

RESEARCH ARTICLE

Do Culture and Law Interact? Evidence From Business Regulation

Lewis S. Davis¹  | Claudia Williamson Kramer² ¹Union College, Schenectady, NY, USA | ²University of Tennessee at Chattanooga, Chattanooga, TN, USA**Correspondence:** Claudia Williamson Kramer (claudia-kramer@utc.edu)**Received:** 20 May 2025 | **Revised:** 21 October 2025 | **Accepted:** 24 October 2025**Funding:** The authors received no specific funding for this work.**Keywords:** common law | culture | individualism | legal origin | regulation

ABSTRACT

Countries with individualist cultures tend to adopt fewer business regulations. In this paper, we investigate how individualism affects regulation by incorporating the role of legal institutions. We hypothesize that a common law legal tradition is more responsive to cultural preferences than a civil law tradition. Consequently, we anticipate that individualism and common law interact as complements, reducing the intensity of regulating businesses. Using data from the Integrated Values Surveys for individualism and the World Bank's *Doing Business* Project for regulation, we find that the impact of culture on regulation is significantly amplified in common law countries, decreasing regulation in individualist countries but increasing it in collectivist ones. This holds across types of regulations and is robust to various controls and instrumental variable analysis. Additional tests show the interaction is stronger in court-involved regulations and mediated by judicial review, supporting common law's relative adaptability. These findings align with the theoretical proposition that culture shapes regulatory preferences, while legal institutions determine the extent to which these preferences translate into policy outcomes. Furthermore, our findings refine legal origins theory, emphasizing common law's cultural sensitivity rather than inherent superiority.

JEL Classification: K2, L51, Z10, D02

1 | Introduction

The procedures and time involved to open and operate a business vary across countries. For example, it takes one step and one day to register property in Georgia, but it takes 264 days in Bangladesh. Only 27.5 days are needed to acquire the necessary documents to construct a building in South Korea, compared to 529 days in Cyprus. It requires 275 days in Ukraine to establish an electricity connection compared to 14 days in South Korea. In Hong Kong, there are three annual tax payments, consuming 35 h. In contrast, there are 99 tax payments in Venezuela, consuming up to 970 h (World Bank 2020a, *Doing Business*).

The economic ramifications of these regulatory costs are considerable. Over 200 published articles document that reduced business entry regulations foster more entrepreneurship, facilitate firm development, bolster overall productivity, and mitigate corruption (Djankov et al. 2002; Djankov 2009). Similar patterns emerge for other business regulations. For example, efficient contract enforcement enhances the business environment (Lu and Tao 2009), curtails the informal sector (Dabla-Norris et al. 2008), encourages innovation (Cooley et al. 2004; Cumming and Knill 2012), and stimulates trade (Nunn 2007). Expeditionary debt resolution increases liquidity (Djankov et al. 2008), whereas higher electricity

connection costs correlate with increased bribery, diminished electricity quality, and reduced firm performance (Geginat and Ramalho 2018). Regulations related to labor, contracting, and entry likewise decrease economic efficiency and market performance (Djankov, La Porta, et al. 2003; Djankov, Glaeser, et al. 2003; Besley and Burgess 2004; Botero et al. 2004; Cline and Williamson 2016, 2017).

A growing body of research suggests that national culture, specifically a country's position on the individualism–collectivism continuum, affects the propensity to regulate businesses. Individualism–collectivism reflects how an individual perceives social connections and responsibilities (Gorodnichenko and Roland 2012). In individualist cultures, personal autonomy and achievements take precedence, whereas collectivistic cultures prioritize social obligations. This cultural contrast can influence preferences for economic regulation. In countries with more individualist values, commercial activity can be an avenue for opportunity and personal success. Consequently, individualist cultures may favor lighter regulation to enable opportunity. Nikolaev and Salahodjaev (2017) support this argument, linking individualism to market competition and economic freedom. Collectivist cultures, however, may see markets as disruptive, preferring heavier regulation for social stability, valuing communal rather than individual outcomes.

Prior empirical evidence supports the *culture matters* hypothesis. For instance, Davis and Williamson (2016, 2018) find a negative association between individualism and the regulation of entry of new firms as well as the regulation affecting entry of foreign businesses. Likewise, Cline and Williamson (2017) document that individualism leads to a reduction in the level of court regulation for contract enforcement. Additionally, individualism demonstrates a negative association with accounting regulation (Guan and Pourjalali 2010), pension fund regulation (Rivera-Rozo et al. 2018), and labor regulation (Ang and Fredriksson 2018).

This paper builds on prior work by examining how culture and legal origin interact to shape business regulation.¹ Drawing on Davis and Williamson (2016), we hypothesize that common law systems are more responsive to cultural preferences than civil law systems, leading individualism and common law to act as complements in reducing regulatory intensity.

One function of legal institutions is to aggregate cultural preferences into policy, including regulation. When considering legal origin, common law systems exhibit greater flexibility in accommodating cultural preferences compared to civil law systems. Beck et al. (2003) argue that legal origin influences policy through two different channels, the adaptability channel and the political channel. The political channel reflects how traditions balance state power against individual rights.² Common law countries typically protect property from the state, favoring lighter regulation, while civil law countries strengthen central authority. The political channel reflects historical circumstances in a legal tradition's country of origin and, consequently, it does not posit an explicit role for a society's cultural values. Thus, if legal origin affects regulation primarily through the political channel, we expect this effect to be largely independent of a country's culture.

The adaptability channel, more relevant here, focuses on the legal system's responsiveness to local conditions, including cultural values. Common law's decentralized, competitive adjudication incorporates local norms and evolves incrementally (Glaeser and Shleifer 2002; Ostrom 1990; Hayek 1945). Civil law's codified rigidity limits such flexibility. Thus, we expect the common law tradition to be more responsive than the civil law tradition to cultural preferences over regulatory policy. In individualist common law countries, regulations should be lighter as preferences for less intervention are more readily translated into policy. We test this claim with an interaction between individualism and common law.

