Changes and Legal Institutions

To characterize the relation between legal leadership and the abnormal rule of law, this paper presents event-time graphs which compare the pre-leader-change pattern in the abnormal rule of law to the post-leader-change pattern in the abnormal rule of law. There are two events: "Legal"

<sup>&</sup>lt;sup>20</sup> Economy fixed effects could also determine educational attainment in an economy through prevailing cultural views (Figlio et al., 2019).

and "No Change" leader changes. For "Legal" leader change events, there are two types: the change from a non-legal leader to a legal leader (upward) and the change from a legal leader to a non-legal leader (downward). When combining both types to produce an estimate; I use  $\hat{u}_{it}$  for upward changes, and  $-\hat{u}_{it}$  for downward changes.

In Figures IV, V, and VI, each event occurs in a new leader's first year. The event time is the difference between the year of observation and the event year (year T or first year of a new administration). All figures present kernel-weighted local-constant regressions (or functions) of the abnormal rule of law in terms of the event time. In each figure, there are two separate functions: a pre-leader-change function and a post-leader-change function.

Figure IV shows that for a change in educated-legal leadership, where the economy experiences a change from a non-educated-legal leader to an educated-legal leader or from an educated-legal leader to a non-educated-legal leader; the average abnormal rule of law is negative prior to the event and the pre-leader-change function is barely increasing with the event time. In the first year of the new administration (event time equal to 0), the average abnormal rule of law becomes positive, while the post-leader-change function barely increases with the event time.

Figure V shows that when defining legal leadership by professional legal experience rather than legal education, the trend in the pre-leader-change function is similar to the corresponding function in Figure IV. However, in contrast to the post-leader-change function in Figure IV; Figure V shows a notable upward-sloping trend in the post-leader-change function. Figure VI shows that when there is no change in experienced-legal leadership, there is virtually no change in the average abnormal rule of law.

#### 5.3 First Difference (FD) Panel Regressions with Symmetric Leader Changes

The residual method is a helpful tool for studying the rule of law around leader changes, but it is limited in its scope for multivariate analysis. Regression analysis is appropriate when relating the rule of law to multiple variables at the same time.

For a regression which studies many economies through time (a panel regression), consider a specification with LHS variable  $y_{it}$  (rule of law) measured annually. Here again i=1,...,M is an index for states (or economies); and t=1,...,H, an index for time periods (years).  $\varepsilon_{it}$  is a mean zero noise term.  $s_i$  and  $a_t$  are economy and year fixed effects. The RHS variable, *Legal leader*<sub>it</sub> (educated or experienced), is equal to one when a legal person is the government leader, and zero otherwise.

[16] 
$$y_{it} = \delta \cdot Legal \ leader_{it} + s_i + a_t + \varepsilon_{it}$$
$$\Delta y_{it} = \beta \cdot \Delta Legal \ leader_{it} + \Delta a_t + \varepsilon_{it}$$

In [16],  $\delta$  does not present a true difference-in-leader (DL) changes estimate;  $\delta$  merely estimates the mean difference in the rule of law between legal-leader years and non-legal-leader years within a given economy.<sup>21</sup> To provide a true difference-in-leader-changes (DL) estimate  $\beta$ , the specification must preserve transitions within an economy (e.g., the effect of transitioning from a non-legal leader to a legal leader). Therefore, the first difference (FD) method is more appropriate for leader change analysis.

## 5.3.1. First-Year Regressions and Pre-Leader-Change Trend Differences

To check the pre-leader-change trend differences for the rule of law in Table III, I employ the first difference (FD) method for a panel regression with economy fixed effects. Apropos, the specifications in columns (1) to (3) of Table III include leads; one for each RHS variable of

<sup>&</sup>lt;sup>21</sup> The commonly used difference-in-differences (DD) specification that interacts the treatment variable with a dummy variable equal to one for the post-event period, is inappropriate for leader changes because there is no single post-event period. Brown (2020) presents additional details on the DL method used in this paper.

interest.<sup>22</sup> In column (1), the pre-leader-change trend difference for educated-legal leader changes is -0.004 and is not statistically significant. In column (2), the pre-leader-change trend difference for experienced-legal leader changes is -0.005 and is not statistically significant. In column (3), when observing the difference between experienced-legal leadership and educated-legal leadership (a triple-difference estimate), the corresponding difference in the pre-leader-change trend differences is 0.001 and is not statistically significant.

Taken together, the findings in columns (1) to (3) of Table III suggest that while the *firstyear* effect of legal leadership is insignificant, there is no statistically significant difference in the pre-event trends between the treatment and control, for both educated-legal leadership and experienced-legal leadership. Hence the pre-leader-change parallel-trends assumption (Angrist and Pischke, 2010) is statistically satisfied for these leader changes, and even more so for the difference between educated-legal leadership and experienced-legal leadership.

#### 5.3.2. Regime-Level Regressions

The visual representation in Figure V and the results in columns (1) to (3) of Table III suggest that legal institutions take time to develop. Therefore, a desirable specification is one which allows a legal leader to improve the rule of law during his entire stay in office (or his regime).

[17] 
$$y_{it}^{r} = \gamma \cdot Legal \ leader_{it}^{r} + s_{i} + a_{t,5y} + \varepsilon_{it}^{r}$$
$$\Delta y_{it}^{r} = \varphi \cdot \Delta Legal \ leader_{it}^{r} + \Delta a_{t,5y} + \Delta \varepsilon_{it}^{r}$$

In [17], the LHS variable  $y_{it}^r$  is the rule of law for the last year of each leader's regime; and t,5y=1,...,P, is an index for time periods (every five years). Here,  $\varphi$  provides a difference-in-leader-changes (DL) estimate at the regime level.

<sup>&</sup>lt;sup>22</sup> Single leads, rather than multiple leads, are appropriate given the most regimes last for one year only (Brown, 2020).

To estimate  $\varphi$  in Table III, I employ the first difference (FD) method for a panel regression with economy fixed effects. When employing a non-trend specification without leads in column (6), the DL estimate for educated-legal leadership (with no professional experience) is *negative* and not statistically significant; while the DL estimate for experienced-legal leadership is nearly 0.17 and is statistically significant at the 5% level. The difference between the two estimates (or the effect of practice beyond education) is roughly 0.23 and is statistically significant at the 5% level. Given that the within-economy standard deviation for the rule of law is 0.74, the effect of practice beyond education is about one-third of the typical deviation in the rule of law.

#### 5.3.3. Educated-Legal Leadership

The results in column (6) of Table III suggest that while professional legal experience matters for the development of legal institutions; educated-legal leadership does not seem to matter. In this paper's sample there are leaders with professional legal experience who have no education in law (e.g. ministers of justice who have no legal education background). Therefore, an interesting question is whether this type of professional legal experience is enough for a leader to improve the rule of law.

Despite the small number of these cases, I investigate the heterogeneity with respect to whether an experienced-legal leader is also an educated-legal leader by interacting the educated-legal leader variable with the experienced-legal leader variable. The findings in column (7) suggest that legal leaders who are both experienced and educated improve the rule of law; while leaders who are merely experienced, weaken the rule of law: The experienced-legal leadership DL estimate for *non-educated-legal leaders* is roughly -0.09 and is statistically significant at the 5% level; while the experienced-legal leadership DL estimate for *educated-legal leaders* is

approximately 0.17 and statistically significant at the 5% level. The difference between the two estimates is nearly 0.26 and is statistically significant at the 1% level. The findings suggest that the experienced-legal leadership result is much stronger for leaders who have a legal education background.

#### 5.4 The Role of Political Constraints

This paper's evidence shows that the experienced-legal leadership estimate is positive and significant. Table IV explores the role of political constraints in legal leadership.

#### 5.4.1. Autocratic Rule

Given a possible link between autocracy and crime (LaFree and Tseloni, 2006; Lin, 2007), and the fact that favoritism is more likely to occur during periods of autocratic rule (Hodler and Raschky, 2014); an interesting question is whether legal leadership matters for autocracies.

To investigate the proposed heterogeneity, in Table IV, I interact a dummy variable for autocracies with the experienced-legal leader variable. In column (1) of Table IV, the experienced-legal leadership DL estimate for *democracies* is roughly 0.14 and is statistically significant at the 10% level; while the experienced-legal leadership DL estimate for *autocracies* is nearly 0.30 and is statistically significant at the 1% level. Although the estimate for autocracies is larger than the estimate for democracies, the difference between the two estimates is not statistically significant. Nevertheless, the results suggest that experienced-legal leadership could work to strengthen the otherwise weaker legal institutions that prevail under authoritarian regimes.

## 5.4.2. Presidential Systems

Compared to parliamentary systems, presidential systems offer greater endurance for the chief executive of an economy. Hence presidents tend to have fewer political constraints than parliamentary prime ministers, all else equal.

To investigate the heterogeneity with respect to whether an economy uses a presidential system, in Table IV, I interact a dummy variable for presidential systems with the experienced-legal leader variable. In column (2) of Table IV, the experienced-legal leadership DL estimate for *parliamentary systems* is roughly 0.15 and is not statistically significant; while the experienced-legal leadership DL estimate for *presidential systems* is approximately 0.18 and statistically significant at the 5% level. Although the estimate for presidential systems is larger than the estimate for parliamentary systems, the difference between the two estimates is not statistically significant.

Overall, the findings in Table IV suggest that the experienced-legal leadership result occurs mostly in cases where the legal leader has fewer political constraints and a greater ability to influence the criminal justice system.

## 5.5 Legal Leaders, Criminal Justice Resources, and Criminal Justice Outcomes

The fact that the experienced-legal leadership result occurs mostly in cases where a leader is powerful, suggests that changes to the criminal justice system could play a significant role (Hagle 1993). Before proceeding with an empirical analysis of criminal justice outcomes, it is important to define the performance of a criminal justice system (i.e., police, courts, and corrections).

## 5.5.1. The Performance of the Criminal Justice System

While many economists acknowledge real economic growth as a sufficient measure of economic performance, there is no single sufficient measure of the performance of a criminal justice system. In fact, there are three dimensions of criminal justice system performance: effectiveness, fairness, and efficiency (DiIulio, 1993; Maguire, Howard, and Newman, 1998).

Effectiveness refers to the extent to which a system can achieve its core goals (e.g. public safety). Fairness refers to the extent to which a system can be effective without mistreating the civil and human rights of its citizens. Efficiency refers to the extent to which a system can be fair and effective within reasonable resource constraints. A successful criminal justice reform program considers all three dimensions.

## 5.5.2. Empirical Analysis of Criminal Justice System Performance

All of the empirical results thus far suggest that legal leaders—through professional experience rather than education—strengthen the rule of law. It is obvious that the rule of law is directly linked to the fairness of a criminal justice system. However, an interesting question is whether legal leaders can improve the fairness of the criminal justice system without sacrificing effectiveness or efficiency. Moreover, the hypotheses that come out of this paper's model address a legal leader's role in the probability that criminals are convicted.<sup>23</sup>

To explore these issues, in Table V, I investigate the relation of legal leadership to criminal-justice resources and outcomes. Column (1) shows that while educated-legal leaders are associated with roughly 8000 more police; experienced-legal leaders are associated with nearly 8000 fewer police. The difference between the two estimates is statistically significant at the 10% level. The finding suggests that while educated-legal leaders are associated with an

<sup>&</sup>lt;sup>23</sup> The results so far speak to the first type of result, but not to the second. In addition, it is difficult to make declarations about the meaningfulness of the rule-of-law result without an idea of the real outcomes associated with an improvement in the rule of law.

expansion of a government's enforcement resources (i.e., less efficiency; Marvell and Moody, 1996; Levitt, 2002); experienced-legal leaders are associated with a contraction of enforcement resources (i.e., greater efficiency). For example, President Guillermo Endara of Panama (an experienced-legal leader) challenged the military rule of General Manuel Noriega in a hotly contested and controversial election.<sup>24</sup> Once in power, President Endara implemented significant reforms thereby replacing a military-based justice system with a civilian-based justice system.<sup>25</sup>

Turning to the court system, column (2) shows that there is no significant relation between legal leadership and the number of judges; while column (3) shows that experiencedlegal leaders are associated with nearly 89,000 more prosecutions. Although educated-legal leaders are associated with a greater number of police personnel, this expansion of enforcement resources is not accompanied by significantly more prosecutions (i.e. less efficiency; Levitt, 1997; McCrary, 2002).

Taken together, the findings in columns (1) to (3) of Table V suggest that (a) educatedlegal leaders focus on enforcement rather than the courts, while experienced-legal leaders focus on the courts rather than enforcement; (b) educated-legal leadership is associated with less criminal justice system efficiency; and (c) experienced-legal leadership is associated with greater criminal justice system efficiency.

Consistent with the interpretation and this paper's model of criminal justice, column (5) shows that controlling for population, experienced-legal leaders are associated with a greater number of convictions. This relation is present even after controlling for changes in the number of police, judges, and prosecutions: Experienced-legal leaders are associated with roughly 27,000

<sup>&</sup>lt;sup>24</sup> David L. Marcus, "Noriega Gets Tough to Swing election His Way," *The Toronto Star*, May 6, 1989.

<sup>&</sup>lt;sup>25</sup> Mark A. Uhlig, "Panama's Courts stalled by Chaos," The New York Times, September 9, 1990.

(or  $20\%^{26}$ ) more convictions, and the relation between experienced-legal leadership and the number of convictions is statistically significant at the 5% level.

Overall, the findings in Table V suggest that the experienced-legal leaders not only strengthen the rule of law, they are (a) positively associated with the performance of an economy's criminal justice system through greater efficiency; and (b) positively associated with a greater probability that wrongdoers are convicted (consistent with this paper's model).<sup>27</sup>

## 6. Robustness

This paper's main finding (in Table III) is that, controlling for educated-legal leadership, the experienced-legal leadership estimate is positive and significant. Tables VI to VIII explore the robustness of the main finding. Is the main finding robust when controlling for other leader characteristics, political ideology, or autocratic regimes? Is the main finding robust when controlling for economic conditions? Is the main finding robust when using various subsamples? Is the main finding robust when focusing on close elections which "quasi-randomize" experienced-legal leadership? Is the main finding robust when investigating the asymmetry of leader changes?

#### 6.1 Controlling for Leader Characteristics and Political Factors

Could the impact of experienced-legal leaders on the rule of law occur because of a change in (a) leader education quality,<sup>28</sup> (b) leader age, or (c) political ideology? If so, then professional legal experience might not really explain the main finding.

<sup>&</sup>lt;sup>26</sup> See Table C.I in Appendix C.

<sup>&</sup>lt;sup>27</sup> Table C.I in Appendix C shows that the analysis in Table V is robust when using per-capita measures of criminal justice resources and outcomes.

<sup>&</sup>lt;sup>28</sup> In this paper's sample, four out of every five leaders are university educated. Hence university education is not a compelling signal of quality. Compared to a leader's university education, a leader's advanced education provides a stronger signal of quality: Roughly 38% of the economy-year observations are associated with a leader who completed graduate studies.

Table VI shows the results of the first difference (FD) panel regression analysis after acknowledging these concerns.<sup>29</sup> Column (2) shows that a leader's right-leaning political ideology is positively related to the rule of law; and column (3) shows that a leader's age is also positively related to the rule of law. Nevertheless, the main finding remains robust.

Overall, the results in Table VI suggest that the main finding remains robust whether the control variable is leader age; a leader's right-leaning political ideology; autocratic rule; a leader's advanced education; a leader's advanced STEM (Science, Technology, Engineering, and Mathematics), or medical, education; or a leader's economics education.