Individualism–collectivism is measured by survey questions collected from the Integrated Values Surveys (IVS), spanning from 1981 to 2020 (Haerpfer et al. 2021). An individualism index is created by extracting the first principal component from the IVS questions. To measure common law, we collect data from Hyland et al. (2020), which is an update to the legal origins database from La Porta et al. (2008). We include a dummy indicating whether a country's legal origin is English common law, zero otherwise. We create a culture and law interaction term by multiplying the individualism index with the common law dummy variable.

To measure the overall business regulatory environment in a country, we collect data on eight regulations covering different aspects of doing business from the World Bank (2020b) and World Bank (2020b) *Doing Business* Project. Within each regulatory category time and procedures involved in legally complying with the regulation are measured. To construct an aggregate business regulation index, principal component analysis (PCA) is utilized to extract the first principal component from the eight regulatory categories, measuring the opportunity costs to legally operate a business.

Our results suggest that individualism and law interact to determine business regulation. We find consistent evidence that individualism reduces regulation and that this effect is larger in common law countries. For example, a one standard deviation increase in the individualism index in a common law country decreases the regulation index by 92% of a standard deviation. This result is found across an array of business regulations and is robust to controlling for a variety of variables. It is also robust to the use of instrumental variable (IV) methods, which we employ to address issues arising from the endogeneity and potential mismeasurement of the individualism index.

Our findings are consistent with the adaptability hypothesis, where cultural values influence the evolution of regulatory policy in the common law tradition. In contrast, the coefficient on English legal origin is not significant in most estimations, indicating an absence of support for the political channel. The coefficient on individualism is significant in most estimations, suggesting that individualism directly affects the adoption of business regulation.

Finally, we empirically investigate which legal institutions drive the common law's adaptability. Legal transplants involve not only specific rules but also institutions, human capital, and problem-solving skills (La Porta et al. 2008). This complexity

makes it challenging to isolate factors that most influence legal adaptability. Drawing on comparative law literature, we identify five key institutional differences contributing to the flexibility of common law versus civil law: jurisprudence, legal reasoning, judicial review, judicial deference, and jurisdictional dualism. As detailed below, only judicial review is a statistically significant determinant of the common law tradition's relative sensitivity to cultural values; however, given the relatively small sample size, we consider this analysis preliminary.

Notably, both our ordinary least squares (OLS) and IV results indicate that the common law tradition increases business regulation in sufficiently collectivist countries. This result differs from prior research identifying a direct link between legal origins and regulation. Our findings suggest that the key distinction between legal systems is common law's sensitivity to cultural values, whereas civil law lacks such responsiveness.

We view our findings as contributing to the law and economics literature by aligning with criticisms of legal origins theory, which argues that contemporary outcomes may stem from factors beyond legal traditions (Rajan and Zingales 2003; Roe 2006; Klerman et al. 2011; Spamann 2010a, 2010b; Oto-Peralías and Romero-Ávila 2014a, 2014b). For instance, Oto-Peralías and Romero-Ávila (2017) show diminishing regulatory differences between common and French civil law countries.

Our emphasis is on how individualism interacts with legal origin to influence business regulation, rather than legal origin alone, focusing on legal systems' aggregation of cultural preferences. Given common law's flexibility and bottom-up mechanisms compared to civil law, we hypothesize that common law better translates individualist preferences into lighter regulation. Thus, our joint results, common law amplifying individualism's effect without a direct impact, support critiques showing common law does not systematically reduce regulatory burdens.

2 | How Do Cultural Values Affect Regulation?

Beck et al. (2003) identify two primary channels through which legal origins affect social policy: the political channel and the adaptability channel. The political channel emphasizes how legal traditions balance state interests against individual rights (La Porta et al. 1999; Posner 1977), positing that common law prioritizes private property rights over state interests, potentially leading to lighter regulation overall. Rooted in history, English common law developed to protect property owners from the crown, whereas French and German civil codes aimed to strengthen state power (Beck et al. 2003). Djankov, Glaeser, et al. (2003) attribute this to the French Revolution's turmoil, which demanded stronger central authority than England's experience. Consequently, the centralized bureaucratic characteristic intrinsic to civil law dampens competition and lacks equivalent mechanisms for harnessing dispersed knowledge and local norms.

The adaptability channel highlights the varying abilities of common and civil law traditions to respond to local or changing conditions. In the early formation of common law, legal authority was divided by dispute type, leading to competitive,

decentralized adjudication that offered autonomy in selecting courts and penalties (Glaeser and Shleifer 2002). This pluralistic environment promoted competition, efficient resource allocation, and institutional innovation (Ostrom 1990), while leveraging local knowledge to create a dynamic interplay between cultural norms and legal principles (Hayek 1945). The adaptability channel is more relevant to our investigation of how cultural values interact with different legal traditions, as it highlights common law's capacity to evolve in response to local circumstances, including cultural norms.

As noted by La Porta et al. (2008, 308), legal transplant “involves not just specific legal rules (many of which actually change later) but also legal institutions (of which judicial independence might be the most important), human capital of the participants in the legal system, and crucially the strategy of the law for dealing with new problems.” The bundled nature of legal transplants makes it difficult to determine which rules, institutions, and beliefs about law's societal role most influence common law's regulatory adaptability. However, the comparative law literature identifies five possible sources of the differential flexibility among legal traditions, which we discuss below: the roles of jurisprudence, flexible legal reasoning, judicial review, judicial deference, and jurisdictional dualism.