#### 6.2 Controlling for Economic Conditions

This paper's main finding suggests that experienced-legal leaders prefer equal treatment under the law. However, an improvement in an economy's rule of law is likely to be accompanied with a change in the economy's performance (Barro 1997, 2000; Soares, 2004)

Do experienced-legal leaders improve legal institutions controlling for the change in economic conditions? The results in columns (1) to (4) of Table VII suggest that the answer is yes: The main finding remains robust whether the control variable is economic growth; the level of development; the inflation rate; or the bank lending rate.

#### 6.3 Economies with Unstable Political Systems and Both Leader Types

The World Bank's Database of Political Institutions (DPI) classifies the political system for an economy-year observation as presidential or parliamentary. This paper's sample includes economies with unstable political systems defined as those with a political system change during the sample period. The sample also includes economies that have a president and a prime minister as the government leader at different points in time during the sample period

<sup>&</sup>lt;sup>29</sup> The control variables are first-differenced. For example, in a new leader's first year, the difference in the leader age variable is the new leader's age in year T minus the previous leader's age in year T-1.

(economies with both leader types).<sup>30</sup> Given these facts, there may be a concern that the main sample includes incorrect leaders. To address the potential concern, in column (5) [column (6)] of Table VII, the analysis excludes economies with unstable political systems [both leader types]. The results suggest that the main finding is robust when the sample is limited to "correct" (or unambiguous) government leaders.

#### 6.4 Influential Economies

Although the sample for the main finding consists of 122 economies, there is a concern that the experienced-legal leadership finding might be driven by a single economy. To investigate the importance of each economy, I remove one at a time, and then run multiple regressions. In all 122 regression cases, the experienced-legal leadership effect is statistically significant at the 5% level or less.<sup>31</sup> Out of all the estimates; the smallest, median, and largest effects of experienced-legal leadership are 0.139, 0.167, and 0.189. Based on this distribution of estimates, 0.006 is the standard error and 27 is the t-stat value.

#### 6.5 First Difference (FD) Panel Regressions with Close Elections

Given the estimates for the pre-leader-change-trend differences in Table III, it does not seem as if experienced-legal leaders are chosen during periods of weakening or strengthening legal institutions. However, it may be helpful to refine the set of leader changes by focusing attention on those which occur after close elections (Brown, 2020).<sup>32</sup> Given that the outcome of a close election is uncertain or virtually random, the close-election leader change provides a "quasi-random" treatment (Eggers et al., 2015).

<sup>&</sup>lt;sup>30</sup> See Table A.III in Appendix A for the names of the sample economies with both leader types. These economies often experience a change in leader type when the post of one leader type is abolished temporarily after the other leader type gains sufficient political power.

<sup>&</sup>lt;sup>31</sup> These results are not reported in tabular form, but they are available upon request.

<sup>&</sup>lt;sup>32</sup> Following Brown (2020), this paper focuses on valid close elections. In the sample, there are 37 valid close elections for educated-legal leadership, and 25 valid close elections for experienced-legal leadership.

For close elections in column (2) of Table VIII, the DL estimate for educated-legal leadership (with no professional experience) is negative and not statistically significant; while the DL estimate for experienced-legal leadership is nearly 0.42 and is statistically significant at the 5% level.<sup>33</sup> Hence the main finding remains robust when focusing on the set of leader changes which occur after close elections.

## 6.6 First Difference (FD) Panel Regressions with Asymmetric Leader Changes

The specification in [17] does not account for asymmetric experienced-legal leader changes. To study asymmetric experienced-legal leader changes, the experienced-legal variable can be decomposed into upward and downward experienced-legal leader changes by creating four step functions for each economy (Brown, 2020). These step functions capture the four types of leader changes for non-experienced-legal leaders and experienced-legal leaders.

Column (3) of Table VIII presents the DL estimates produced by a panel regression with asymmetric experienced-legal leader changes: The upward experienced-legal leadership estimate is roughly 0.19; while the downward experienced-legal leadership estimate is approximately -0.38. Both estimates are statistically significant at the 5% level. Hence the main finding occurs for both upward and downward experienced-legal leader changes.

## 7. Heterogeneity: The Level of Economic Development

Table VIII shows how the main finding varies with an economy's level of development. Although anecdotes suggest that a higher-income economy can experience challenges to its rule of law, the economy's legal institutions should be sufficiently developed to withstand the challenges.<sup>34</sup> Likewise, the strengthening of legal institutions by experienced-legal leaders may

<sup>&</sup>lt;sup>33</sup> In contrast to the main specification,  $\Delta Legal \ leader_{it}^r$  is coded for leader changes that occur after close elections. All other leader changes are recognized as zero values.

<sup>&</sup>lt;sup>34</sup> See fn. 14.

be less likely to occur in higher-income economies, but more likely to occur in lower-income economies.

To investigate the heterogeneity with respect to an economy's level of development, in column (4), I interact a dummy variable for higher-income economies with the experienced-legal leader variable. For higher-income economies, the experienced-legal leadership DL estimate is nearly 0.09 and is not statistically significant; while for lower-income economies, the experienced-legal leadership DL estimate is approximately 0.30 and statistically significant at the 1% level. These findings suggest that the experienced-legal leadership result occurs mostly in lower-income economies.

## 8. Conclusion

In April of 2010, Hungary's Fidesz party and its non-experienced-legal leader Viktor Orbán won a landslide victory against the Hungarian Socialist Party. What followed was a weakening of legal institutions through a change in Hungary's constitution. The leader reduced the retirement age for judges from 70 to 62, and increased the number of judges. These actions effectively forced non-pliable judges into early retirement, while allowing Orbán's allies to populate the Constitutional Court.<sup>35</sup> In contrast, South Korea's experienced-legal leader, Roh Moo-hyun, limited his own presidential authority in 2004 by granting independence to prosecutors. He also appointed a 46-year-old female reform-minded lawyer to be his minister of justice.<sup>36</sup>

Far from being irregular cases, these anecdotes are consistent with what I find in my investigation of 1016 leaders from 147 economies: Compared to other government leaders, an experienced-legal leader improves the rule of law.

<sup>&</sup>lt;sup>35</sup> Chris Bryant, "Hungary Approves New Constitution," *Financial Times*, April 17, 2011.

<sup>&</sup>lt;sup>36</sup> Andrew Ward, "Crunch Time for South Korea," Financial Times, March 14, 2004.

To understand the role of government leadership in improving criminal justice system performance, I present a (two-group) model of political connections and criminal justice to characterize unequal treatment under the law:<sup>37</sup> Given that a leader must choose one level of punishment for both normal and connected groups, his marginal personal cost of convicting the connected group determines whether the connected group is convicted with a lower, equal, or greater probability relative to others. Favoritism occurs when his marginal personal cost of convicting the convicting the connected group is relatively high, and the connected group experiences fewer convictions relative to the normal group. However, if his marginal personal cost of *connected group crimes* is relatively high, then there is an equilibrium of shame where the connected group experiences greater convictions relative to the normal group.

Although the prison sentences in most cases of the two-group model, are longer than those for the benchmark Becker (one-group) model; the average probability of convictions is less than the corresponding probability for the benchmark model. Therefore, compared to non-legal leaders, a legal leader who improves the rule of law; may also shorten prison sentences,<sup>38</sup> and increase the probability of convictions.

Consistent with the predictions of this paper's model, I find that controlling for population and criminal-justice resources, an experienced-legal leader is associated with roughly 27,000 (or 20%) more convictions per year by the end of his tenure. Taken together, this paper's results suggest that an experienced-legal leader improves the rule of law by supporting a more

<sup>&</sup>lt;sup>37</sup> In the standard Becker model of crime and punishment, a planner must choose the punishment level and the conviction probability to deter risk-seeking criminals. One important insight of the standard model is that, compared to punishment, a probable conviction can be a more effective deterrent. However in practice, many governments around the world oversee excessive punishment, unequal conviction rates, and a weak rule of law (Allen, Qian, and Qian, 2005; Firth, Rui, and Wu, 2011). These distortions occur naturally in a model where a subset of an economy's population is politically connected (Faccio, 2006); and the distortions could lead to group inequality (Mookherjee and Ray, 2003).

<sup>&</sup>lt;sup>38</sup> These shorter prison sentences may also reduce prison violence (Kurzfeld, 2017).

efficient, and thus better performing, criminal justice system in his economy (Hagle 1993; Ash and MacLeod, 2015).<sup>39</sup>

The rise of populist autocrats throughout the world is a cause for concern because of the potential for political interference in the criminal justice system.<sup>40</sup> Although these autocrats often brand themselves as leaders who can maintain law and order, they tend to weaken legal institutions.<sup>41</sup> Legal institutions are not only an important for economic performance (Knack and Keefer, 1995);<sup>42</sup> they are also important for human and civil rights.<sup>43</sup>

On average, educated-legal leaders do not bring about a robust improvement in the rule of law, but experienced-legal leaders do. I welcome future research that investigates the role of government leaders in institutional development across multiple jurisdictions (Desai and Dharmapala, 2015).

<sup>&</sup>lt;sup>39</sup> In practice, an improvement in criminal justice system performance is often achieved by improving the quality of judges (see Patrick Temple-West, "Retiring Judges Give Biden Chance to Make His Bench Mark," *Financial Times*, February 4, 2021).

<sup>&</sup>lt;sup>40</sup> From 1984 to 1996, the global average rule of law increased by more than one full score, going from nearly 3.27 (the legal environment of Pakistan in 2014) to a peak of roughly 4.47 (the legal environment of Chile in 2014). Since the late 1990s however, the average rule of law has weakened to approximately 3.72 in 2014. The deterioration of legal institutions has been accompanied by fewer legal leaders.

<sup>&</sup>lt;sup>41</sup> Max Fisher, "Trump Tests a Role He's Long Admired: A Strongman Imposing Order," *The New York Times*, June 4, 2020.

<sup>&</sup>lt;sup>42</sup> For example, the supply of credit by banks (Djankov, McLiesh, and Shleifer, 2007) and the speed of capital structure adjustment by firms (Flannery and Öztekin, 2012) both increase with a stronger rule of law.

<sup>&</sup>lt;sup>43</sup> For this reason, the 2020 killing of George Floyd by police renewed calls for criminal justice reform and bold U.S. government leadership.

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## Figure I. Educated Legal Leaders: All Economies over Time

This figure presents a bar chart and kernel-weighted local-constant regressions (Epanechnikov kernel, rule-of-thumb bandwidth) for the relation between *Year* and *Educated legal* for all economies. The sample period is 1980 to 2014. The variable definitions [descriptions] are presented in Table I [Table A.I].



## Figure II. Experienced Legal Leaders: All Economies over Time

This figure presents a bar chart and kernel-weighted local-constant regressions (Epanechnikov kernel, rule-of-thumb bandwidth) for the relation between *Year* and *Experienced legal* for all economies. The sample period is 1980 to 2014. The variable definitions [descriptions] are presented in Table I [Table A.I].



## Figure III. Model Equilibria

This figure characterizes the various equilibria for the probability of the normal group being convicted,  $p_n$ , and the probability of the connected group being convicted,  $p_v$ .





Function	Normal vs. Connected Conviction Probabilities	Conviction Probability Relative to the Benchmark	Punishment Relative to the Benchmark
a	$p_v = p_n$	Lower; $p_v = p_n < p^*$	Heavier; $f > f^*$
b	$p_v > p_n$	Equal average; $\bar{p} = \frac{p_n + p_v}{2} = p^*$	Heavier; $f = \hat{f} > f^*$
с	$p_v = \hat{p} > p_n$	Greater average; $\bar{p} = \frac{p_n + p_v}{2} > p^*$	Equal; $f = f^*$
Region			
Ι	Favoritism	Lower; $p_v < p_n < p^*$	Heavier; $f > f^*$
II	Light shame	Lower; $p_n < p_v < p^*$	Heavier; $f > f^*$
III	Moderate shame	Greater; $p_v > p_n > p^*$	Heavier; $f > f^*$
IV	Extreme shame	Greater; $p_v \gg p_n > p^*$	Lighter; $f < f^*$

## **Table I. Summary Statistics**

This table presents the summary statistics for the sample observations. The sample period is 1980 to 2014. Rule of law is the rule-of-law index. Abnormal rule of law is the residual of a regression of Rule of law on economy fixed effects and year fixed effects. Police is the total number of police personnel in the economy. Judges is the total number of professional judges in the economy. Prosecutions is the total number of persons prosecuted in the economy. Convictions is the total number of persons convicted in the economy. Educated legal [Experienced legal; Economic leader; Advanced degree; Advanced STEM] is equal to one if the government leader was educated in law [gained post-graduation legal experience; was educated in economics; received a graduate or professional degree; received an advanced education in a STEM (Science, Technology, Engineering, and Mathematics) field or a medical degree] prior to becoming the government leader, and zero otherwise. NEEL to Educated-experienced legal is a (within-economy) step function which increases if there is a leader change from a leader who has either no legal education, no professional experience, or both; to a leader who has both a legal education and professional experience. NEEL to NEEL is a (within-economy) step function which increases if there is a leader change from a leader who has either no legal education, no professional experience, or both; to another leader in a similar category. Educated-experienced legal to NEEL is a (within-economy) step function which increases if there is a leader change from a leader who has both a legal education and professional experience to a leader who has either no legal education, no professional experience, or both. Educated-experienced legal to Educated-experienced legal is a (within-economy) step function which increases if there is a leader change from a leader who has both a legal education and professional experience to another leader in a similar category. *Polity* is a measure of regime authority. *Autocracy* is equal to zero if *Polity* is greater than zero, and one otherwise. *Presidential system* is equal to one if there is a presidential system of government in the economy. Right ideology is equal to one if the government leader is a member of a right-leaning political party. Leader age is the age of the government leader. Regime duration is the number of uninterrupted years with one unique government leader. Close election is an election with a victory margin of 2% or less (or by a oneseat difference in parliamentary elections with a small number of seats). Population is the number of persons in the economy. Real GDP per capita is real gross domestic product per capita measured using United States (U.S.) dollars at 2005 constant prices. Economic growth is the five-year cumulative growth rate of real GDP per capita (in percentage points). Inflation is the five-year cumulative growth in the consumer price index. Lending rate is the bank lending interest rate (in percentage points).

Variable Name	Mean	sd.	Q50	Ν
Rule of law	3.785	1.466	4.000	3606
Educated legal	0.287	0.452	0.000	4149
Experienced legal	0.164	0.370	0.000	4170
Leader age	57.614	9.793	57.000	4209
Advanced degree	0.380	0.485	0.000	4048
Advanced STEM	0.076	0.265	0.000	4171
Economic leader	0.205	0.404	0.000	4157
Police (in thousands of persons)	66.611	99.150	23.786	1875
Judges (in thousands of persons)	1.740	2.413	0.697	1527
Prosecutions (in thousands of persons)	251.403	415.067	65.877	1465
Convictions (in thousands of persons)	133.844	212.713	47.133	1615
Population (in millions of persons)	45.179	147.853	10.161	3952
Log (Real GDP per capita)	8.266	1.635	8.275	3911
Inflation	1.663	7.858	0.324	3348
Economic growth	10.492	16.508	10.046	3978
Lending rate	17.600	17.437	13.169	3127
Autocracy	0.349	0.477	0.000	3843
Presidential system	0.636	0.481	1.000	4030
Right ideology	0.411	0.492	0.000	2574
Regime duration	4.169	4.325	3.000	1077

## Table II. Differences in Means

This table presents the differences in the means for *Rule of law*. The sample period is 1984 to 2014. The variable definitions [descriptions] are presented in Table I [Table A.I]. +, \*, \*\* denote statistical significance at the 10%, 5% and 1% levels.