Jurisprudence refers to whether judicial decisions serve as a source of law, with common law and German civil law countries more likely to recognize them than French civil law countries (Beck et al. 2003; La Porta et al. 2004). Hayek (1960) argues that a reliance on judge-made law makes common law evolutionary, adapting to new conflicts as they arise and allowing incremental adjustments that incorporate societal values, making it more responsive to individualist preferences for fewer regulatory burdens on business activities. Civil law's codified structure, by contrast, is less flexible, often resulting in uniform application that may not align with cultural variations. Rubin (1982) argues that inefficient laws are more likely to be litigated, leading legal evolution toward efficiency. Applying a similar logic, legal disputes may arise more frequently when regulations conflict with local cultural values, leading the law to evolve in ways that reduce such conflicts and reflect cultural norms.

A second important institutional difference between the common and civil law traditions involves the nature of legal reasoning that judges may use in their rulings. Djankov, La Porta, et al. (2003) and Djankov, Glaeser, et al. (2003) show that in common law systems judges are granted greater judicial flexibility whereas French civil law systems require judges to rely on statutory law rather than principles of equity. This supports the argument that under common law judges are more likely to incorporate cultural preferences as judges are granted more flexibility to consider contextual factors. In contrast, civil law constrains judges to rigid codes, potentially limiting cultural responsiveness.

Third, as discussed in detail in La Porta et al. (2004), the common and civil law traditions differ to the degree that they permit courts to review and rule on the constitutionality of laws. In many civil law countries, judicial review may not be allowed or it may be significantly restricted. For example, judicial review may be relegated to specialized courts with limited

independence, confined to a priori reviews, or initiatable only by select government officials. In contrast, the scope for judicial review is much broader in common law systems, as ordinary citizens may contest the constitutionality of a law at any time, and these cases are handled by judicial courts. Judicial review may enhance sensitivity to cultural values if these values shape either a country's constitution, judges' application of constitutional principles to statutes, or the selection of laws for review.

Fourth, the division of labor among legislatures, courts, and regulatory agencies in developing and enforcing public regulation differs significantly in common law and civil law systems (Lewans 2016; Rose-Ackerman et al. 2019). In common law countries, legislatures often write regulatory statutes in broad terms, agencies provide detailed rules and adapt them over time, and courts frequently defer to agency interpretations. In contrast, civil law countries rely on more comprehensive and detailed regulatory codes, leaving less room for agencies to interpret or adapt them. Judicial deference in common law countries enables agencies to play an active role in interpreting and adapting regulations, introducing an additional source of regulatory evolution.

And, finally, the civil law tradition is often characterized by jurisdictional dualism, where judicial courts handle private law disputes and administrative courts manage public law disputes (Brown et al. 1998). Administrative courts differ from judicial courts in ways that may hinder public law's adaptability. For example, administrative courts are formally part of the executive branch of government, employ career civil servants as judges who may lack de jure independence, and use inquisitorial rather than adversarial proceedings. This lack of independence and adversarial process may constrain the flexibility of public regulation in civil law countries.

To examine how these institutional differences influence regulation's cultural sensitivity, we use measures of jurisprudence and judicial review from La Porta et al. (2004) and legal reasoning from Djankov, La Porta, et al. (2003) and Djankov, Glaeser, et al. (2003). Administrative courts in civil law systems and judicial deference in common law systems may enhance public regulation's flexibility in common law countries. Building on this, we assess the relative sensitivity of public and private regulation to cultural values across common and civil law traditions.

3 | Data

A cross-sectional dataset using multiple sources is created. Data are averaged from 1981 to 2020, or as close to these years as possible. Appendix A provides a detailed data description and sources for all variables.

To measure the regulatory environment in a country, we collect eight unique regulations covering different aspects of doing business from the World Bank (2020b) and World Bank (2020b) *Doing Business* Project. We acknowledge potential measurement issues arising from the World Bank's *Doing Business* project. For example, the project was suspended in 2021 due to concerns that data were altered to score China and Saudi Arabia more favorably (Hao 2022). Before the data manipulation scandal, scholars

criticized the project for representing free market, ideological principles (McCormack 2018; Alfaro et al. 2021), representing only de jure regulation, (De Mel et al. 2013; Besley 2015; Alfaro et al. 2021), lacking transparency (Alfaro et al. 2021), suffering from Goodhart's Law (Chrystal and Mizen 2003) and flawed methodology (Davis and Kruse 2007; McCormack 2018; Alfaro et al. 2021). Despite these criticisms, the *Doing Business* project remains one of the most comprehensive and widely utilized dataset assessing business conditions around the world (Basu 2018).

Within each regulatory category, the time and procedures (when available) involved to legally comply with regulation are measured. Four regulations represent initial steps to legally start a business, including opening a new business, registering property, obtaining construction permits, and obtaining a permanent electricity connection. An additional four regulatory categories cover the rules to legally operate a business. These include trading across countries, enforcing a contract, resolving debt, and paying taxes.

To construct an aggregate regulation index for each regulation category, PCA is utilized to extract the first principal component of the opportunity costs to legally operate a business. Enforcing a contract, trading across borders, and resolving debt do not have data on the number of procedures; thus, only time data are included for these regulations. In total, eight regulatory indices are created. For each index, the first principal component's eigenvalue is greater than one, suggesting it is appropriate to retain the first principal component. Each index is standardized (mean equal to zero; standard deviation of one), with a higher score representing a higher regulatory burden.

We use PCA to extract the first principal component creating an overall business regulation index by obtaining the common variation between the eight regulatory indices. The first principal component's eigenvalue is 3.6, indicating that it is appropriate to retain the first principal component. The eigenvalues also indicate that the first principal component explains over 45% of the variance in the regulation index. The business regulation index is also standardized with a higher value representing more regulation.