Variable Name		Educated Legal	No Legal Education	Difference
Rule of law	Mean	3.988	3.729	0.259**
	se.	0.048	0.028	0.054
	Ν	1014	2537	3551
Variable Name		Experienced Legal	No Legal Experience	Difference
Rule of law	Mean	4.159	3.713	0.446**
	se.	0.062	0.026	0.067
	Ν	568	3009	3577
Variable Name		Education and No Experience	No Education and No Experience	Difference
Rule of law	Mean	3.740	3.732	0.009
	se.	0.074	0.029	0.075
	Ν	449	2506	2955
Variable Name		Autocracy	Democracy	Difference
Rule of law	Mean	3.331	3.961	-0.630**
	se.	0.038	0.031	0.051
	Ν	1195	2242	3437
Variable Name		<b>Right-Leaning Ideology</b>	No Right-Leaning Ideology	Difference
Rule of law	Mean	4.148	3.921	0.226**
	se.	0.049	0.041	0.063
	Ν	931	1348	2279

## Figure IV. A Visual Representation of Rule of Law and Educated-Legal Leader Changes

This figure presents a density bar chart for *Event time*; and kernel-weighted local-constant regressions (Epanechnikov kernel, rule-of-thumb bandwidth) for the relation between *Event time* and *Abnormal rule of law* where *Educated legal* changes from the prior leader to the new leader. *Event time* is the difference between *Year* and the first year of the new leader. The sample period is 1984 to 2014. The variable definitions [descriptions] are presented in Table I [Table A.I].



## Figure V. A Visual Representation of Rule of Law and Experienced-Legal Leader Changes

This figure presents a density bar chart for *Event time*; and kernel-weighted local-constant regressions (Epanechnikov kernel, rule-of-thumb bandwidth) for the relation between *Event time* and *Abnormal rule of law* where *Experienced legal* changes from the prior leader to the new leader. *Event time* is the difference between *Year* and the first year of the new leader. The sample period is 1984 to 2014. The variable definitions [descriptions] are presented in Table I [Table A.I].



## Figure VI. A Visual Representation of Rule of Law with No Change in Experienced-Legal Leadership

This figure presents a density bar chart for *Event time*; and kernel-weighted local-constant regressions (Epanechnikov kernel, rule-of-thumb bandwidth) for the relation between *Event time* and *Abnormal rule of law* where *Experienced legal* does not change from the prior leader to the new leader. *Event time* is the difference between *Year* and the first year of the new leader. The sample period is 1984 to 2014. The variable definitions [descriptions] are presented in Table I [Table A.I].



## Table III. First-Difference Regressions and Pre-Leader-Change Trends

This table presents first-difference (FD) panel regression results for the sample where the left-hand-side (LHS) variable is *Rule of law*. The sample period is 1984 to 2014. The variable definitions [descriptions] are presented in Table I [Table A.I].

[a] Educated legal	0.018		-0.002	0.035		-0.067	-0.070
	(1.022)		(0.119)	(0.954)		(1.523)	(1.574)
[c] trend difference from year $(T - 2)$ to year $(T - 1)$	-0.004		-0.004				
	(0.244)		(0.160)				
[b] Experienced legal		0.033	0.036		0.115	0.167	
		(1.515)	(1.395)		(2.247)*	(2.529)*	
[d] trend difference from year $(T - 2)$ to year $(T - 1)$		-0.005	-0.003				
		(0.343)	(0.109)				
[e] Experienced legal (Non-Educated Legal)							-0.087
							(2.033)*
[f] Experienced legal (Educated Legal)							0.172
							(2.560)*
Last regime year only	No	No	No	Yes	Yes	Yes	Yes
Practice beyond education: [b] or [f] - [a]			0.038			0.234	0.242
<i>p</i> -value of the triple-difference estimate			[0.348]			[0.021]*	[0.019]*
Pre-leader-change trend triple difference: [d] - [c]			0.001				
<i>p</i> -value of the PLCTTD estimate			[0.979]				
Margin of education: [f] - [e]							0.259
<i>p</i> -value of the marginal effect							[0.001]**
Number of obs.	3279	3318	3241	962	977	949	949
Adjusted R-squared	0.144	0.148	0.145	0.130	0.141	0.140	0.139

## Table IV. The Role of Political Constraints

This table presents first-difference (FD) panel regression results for the sample where the lefthand-side (LHS) variable is *Rule of law*. The sample period is 1984 to 2014. The sample period is 1984 to 2014. The variable definitions [descriptions] are presented in Table I [Table A.I].

[a] Educated legal	-0.081	-0.070
	(1.789)+	(1.594)
Autocracy	-0.234	
	(2.145)*	
Presidential system		-0.108
		(0.753)
[b] Experienced legal (More constrained)	0.144	0.147
	(1.899)+	(1.366)
[c] Experienced legal (Less constrained)	0.297	0.181
	(2.733)**	(2.599)*
Leader constraints variable (ME; variable equal to one)	Autocracy	Presidential system
Last regime year only	Yes	Yes
Practice beyond education (ME): [c] - [a]	0.378	0.251
<i>p</i> -value of the triple-difference estimate	[0.005]**	[0.012]*
Margin of power: [c] - [b]	0.154	0.334
<i>p</i> -value of the marginal effect	[0.205]	[0.774]
Number of obs.	879	926
Adjusted R-squared	0.138	0.140

## **Table V. Criminal Justice Resources and Outcomes**

This table presents first-difference (FD) panel regression results for the sample where the lefthand-side (LHS) variable in columns (1) [(2); (3); (4) and (5)] is *Police* [*Judges*; *Prosecutions*; and *Convictions*]. The sample period is 1980 to 2014. The variable definitions [descriptions] are presented in Table I [Table A.I].

LHS Variable	Police	Judges	Prosecutions	Convi	ctions
Population	0.0004	0.001	2.017	1.657	0.467
	(0.005)	(0.156)	(0.163)	(0.467)	(0.229)
Police			2.032	0.233	-0.030
			(1.557)	(0.899)	(0.131)
Judges			4.152	7.943	7.514
			(0.306)	(1.610)	(1.171)
Prosecutions					0.127
					(2.109)*
[a] Educated legal	7.950	0.036	-3.990	-4.892	-8.005
	(1.728)+	(0.624)	(0.186)	(0.955)	(1.528)
[b] Experienced legal	-7.998	0.074	88.518	26.465	26.984
	(1.766)+	(0.759)	(1.996)+	(2.304)*	(2.285)*
Last regime year only	Yes	Yes	Yes	Yes	Yes
Practice beyond education: [b] - [a]	-15.948	0.038	92.508	31.357	34.990
<i>p</i> -value of the triple-difference estimate	[0.082]+	[0.735]	[0.104]	[0.040]*	[0.036]*
Number of obs.	371	300	153	170	141
Adi. R-squared	0.028	-0.002	0.034	0.223	0.427

## **Table VI. Controlling for Leader Characteristics**

This table presents first-difference (FD) panel regression results for the sample where the lefthand-side (LHS) variable is *Rule of law*. The sample period is 1984 to 2014. The sample period is 1984 to 2014. The variable definitions [descriptions] are presented in Table I [Table A.I].