To further test our theoretical arguments that the interaction between common law and individualism may vary by regulation type and court involvement, we generate subindices using PCA to extract the first principal component from different combinations of the eight regulation areas. The first pair distinguishes public regulation (governing private-state interactions) from private regulation (governing private-private interactions). The private regulation index, based on contract, trade, and debt regulations, has an eigenvalue of 1.5 and explains over 50% of the variance. The public regulation index, covering entry, property, construction, utility, and tax regulations, has an eigenvalue of 2.6 and explains over 51% of the variance. Both are standardized, with higher values indicating greater regulation.

The second pair captures courts' role in mediating disputes. The court-involved regulation index combines areas where judicial processes predominate: contract enforcement, debt resolution, tax rules, and property registration. The first principal component's eigenvalue is 2.07 and explains over 51% of the variance.

The less court-involved index includes entry, trade, construction, and utility regulations, which are primarily administrative (Zweigert and Kötz 1998). This index's eigenvalue is 2.14 and explains over 53% of the variance. Both indices are standardized, and higher values represent more regulation.

To measure individualism–collectivism we collect survey data from the IVS, which is the joint time-series data from both the European Values Study (EVS) and the World Values Survey (WVS), spanning from 1981 to 2020 (Haerpfer et al. 2021). Both the EVS and WVS are surveys repeated over time for up to 115 countries. The EVS includes five survey waves and the WVS has conducted 7 survey waves. Survey answers are averaged across all respondents in a country and across all WVS/EVS waves. Not only does using the joint WVS/EVS data maximize the number of observations, but it also minimizes biases due to measurement error from one survey database.

An individualism index is created by extracting the first principal component from the following four IVS questions: (1) Private ownership of business and industry should be increased vs. government ownership of business and industry should be increased, (2) one of the main goals in life is to make parents proud, (3) whether abortion is justified, and (4) whether homosexuality is justified. The first principal component's eigenvalue is 2.98, indicating that it is appropriate to retain the first principal component, and the eigenvalues indicate that the first principal component explains about 74% of the variance in our individualism index. A higher score reflects a greater level of individualism, and the index is standardized.

This method of measuring individualism–collectivism is developed by Beugelsdijk et al. (2015) to provide an update to Hofstede's (2001) measure of individualism. It is utilized by several recent academic studies (Davis and Williamson 2016, 2019; Cline et al. 2021; Dutta et al. 2021; Tarabar and Portillo 2021; Williamson 2021). These questions are consistent with Hofstede's description of individualism–collectivism. For example, Hofstede relates individualism to personal autonomy, the right to a private life, weak family ties, less conformity, and capitalism and market competition. Each of the four questions can be viewed as an indirect measure capturing attitudes that link to individualist values. Our updated IVS measure of individualism is highly correlated with Hofstede's original index (0.76). Relative to Hofstede's measure of individualism, using the IVS individualism index increases the size of the available sample by 40%. In addition, it increases representation of lower income countries, reducing the mean per capita income of the sample by nearly 30%, and increasing regional representativeness of the sample, with the number of observations from Eastern Europe and Central Asia rising from 31 to 40, from Sub-Saharan Africa rising from 0 to 11, and from the Middle East and North Africa rising from 4 to 8.

We include a country's legal origin as a proxy for a country's legal system as it is plausibly exogenous to the colonized country as these countries did not have a choice in terms of who colonized them.³ To measure common law, we collect data from Hyland et al. (2020), an update to the legal origins database from La Porta et al. (2008). We include a dummy indicating whether a country's legal origin is English common law, zero otherwise.

We create a culture and law interaction term by multiplying the individualism index with the common law dummy variable.

A variety of control variables are included that can affect the adoption of business regulation. In our baseline model, we include two exogenous proxies for institutional quality: landlocked and the absolute value of latitude. Distance from the equator, latitude, is an exogenous geographic measure that is linked to institutional quality through its effect on colonization and institutional transfer (Hall and Jones 1999; Williamson and Kerekes 2011). We include a dummy variable for whether a country is landlocked as a proxy for Olson's (1982) argument that exposure to international trade increases the pressure to reform inefficient regulation.

Combining data results in a cross-section for up to 94 countries. Appendix A provides a detailed description of all data, and Appendix B reports a correlation matrix for the main variables of interest. Individualism and the regulation index have a significant correlation of -0.48 . Regulation and common law are not significantly correlated (0.05).

Summary statistics are provided in Table 1. In our sample, Egypt and Qatar are the most collectivist countries, while Denmark and Sweden are the most individualist countries. Venezuela has the highest overall level of business regulation, and Singapore and Hong Kong have the lowest. English common law countries are 23% of the sample, and income per capita ranges from \$1139 (Ethiopia) to \$91,980 (Qatar), with a mean of \$20,627.

To illustrate patterns in our data, we present two scatter plots in Figure 1 showing the correlation between individualism and regulation by legal origin (common law versus civil law countries). The negative relation between individualism and regulation is more pronounced in common law countries. The correlation between the individualism index and the regulation index is -0.73 in common law countries versus -0.47 in civil law countries, indicating that individualism has approximately a 55% larger effect in a country that has a common legal tradition.

Countries that are both common law and have a high degree of individualism (over one standard deviation above the mean) include Canada, the United Kingdom, New Zealand, and Australia. Countries that are common law but highly collectivist (at least one standard deviation below the mean) include Myanmar, Nigeria, Pakistan, and Ghana, for example. Civil law countries that score high on collectivism include Egypt, Indonesia, Jordan, and El Salvador; countries with a high degree of individualism with a civil legal tradition include the Netherlands, Iceland, Sweden, Denmark, and Finland.