[a] Educated legal	-0.078	-0.134	-0.074	-0.065	-0.067	-0.065
	(1.695)+	(2.747)**	(1.733)+	(1.374)	(1.541)	(1.475)
[b] Experienced legal	0.180	0.178	0.165	0.153	0.165	0.169
	(2.697)**	(2.044)*	(2.517)*	(2.172)*	(2.483)*	(2.559)*
Autocracy	-0.218					
	(1.953)+					
Right ideology		0.077				
		(1.736)+				
Leader age			0.005			
			(2.315)*			
Advanced degree				-0.063		
-				(1.559)		
Advanced STEM				. ,	0.022	
					(0.416)	
Economic leader						0.028
						(0.910)
Last regime year only	Yes	Yes	Yes	Yes	Yes	Yes
Practice beyond education: [b] - [a]	0.258	0.312	0.240	0.218	0.232	0.234
<i>p</i> -value of the triple-difference estimate	[0.012]*	[0.013]*	[0.016]*	[0.043]*	[0.021]*	[0.021]*
Number of obs.	879	482	947	889	947	945
Adjusted R-squared	0.137	0.148	0.146	0.137	0.131	0.140

## Table VII. Controlling for Economic Conditions; Sample Robustness

This table presents first-difference (FD) panel regression results for the sample where the left-hand-side (LHS) variable is *Rule of law*. The sample period is 1984 to 2014. Column (5) uses a subsample which consists of economies with stable political systems; and column (6) uses a subsample which consists of economies that use one type of government leader for the entire sample period. The variable definitions [descriptions] are presented in Table I [Table A.I].

	Sample	All	All	All	All	Stable Politics	One Leader Type
[a] Educated legal		-0.071	-0.114	-0.080	-0.091	-0.071	-0.077
		(1.523)	(2.423)*	(1.746)+	(1.536)	(1.503)	(1.578)
[b] Experienced legal		0.160	0.214	0.180	0.183	0.236	0.174
		(2.280)*	(2.980)**	(2.571)*	(2.252)*	(3.390)**	(2.263)*
Economic growth		0.006					
		(3.719)**					
Inflation			-0.001				
			(0.101)				
Log (Real GDP per capita)				0.683			
				(3.153)**			
Lending rate					-0.003		
					(1.291)		
Last regime year only		Yes	Yes	Yes	Yes	Yes	Yes
Practice beyond education: [b] - [a]		0.231	0.327	0.260	0.275	0.307	0.251
<i>p</i> -value of the triple-difference estimate		[0.031]*	[0.003]**	[0.014]*	[0.039]*	[0.005]**	[0.031]*
Number of obs.		877	760	861	662	779	761
Adjusted R-squared		0.166	0.138	0.169	0.152	0.144	0.146

## Table VIII. Close Elections; Asymmetry; and Development Level

This table presents first-difference (FD) panel regression results for the sample where the lefthand-side (LHS) variable is *Rule of law*. The sample period is 1984 to 2014. The sample period is 1984 to 2014. The variable definitions [descriptions] are presented in Table I [Table A.I].

[a] Educated legal	-0.081	-0.210	-0.066	-0.070
	(1.442)	(1.139)	(1.457)	(1.553)
[b] Experienced legal	0.118	0.417	-0.083	
	(1.793)+	(2.064)*	(2.151)*	
[c] Educated-experienced legal to Educated-experienced			0.052	
legal			(0.333)	
[d] Educated-experienced legal to NEEL			-0.327	
			(3.564)**	
[e] NEEL to NEEL			-0.022	
			(0.593)	
[f] NEEL to Educated-experienced legal			0.172	
			(1.967)+	
[b] Experienced legal (Lower-income economies)				0.296
				(3.110)**
[g] Experienced legal (Higher-income economies)				0.086
				(1.142)
Leader-change type	Close	election		All
Last regime year only	No	Yes	Yes	Yes
NEEL to Educated-experienced legal: [f] - [e]			0.194	
p-value of the NEEL-EEL estimate			[0.032]*	
Educated-experienced legal to NEEL: [d] - [c]			-0.379	
p-value of the EEL-NEEL estimate			[0.032]*	
Practice beyond education: [b] - [a]	0.199	0.627		0.366
<i>p</i> -value of the triple-difference estimate	[0.086]+	[0.095]+		[0.004]**
Number of obs.	3381	949	942	921
Adjusted R-squared	0.146	0.136	0.139	0.151

## Appendix A

## A.1 Economy Sample Construction

The initial sample of 159 economies is extracted from the Financial Development and Structure (FDS) database maintained by the World Bank.

Table A.II shows that the final sample consists of 147 economies after removing economies with missing data for all of the left-hand-side (LHS) variables (Benin, Cambodia, Central African Republic, Chad, Greenland, Guam, Isle of Man, Laos, Mauritania, Solomon Islands, Sao Tome and Principe, and Uzbekistan). For information about the collection of background data for the leaders in the sample, and the associated data sources, see Brown (2020).

## A.2 Coding

*Experienced legal* [*Educated legal*] is a dummy variable equal to one if the government leader gained professional experience [was educated] in law prior to becoming the government leader, and zero otherwise. To code these variables, we first determine the following information for each leader: High school name, the subjects studied in high school, the first-degree (or undergraduate) institution name, the focus (or major) of the first degree, the names of the universities for advanced degrees [scholarships, fellowships], and the focus of study for each advanced degree [scholarship, fellowship].

For each leader, *Educated legal* is coded as missing in the case where there was no education background information. *Educated legal* is coded as one if (i) the undergraduate major was law, or (ii) the focus of study for an advanced degree [scholarship or fellowship] was law (e.g. L.L.M.). *Educated legal* is coded as zero for the remaining cases.

For each leader, *Experienced legal* is coded as missing in the case where there was no occupation background information. *Experienced legal* is coded as one if the list of occupations included (i) private or public lawyer, (ii) judicial clerkship, (ii) law professor, (iii) a government cabinet position in the area of justice, or (iv) judge. *Experienced legal* is coded as zero for the remaining cases.

*Economic leader* is a dummy variable equal to one if the government leader was educated in economics prior to becoming the government leader, *Advanced degree* is a dummy variable equal to one if the government leader received a graduate degree (professional or otherwise) prior to becoming the leader, and *Advanced STEM* is a dummy variable equal to one if the government leader received an advanced education in a STEM (Science, Technology, Engineering, and Mathematics) field or a medical degree prior to becoming the leader; each respective variable is otherwise equal to zero.

*Leader age* is the age of the government leader. *Right ideology* is equal to one if the government leader is a member of a right-leaning political party. *Regime duration* is the number of uninterrupted years with one unique government leader.

## A.3 The Economy

For the economies with available government-leader background data, the national-accounts data used for the economic growth variables are extracted from the Penn World Tables (PWT) version 9.0, and the 2015 World Development Indicators (WDI) database maintained by the World Bank.

*Real GDP per capita* is real gross domestic product per capita measured using U.S. dollars at 2005 constant prices. Following Brown (2020), the growth rate of real GDP per capita, is constructed as follows: First, by using the corresponding indicator from the WDI database; and

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second, where the data are missing in the WDI database, by using the corresponding indicators from the PWT for calendar-year reporting economies. *Economic growth* is the five-year cumulative growth rate. *Inflation* is the five-year cumulative growth rate of the consumer price index. *Lending rate* is the bank lending interest rate. All macroeconomic variables are winsorized at the 1% tails to lessen the effect of extreme values.

#### A.4 Legal Institutions

Following Knack and Keefer (1995), this paper uses the International Country Risk Guide (IRCG) measure of the rule of law:<sup>i</sup> *Rule of law* is an index that measures an economy's strength of the law and order tradition; the variable is a score ranging from 0 to 6, with higher values indicating a stronger rule of law. The ICRG measure is appropriate because of three reasons:<sup>ii</sup> It is one of two popular measures that capture both order and equality under the law with the other measure being the World Governance Indicators (WGI) rule-of-law index. In addition, compared to the WGI measure, (ii) the ICRG measure has greater cross-economy coverage over time; and (ii) is not a simple composite of rule-of-law measures, some of which do not capture an economy's adherence to the law (Davis, 2004; Skaaning, 2010).

#### A.5 Politics and the Criminal Justice System

*Close election* is an election with a margin of victory of 2% or less (or a one-seat difference for parliamentary elections where 2% corresponds to less than one seat).<sup>iii</sup> Given that one type of leader, a legal leader or a non-legal leader, emerges as the winner in a close election; the election is valid if an alternative-type candidate is the top candidate other than the winner.

<sup>&</sup>lt;sup>i</sup> The concept of the rule of law is controversial in practice (Chesterman, 2008). Even in academia, there are many definitions, both formal (thin) and substantive (thick). Thin definitions speak to the administration and treatment under the law, while thick definitions also speak to the quality of the laws themselves. Two thin principles occur frequently in the literature: (a) adherence to the law, and (b) equality under the law (Skaaning, 2010).

<sup>&</sup>lt;sup>ii</sup> Møller and Skaaning (2011) show that rule-of-law measures are not interchangeable; and argue that great attention must be paid to the most appropriate measure for the proposed research question.

<sup>&</sup>lt;sup>iii</sup> For additional details about the variable construction, see Brown (2020).

*Polity* is the POLITY2 variable from the Polity IV Project maintained by the Center for Systemic Peace and is a measure of regime authority; the variable is a score ranging from -10 to +10, with larger values indicating democratic institutions of better quality. *Autocracy* is a dummy variable equal to zero if the polity variable is greater than zero, and one otherwise. *Presidential system* is a dummy variable equal to one if there is a presidential system of government, and zero otherwise

*Convictions* [*Prosecutions*, *Police*, *Judges*] is the total number of convicted persons [prosecuted persons, police, judges] in the economy and is winsorized at the 5% tails to lessen the effect of extreme values.

## Table A.I. Variable Descriptions and Sources

This table presents the descriptions and sources of the variables used in this paper.

Variable	Description
	Leaders
Educated legal	A dummy variable equal to one if the government leader was educated in law prior to
	becoming the government leader. [Source: Hand collected]
Experienced legal	A dummy variable equal to one if the government leader gained professional legal
	experience prior to becoming the government leader. [Source: Hand collected]
NEEL to Educated-	A (within-economy) step function which increases if there is a leader change from a
experienced legal	leader who has either no legal education, no professional experience, or both; to a leader
NEEL to NEEL	(within according) step function which increases if there is a leader change from a
NEEL to NEEL	leader who has either no legal education no professional experience or both: to another
	leader in a similar category
	[Source: Hand collected]
Educated-experienced	A (within-economy) step function which increases if there is a leader change from a
legal to NEEL	leader who has both a legal education and professional experience to a leader who has
	either no legal education, no professional experience, or both. [Source: Hand collected]
Educated-experienced	A (within-economy) step function which increases if there is a leader change from a
legal to Educated-	leader who has both a legal education and professional experience to another leader in a
experienced legal	similar category. [Source: Hand collected]
Economic leader	A dummy variable equal to one if the government leader was educated in economics
Advanced degree	A dummy variable equal to one if the government leader received a graduate school
Auvalieeu degree	degree (professional or otherwise) prior to becoming the government leader
	[Source: Hand collected]
Advanced STEM	A dummy variable equal to one if the government leader received an advanced
	education in a STEM (Science, Technology, Engineering, and Mathematics) field or a
	medical degree prior to becoming the government leader. [Source: Hand collected]
Leader age	The age of the government leader. [Source: Hand collected]
Right ideology	A dummy variable equal to one if the leader belongs to a right-leaning political party.
	[Source: Database of Political Institutions]
Regime duration	The number of uninterrupted years with one unique government leader.
	The Economy
Real GDP per capita	Real gross domestic product per capita measured using United States (U.S.) dollars at 2005 constant prices. [Source: World Park WDI 2015]
Economic growth	The five-year cumulative growth in real gross domestic product per capita (calendar-
Leononne growin	vear adjusted and calendar-vear reports), constant prices.
	[Sources: Penn World Tables 9.0, World Bank WDI 2015]
Inflation	The five-year cumulative growth in the consumer price index (CPI) with a base year of
	2010. [Source: World Bank WDI 2015]
Population	The number of persons in the economy. [Source: Penn World Tables 9.0]
Lending rate	The bank lending interest rate. [Source: World Bank WDI 2015]

Variable	Description
	Politics, Institutions, and Criminal Justice
Presidential system	A dummy variable equal to one if there is a presidential system of government in the economy. [Source: Database of Political Institutions]
Rule of law	The strength of the tradition of law and order (Knack and Keefer, 1995). [Source: International Country Risk Guide]
Polity	The POLITY2 variable, a score between -10 and +10. [Source: Polity IV Project]
Autocracy	A dummy variable equal to zero if <i>Polity</i> is greater than zero. [Source: Polity IV Project]
Convictions	The total number of persons convicted in the economy. [Source: UN Survey of Crime Trends and Operations of Criminal Justice Systems]
Prosecutions	The total number of persons prosecuted in the economy. [Source: UN Survey of Crime Trends and Operations of Criminal Justice Systems]
Police	The total number of police personnel in the economy. [Source: UN Survey of Crime Trends and Operations of Criminal Justice Systems]
Judges	The total number of professional judges in the economy. [Source: UN Survey of Crime Trends and Operations of Criminal Justice Systems]
Close election	An election with a victory margin of 2% or less (or by a one-seat difference in parliamentary elections with a small number of seats). Given that one type of leader, legal or non-legal, emerges as the winner; the close election is valid if an alternative-type candidate is the top candidate other than the winner. [Source: Hand collected]

# Table A.II. Economy Sample Construction

This table presents the construction filters for this paper's economy sample.

Filter Criteria	Filter Type	Number of Economies	<b>Economies Dropped</b>
Financial Development and Structure (FDS) database [Source: World Bank]	None	159	None
Non-missing Rule of Law, Prosecutions, Convictions Police, or Judges	Missing data	147	Benin, Cambodia, Central African Republic, Chad, Greenland, Guam, Isle of Man, Laos, Mauritania, Solomon Islands, Sao Tome and Principe, Uzbekistan

## Table A.III. Government Leader Types

This table presents the names of the economies by government leader type.

<b>Government Leader Type</b>	Economy (Leader Title)				
Prime Minister	Albania, Andorra, Armenia, Australia, Austria (Chancellor), Bahamas, Bahrain, Barbados, Belarus, Belgium, Belize, Bulgaria, Canada, Cape Verde, Croatia, Czech Republic, Denmark, Egypt, Finland, France, Germany (Chancellor), Greece, Grenada, Guyana, Hungary, Iceland, India, Iraq, Ireland, Israel, Italy (Presidente), Jamaica, Japan, Jordan, Kazakhstan, Kuwait, Latvia, Lebanon, Lesotho, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malaysia, , Malta, Mauritius, Moldova, Mongolia, Montenegro, Morocco, Namibia, Netherlands, New Zealand, Norway, Papua New Guinea, Poland, Portugal, Romania, St. Kitts and Nevis, St. Lucia, Samoa, Singapore, Slovenia, Spain (President), Sweden, Switzerland (President), Syria, Tanzania, Thailand, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, United Kingdom, Vietnam.				
President	Argentina, Bolivia, Botswana, Brazil, Chile, Colombia, Costa Rica, Cuba, Cyprus, Guatemala, Honduras, Indonesia, Kenya, Kiribati, *Korea, Liberia, Malawi, Maldives, Mexico, Marshall Islands, *Mozambique, Nicaragua, Nigeria, Panama, Paraguay, Peru, Philippines, *Russia, *Rwanda, Seychelles, Sierra Leone, Sri Lanka, Turkmenistan, United States, Uruguay, Venezuela.				
Both Prime Minister and President	Angola, Bangladesh, Burkina Faso, Burundi, Cameroon, Republic of Congo, Côte d'Ivoire, Guinea, Haiti, Iran, Kyrgyz Republic, Mali, Myanmar, Niger, Nepal, Pakistan, Senegal, Somalia, South Africa, Togo, Uganda, Zambia, Zimbabwe.				
Other	Brunei (Sultan), China (Premier), Democratic Republic of Korea (Supreme Commander), Hong Kong (Chief Executive), Libya (Brotherly Leader), Macao (Chief Executive), Oman (Sultan), Puerto Rico (Governor), Qatar (Emir), Saudi Arabia (King), Taiwan (Premier).				