4 | Empirical Model and Results

This section presents an empirical analysis of the relation between individualism, legal origin and business regulation. Our initial specification takes the form:

$$\text{regulation}_i = \alpha + \beta \text{individualism}_i + \gamma \text{common}_i + \delta \text{individualism}_i * \text{common}_i + \theta X_i + \varepsilon_i$$

TABLE 1 | Summary statistics.

Variable	# Observations	Mean	Standard deviation	Minimum	Maximum
Individualism	94	0.00	1.00	−1.32	2.95
Common law	94	0.23	0.43	0.00	1.00
Common law*individualism	94	−0.05	0.44	−1.26	1.55
Main dependent variable					
Regulation index	94	0.00	1.00	−1.59	4.97
Additional controls					
Latitude	94	32.78	17.19	0.23	64.15
Landlocked	94	0.20	0.40	0.00	1.00
Log GDP per capita	92	0.25	0.88	−1.82	1.89
Trust	94	0.00	1.00	−1.62	3.21
Catholic (% pop)	92	0.30	0.35	0.00	0.94
Protestant (% pop)	92	0.13	0.21	0.00	0.90
Muslim (% pop)	92	0.20	0.32	0.00	0.99
Ethnic fractionalization	93	0.39	0.24	0.00	0.93
Linguistic fractionalization	92	0.34	0.27	0.00	0.92
Religious fractionalization	94	0.43	0.23	0.00	0.86
Manufacturing (% GDP)	92	16.03	6.01	2.10	42.48
Trade (% GDP)	92	75.43	48.23	22.13	348.83
Natural resources (% GDP)	93	4.886	6.48	0.00	33.47
Partitioned	75	22.90	26.43	0.00	100
Transition	94	0.26	0.44	0.00	1.00
Power distance	59	59.86	20.97	11.00	104
Masculinity	59	48.86	20.77	5.00	110
Uncertainty avoidance	59	66.64	22.96	8.00	112
Competition harmful	94	3.73	0.58	2.49	5.54
Left–right wing	91	5.74	0.62	4.66	9.07
Religious attendance	93	4.40	1.30	1.82	6.65
Voice	94	0.16	0.94	−1.90	1.62
Polity2	88	4.07	5.65	−10	10
Democracy	94	0.60	0.40	0	1
Instruments					
Pronoun drop	88	0.24	0.43	0.00	1.00
Ancestry adj. rainfall variation	75	−0.22	0.38	−0.69	0.94

where i represents countries, individualism is a measure of individualism, common is an indicator variable equal to one if a country has an English common law legal heritage, and X_i is a vector of controls.

The key coefficients of interest in this specification are those on individualism, the common law indicator, and their

interaction. Based on arguments above and previous work on individualism and regulation (Davis and Williamson 2016, 2018; Williamson 2021), we expect β to be negative, such that individualism is systematically associated with lower levels of regulation, supporting the *culture matters hypothesis*. Arguments based on the *political channel hypothesis* suggest that common law legal systems are systematically associated

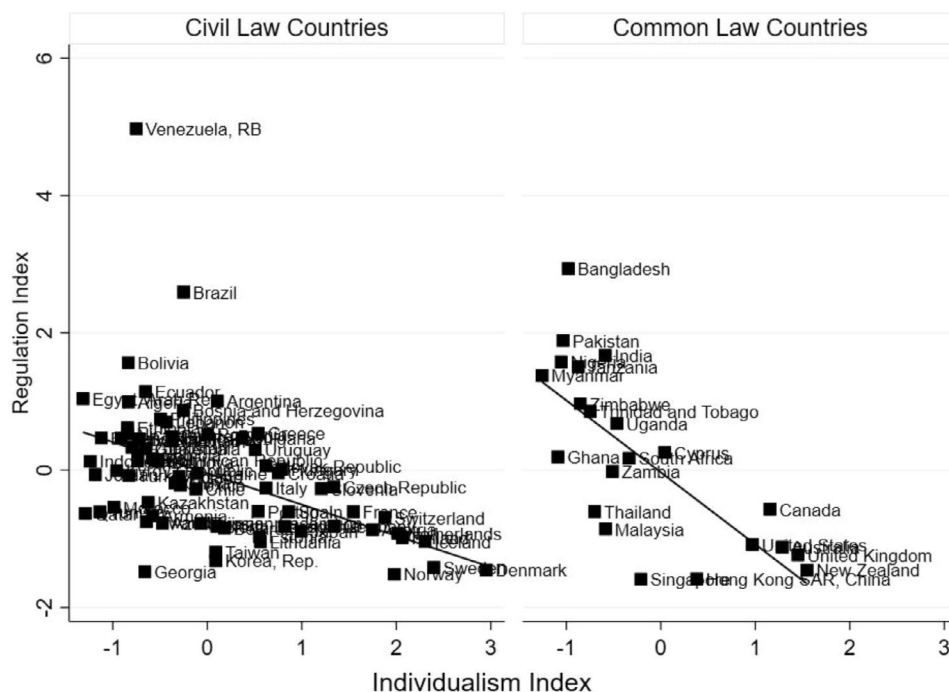


FIGURE 1 | Regulation index and ualism by legal origin.

with the protection of private property rights, in which case we expect γ to be negative. Finally, the *adaptability channel hypothesis* implies that in common law countries, where the emergence of new legal findings via jurisprudence reflects the influence of local cultural values, the regulations in these countries are more sensitive to the cultural preferences of their citizens. In keeping with this argument, we expect δ to be negative.