\*Under the French convention, the prime minister should be the head of government for most of the sample period. However for these economies, the president is responsible for economic policy for most of the sample period.

## Appendix **B**

#### B.1. Propositions and Proofs

**Proposition 1a (An Unequal Conviction Probability between the Two Groups)**: If the marginal cost of a probable conviction for the connected group is less [greater] than the marginal cost of a probable conviction for the normal group (or if the marginal personal cost of a probable conviction for the normal group (or if the marginal personal cost of a probable conviction for the connected group is relatively high [low]), then the government chooses a lower [greater] conviction probability for the connected group;  $p_v < p_n [p_v > p_n]$ .

## **Proof of Proposition 1a**

The result hinges on whether  $MC'_{v}$  is greater or less than  $MC'_{n}$ . If  $MC'_{v} > MC'_{n}$ , then it follows that  $c' + \frac{c_{pv}}{o_{pv}^{v}} > 0$ ;  $c_{pv}$  is relatively low; and  $p_{v} > p_{n}$ . If  $MC'_{v} < MC'_{n}$ , then it follows that  $c_{pv}$  is relatively high and  $p_{v} < p_{n}$ .

**Proposition 1b (Equal Conviction Probabilities for the Two Groups but Lower Relative to the Benchmark, and Greater Punishment Relative to the Benchmark)**: If the marginal cost of a probable conviction for the connected group is equal to the marginal cost of a probable conviction for the normal group, then the government chooses the conviction probabilities to be equal to each other;  $p_v = p_n$ . Under this scenario however, punishment is heavier relative to the benchmark case,  $f > f^*$ ; and both probabilities are lower than the conviction probability for the benchmark case,  $p_n = p_v < p^*$ .

## **Proof of Proposition 1b**

Let the equilibrium conviction probability and the equilibrium level of punishment from the benchmark one-group case be  $p^*$  and  $f^*$ . The two types of agents are essentially identical when

 $p_v = p_n$ . Hence the elasticities with respect to punishment are equal;  $\epsilon_f^n = \epsilon_f^v$ , and the elasticities with respect to the conviction probabilities are equal;  $\epsilon_{p_n}^n = \epsilon_{p_v}^v$ . Given that  $MC_f' > MC_f$  and  $\theta_f$  is equal to 0.5, the level of punishment in the two-group case must increase relative to that for the benchmark case,  $f > f^*$ . Given the value of punishment, if  $O_{p_v}^v c' = c_{p_v}$  and all agents are similar, then  $p_v = p_n < p^*$ 

We can also characterize equilibrium regions surrounding the equal-convictionprobability function in Figure I by changing the planner's personal cost. On the one hand, if we increase  $c_{p_v}$  relative to c', then the slope of  $MR'_f$  is lower and we must increase the level of punishment to achieve an equilibrium result (Region I). On the other hand, if we decrease  $c_{p_v}$ relative to c', then the slope of  $MR'_f$  is greater and we must decrease the level of punishment to achieve an equilibrium result (Region I).

**Proposition 2 (Equal Punishment and a Greater Average Conviction Probability Relative to the Benchmark)**: In a two-group model, relative to the benchmark one-group model; there is an equilibrium where the government chooses an equal level of punishment. In this equilibrium, there must be a greater average probability of conviction.

#### **Proof of Proposition 2**

Let the equilibrium conviction probability and the equilibrium value of punishment from the benchmark case be  $p^*$  and  $f^*$ . In addition, let's examine equilibria where the level of punishment in the two-group model is equal to  $f^*$ . In these cases, the conviction probability for the connected group,  $p_v$  is a function of the planner's marginal personal cost functions:  $Z_v p_v =$ 

$$Z_p p^* + B$$
; where  $Z_v = -bf^*\left(1 - \frac{1}{\epsilon_p}\right)$ ;  $Z_v = -bf^*\left(1 - \frac{1}{\epsilon_{pv}^v}\right)$ ; and  $B = c' + \frac{c_{pv}}{o_{pv}^v}$ . We already

know that  $f > f^*$  in the cases of favoritism (Region I in Figure I) and equal treatment (Proposition 1b). In the equal-punishment case,  $f = f^*$ , there must be an equilibrium where B > 0 and  $p_v = \hat{p} > p^*$  (see Function (c) in Figure I). Here, the equal-weighted average probability of conviction,  $\bar{p} = \frac{p_n + p_v}{2}$ , is equal to  $\frac{1}{2} \left( 2p^* + \frac{B}{Z_v} \right)$  and must be greater than  $p^* \blacksquare$ 

# **Proposition 3 (An Equal Average Conviction Probability and Greater Punishment Relative to the Benchmark)**: In a two-group model, relative to the benchmark one-group model; if the

government chooses an equal mean conviction probability, then there is also heavier punishment.

#### **Proof of Proposition 3**

The proof follows from Proposition 1b and Proposition 2. Compared to the benchmark case, there is a lower (average) probability of conviction in the two-group model when  $p_v = p_n$ . When there is equal punishment, there is a greater average probability of conviction. Given that the average probability of conviction increases with  $B = c' + \frac{c_{pv}}{O_{pv}^{v}}$ , there must be a value of  $f = \hat{f}$  where the average probability of conviction is equal to the conviction probability in the benchmark case (see Function (b) in Figure I). However, at this critical value, the level of punishment must be greater than the level of punishment in the benchmark case,  $f = \hat{f} > f^* \blacksquare$ 

## Appendix C

## C.1 Empirical Analysis of Per-Capita Criminal Justice System Performance

Table V shows that experienced-legal leaders are positively associated with the performance of an economy's criminal justice system; and positively associated with a greater probability that wrongdoers are convicted. In Table C.I, I repeat the analysis for per-capita criminal justice resources and outcomes. The results suggest that the main analysis is robust when using percapita measures.

## Table C.I. Per-Capita Criminal Justice Resources and Outcomes

This table presents first-difference (FD) panel regression results for the sample where the lefthand-side (LHS) variable in columns (1) [(2); (3); (4) and (5)] is *Log (Police per capita)* [*Log (Judges per capita)*; *Log (Prosecutions per capita)*; and *Log (Convictions per capita)*]. The sample period is 1980 to 2014. The variable definitions [descriptions] are presented in Table I [Table A.I].

LHS Variable	Log (PPC)	Log (JPC)	Log (Pros.PC)	Log (Conv.PC)	
Log (Police per capita)			0.098	0.384	0.298
			(0.410)	(1.588)	(1.575)
Log (Judges per capita)			0.012	0.252	0.120
			(0.158)	(1.111)	(0.930)
Log (Prosecutions per capita)					0.345
					(3.557)**
[a] Educated legal	0.076	-0.010	-0.017	0.010	-0.053
	(1.621)	(0.169)	(0.145)	(0.180)	(1.236)
[b] Experienced legal	-0.103	0.130	0.200	0.200	0.186
	(1.847)+	(1.262)	(1.385)	(2.516)*	(3.015)**
Last regime year only	Yes	Yes	Yes	Yes	Yes
Practice beyond education: [b] - [a]	-0.179	0.139	0.217	0.191	0.239
<i>p</i> -value of the triple-difference estimate	[0.058]+	[0.250]	[0.379]	[0.102]	[0.016]*
Number of obs.	371	300	153	170	141
Adj. R-squared	0.056	0.108	0.058	0.320	0.408