Table 2 presents evidence for our baseline specification for the regulation index and eight individual measures of business regulation, related to entry, contracts, property transfers, international trade, construction, utilities, debt, and taxation. As seen in Column (1), the coefficients on both individualism and the interaction term are negative and significant at the 1% level when using the regulation index as the dependent variable, providing support for both the culture matters and adaptability hypotheses. This result is robust to various subsamples: If we omit Venezuela, drop the legal origin countries (Germany, England, France, Japan, and Scandinavia), include only England and French legal origin countries, and exclude the settler colonies (the United States, Canada, Australia, and New Zealand).

The results for our baseline model have two striking implications. First, the overall level of business regulation is significantly lower in individualist countries and this effect is magnified in countries with a common law legal system. To capture the size of these effects, consider the impact of a one-standard deviation (one-unit) increase in individualism, which is roughly the individualism gap between Chile (−0.12) and Spain (0.86), two civil law countries, or India (−0.59) and Hong Kong (0.38), two common law countries. Given this difference in legal systems, we expect the regulation index to be 0.34 units higher in Chile than in Spain and 0.92 units higher in India than in Hong Kong.

Second, while prior research, such as La Porta et al. (2008), suggests business regulation is generally lower in common law countries, our findings qualify and revise this claim. The significant interaction term indicates that common law's effect on business regulation varies with a country's cultural values. To illustrate this point concretely, we differentiate the linear expression implied by Column (1) with respect to the common law dummy variable, to obtain $\frac{\partial \text{regulation}}{\partial \text{common}} = -0.12 - 0.58 * \text{individualism}$. It follows that the common law tradition is associated with lower levels of regulation provided individualism > -0.21 . Thus, the impact of the common law system on regulation is, in general, relatively mild for countries near the middle of the cultural distribution, such as Brazil or Bosnia and Herzegovina, with individualism = −0.25, and much larger for countries that are highly individualist or highly collectivist.

In particular, having a common law system is associated with higher levels of regulation for highly collectivist countries. For example, the model predicts that the regulation index will be 0.49 points higher in common law Zimbabwe than in civil law Nicaragua, both of which are highly collectivist, with individualism = −0.85. Since the regulation index is 0.97 for Zimbabwe and 0.53 for Nicaragua, this prediction is quite close to the actual 0.44-point difference in regulation between these two countries.

Columns (2) through (9) of Table 2 provide regression results for our baseline model using each of the eight individual measures of business regulation as the dependent variables. The coefficient on the interaction term is negative in all eight regressions and significant at the 5% level in four of these regressions. In addition, the estimate only narrowly misses the conventional threshold for significance in two additional regressions, related to trade regulation ($p=0.054$) and debt regulation ($p=0.055$). Our results also provide consistent evidence of a negative

TABLE 2 | Culture and law interactions across business regulations.

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Regulation index	Entry regulation index	Contract regulation	Property regulation index	Trade regulation index	Construction regulation index	Utility regulation index	Debt regulation	Tax regulation index	EFW Regulation Index
Common law*individualism	-0.58*** (0.19)	-0.34*** (0.15)	-0.58** (0.25)	-0.67** (0.27)	-0.33* (0.17)	-0.31 (0.19)	-0.16 (0.28)	-0.41* (0.21)	-0.35*** (0.16)	0.48** (0.16)
Individualism	-0.34*** (0.10)	-0.09 (0.09)	-0.05 (0.11)	-0.19 (0.12)	-0.30*** (0.09)	-0.35*** (0.14)	-0.41*** (0.11)	-0.32*** (0.13)	-0.17 (0.10)	0.60*** (0.10)
Common law	-0.12 (0.25)	-0.46* (0.25)	0.12 (0.30)	0.21 (0.27)	0.167 (0.25)	-0.10 (0.25)	0.28 (0.27)	-0.60*** (0.23)	-0.18 (0.24)	0.48** (0.21)
Latitude	-0.01 (0.01)	-0.02** (0.01)	-0.00 (0.01)	-0.01 (0.01)	-0.01 (0.01)	0.01 (0.01)	0.01* (0.01)	-0.01 (0.01)	-0.02* (0.01)	-0.00 (0.01)
Landlocked	-0.14 (0.19)	-0.17 (0.23)	-0.54** (0.19)	-0.47** (0.20)	0.09 (0.18)	0.03 (0.22)	0.16 (0.21)	-0.14 (0.23)	0.19 (0.24)	-0.04 (0.21)
Constant	0.38 (0.41)	0.80* (0.47)	0.11 (0.37)	0.39 (0.33)	0.40 (0.47)	-0.29 (0.32)	-0.66*** (0.31)	0.34 (0.37)	0.57 (0.46)	-0.02 (0.33)
# observations	94	94	94	94	94	94	94	94	94	92
Adj. R ²	0.32	0.17	0.08	0.28	0.32	0.06	0.07	0.21	0.22	0.42

Note: Regulation and individualism indices are standardized. Robust standard errors are clustered by country and reported in parentheses.

*** $p < 0.001$.

** $p < 0.05$.

* $p < 0.10$.

relation between individualism and the extent of regulation, as either individualism or the interaction term is significant at the 5% level in all eight regressions.

To address measurement error concerns from using *Doing Business* data (Arruñada 2007, 2009) and other critiques as discussed above, we employ an alternative measure of business regulation from the Economic Freedom of the World (EFW) index (Gwartney et al. 2024). This EFW regulation index measures the extent to which regulations restrict entry into markets and interfere with the freedom of voluntary exchange as reflected in credit market regulation, labor market regulation, business regulation, and competition policy. It is compiled using data from multiple sources, including *Doing Business*, V-Dem, World Development Indicators (WDIs), the Economic Intelligence Unit, and World Economic Forum. Data are collected in 2019. The index is standardized, with higher scores indicating lighter regulatory burdens. Accordingly, we anticipate positive coefficients on individualism, common law, and their interaction.

As shown in Column (10) of Table 2, the coefficient on the interaction term is positive and significant at the 5% level, suggesting that our results are not driven by the construction of the *Doing Business* regulation data. Given the similar findings and the variety of data sources used in the compilation of the EFW regulation index, we are less concerned that measurement error is consistently driving our results.

Our findings indicate that individualism's effect on regulatory variation, as captured by the *Doing Business* and EFW indices, is amplified in common law countries. However, these indices may reflect design assumptions that align with individualist preferences or common law structures, such as *Doing Business* favoring ex ante procedural simplicity (Arruñada 2007, 2009), and EFW prioritizing minimal government intervention. If true, this potentially inflates the interaction effect. Although we find no evidence of systematic measurement error correlated with our interaction term, aspects of regulation unmeasured by these indices, such as ex post certainty, may exhibit different cultural-legal dynamics.

Our results in Table 2 indicate that our thesis may hold more convincingly for the overall regulatory environment, rather than for every individual measure of regulation. Moving forward, we focus on the aggregate regulation index, but the results in Table 2 provide confidence that our results are not driven by any one measure of business regulation.

4.1 | Alternative Measures of Individualism

A potential concern with the evidence presented in Table 2 is that the empirical associations identified may be driven primarily by a single component of individualism and, thus, might reflect a particular value or policy preference rather than cultural differences in the fundamental conception of the self. To address this issue, we consider a series of regressions using our baseline model in which we replace the individualism index with each of the four variables from which it is constructed. Note that only one of these measures, which reflects the preference for private

vs. government ownership of capital, is explicitly economic or political in nature, while the other three variables relate to preferences in social life.

Results are shown in Table 3. Note that the coefficients on the interaction term are significant in three of these four regressions, providing additional support for the *adaptability hypothesis*. Consistent with our expectations, the interaction coefficients are also negative for the two measures that load positively on individualism and positive for the importance of making one's parents proud, which loads negatively on individualism.

Interestingly, the interaction terms constructed using the three social sphere variables are significant, while the interaction term using the measure of economic values is not. These results support our assertion that the variables we use to construct the individualism index are not simply policy preferences, or the taste for government intervention, but instead reflect a deeper understanding of the self, as independent or interdependent, that is also expressed in preferences over regulation. It is otherwise difficult to understand, for example, why measures of homophobia or support for abortion would predict the intensity of business regulation.

Finally, note that in Columns (2–4), the coefficient on the individualism index is significant, which supports the *culture matters hypothesis*. Furthermore, in these regressions, the coefficient on the interaction term is significantly larger than that on individualism, which supports our result for the individualism index in Column (1) of Table 2.

4.2 | Robustness Tests: Omitted Variable Bias

In Table 4, we address potential concerns related to omitted variable bias by including a variety of variables that are potentially related to either individualism or regulation. Note that some of these regressors maybe endogenous to the extent of regulation and are potentially endogenous to the level of individualism, as is the case for per capita income (Gorodnichenko and Roland 2011; Davis 2016) and democracy (Licht et al. 2007; Davis and Abdurazokzoda 2016). As such, these regressions cannot be considered correctly identified. However, they are of interest to provide robustness for the associations between legal origin, culture, and regulation. In particular, these regressions provide evidence on whether individualism exerts a direct impact on regulation, controlling for indirect effects operating through economic and political development.

A country's income level correlates with its regulatory structure and economic efficiency (Aghion et al. 2010; Pinotti 2012); thus, we include the logarithm of GDP per capita (PPP adjusted, constant international \$). Data on log GDP per capita are collected from WDI (World Bank 2020b). In Column (1), Table 4, GDP per capita is negative and significant, supporting prior works on income and regulation. The interaction term between individualism and common law is robust to the inclusion of income per capita.

Column (2) adds three measures of the structure of the economy: the output shares of manufacturing, international trade,

TABLE 3 | Regulation and culture and law interactions, individualism measures.

Dependent variable: regulation index	(1)	(2)	(3)	(4)
Common law*gov ownership	−0.05 (0.25)			
Gov ownership	0.22 (0.15)			
Common law*parents proud		4.57** (1.51)		
Parents proud		2.59*** (0.66)		
Common law*homosexuality justified			−0.48*** (0.13)	
Homosexuality justified			−0.09* (0.05)	
Common law*abortion justified				−0.41** (0.13)
Abortion justified				−0.29*** (0.08)
Common law	0.20 (1.30)	−4.03*** (1.17)	1.35** (0.54)	1.20** (0.55)
Latitude	−0.03** (0.01)	−0.01 (0.01)	−0.02** (0.01)	−0.01 (0.01)
Landlocked	−0.05 (0.19)	−0.17 (0.18)	−0.22 (0.19)	−0.12 (0.17)
Constant	−0.29 (1.12)	−1.83** (0.83)	0.98** (0.37)	1.24*** (0.36)
# observations	94	94	94	94
Adj. R ²	0.19	0.33	0.32	0.34

Note: Regulation and individualism indices are standardized. Robust standard errors are clustered by country and reported in parentheses.

*** $p < 0.001$.

** $p < 0.05$.

* $p < 0.10$.

and natural resource rents since the structure of a country's economy may influence the propensity to adopt regulation. For example, natural resource abundance often leads to rent seeking (Torvik 2002), and Olson (1982) argues that trade makes the costs of inefficient regulation more apparent. The data are collected from World Bank (2020b). The inclusion of these variables has little effect on the magnitude or significance of the coefficient on the interaction term, providing additional support for the adaptability hypothesis.

In the next three columns, we control for three different measures of democracy, which are empirically associated with the extent of regulation (Djankov et al. 2002; Williamson 2021) and correlated with individualism (Licht et al. 2007; Tabellini 2008;

Gorodnichenko and Roland 2021). Moreover, Berkowitz and Clay (2011) argue that political competition and judicial independence jointly determine the economic prospects of US states.

We use the Voice and Accountability variable from the Worldwide Governance Indicators described in Kaufmann et al. (2011) and collected from Kaufmann and Kraay (2021). Voice captures perceptions to which a country's citizens can participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. The second measure, *polity2*, represents competitiveness of political participation, open and fair competition in selecting political leaders, and constraints on executive power. It captures the level of democracy versus autocracy ranging from −10 to

TABLE 4 | Regulation and culture and law interactions, additional controls.

Dependent variable: regulation index	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Common law*individualism	−0.50** (0.15)	−0.57*** (0.16)	−0.59** (0.19)	−0.56** (0.18)	−0.59** (0.18)	−0.63** (0.19)	−0.41** (0.20)	−0.59** (0.18)	−0.52** (0.19)	−0.60*** (0.16)	−0.66** (0.32)	−0.53** (0.20)
Individualism	−0.16* (0.09)	−0.29** (0.12)	−0.37** (0.18)	−0.53*** (0.13)	−0.56*** (0.12)	−0.29** (0.10)	−0.29** (0.10)	−0.39** (0.12)	−0.18 (0.12)	−0.41** (0.17)	−0.36* (0.19)	−0.33*** (0.09)
Common law	−0.02 (0.19)	−0.04 (0.24)	−0.12 (0.25)	−0.09 (0.24)	−0.04 (0.23)	0.06 (0.29)	−0.38 (0.31)	−0.14 (0.25)	−0.07 (0.24)	0.28 (0.23)	−0.08 (0.46)	−0.18 (0.27)
Log GDP per capita	−0.40** (0.15)											
Manufacturing (% GDP)		0.00 (0.01)										
Trade (% GDP)		−0.01*** (0.00)										
Natural resources (% GDP)		−0.00 (0.02)										
Voice			0.04 (0.16)									
Polity2				0.05** (0.02)								
Democracy					0.77** (0.29)							
Ethnic fractionalization						0.89 (0.69)						
Linguistic fractionalization						−0.6 (0.9)						

(Continues)

TABLE 4 | (Continued)

Dependent variable: regulation index	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Religious fractionalization						−0.36 (0.52)						
Partitioned							−0.00 (0.00)					
Transition								−0.24 (0.23)				
Trust									−0.25** (0.10)			
Catholic (% pop)										1.08** (0.38)		
Protestant (% pop)										0.20 (0.50)		
Muslim (% pop)										0.40 (0.36)		
Power distance											−0.00 (0.01)	
Masculinity											0.01 (0.01)	
Uncertainty avoidance											0.01* (0.00)	
Competition harmful												−0.10 (0.15)

(Continues)

TABLE 4 | (Continued)

Dependent variable: regulation index	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Left-right wing												0.15 (0.16)
Latitude	-0.00 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.02 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Landlocked	-0.33* (0.19)	-0.10 (0.23)	-0.12 (0.21)	0.04 (0.18)	0.02 (0.17)	0.03 (0.17)	-0.15 (0.20)	-0.07 (0.19)	-0.21 (0.18)	-0.09 (0.16)	-0.33 (0.53)	-0.15 (0.19)
Constant	0.21 (0.28)	0.91** (0.44)	0.36 (0.46)	0.12 (0.41)	-0.30 (0.41)	0.39 (0.50)	0.64 (0.56)	0.28 (0.45)	0.34 (0.40)	-0.47 (0.47)	-0.90 (0.72)	-0.10 (1.08)
# observations	92	91	94	88	94	91	75	94	94	92	59	91
Adj. R ²	0.43	0.41	0.31	0.35	0.37	0.34	0.24	0.32	0.34	0.37	0.32	0.31

Note: Regulation and individualism indices are standardized. Robust standard errors are clustered by country and reported in parentheses.

*** $p < 0.001$.

** $p < 0.05$.

* $p < 0.10$.

10, with 10 representing strong democracy (Polity V, Marshall and Gurr 2022). Lastly, a dichotomous *democracy* ranking from Przeworski (2000), updated in Cheibub et al. (2010), is included. A country is defined as democratic if elections are conducted, they are free and fair, and if the turnover of legislative and executive offices following those elections is peaceful. As seen in Columns (3–5), the inclusion of the democracy variables has little impact on the size or significance of the coefficients on individualism and the interaction term.

The next two columns address the potential influence of social composition on regulation. An important, if now somewhat dated literature, links the ethnic composition of a society, and in particular its ethnic fractionalization, to the quality of its institutions, laws, and policies (Easterly and Levine 1997). Furthermore, Alesina et al. (2003) find that ethnic, linguistic, and religious fractionalization explains institutional quality and economic productivity in a country.

Fractionalization may increase the strength of ethnic, religious, and linguistic identities, increasing the value of collectivism. If so, individualism could simply proxy for low levels of social fractionalization. We therefore include ethnic, linguistic, and religious fractionalization, which measure the probability that two randomly selected individuals from a country’s population will belong to the same ethnic, linguistic, or religious group, respectively. The indices range from 0 to 1. As shown in Column (6), none of these measures are significant, and their inclusion has little impact on the size or significance of the coefficient on the interaction term.

Column (7) adds an additional measure of ethnic composition, *partitioned*, which reflects the degree to which a country’s population belongs to an ethnic group that is partitioned by an international border (Alesina et al. 2011). Countries with highly partitioned populations are “artificial states” that may have difficulty pursuing efficient economic policies, including business regulation. The inclusion of this variable has little effect on individualism’s or the interaction term’s coefficient.

Alesina and Fuchs-Schündeln (2007) find that living under a communist government significantly increases the taste for government intervention across a wide variety of social issues. In addition, living under communism plausibly affects individualism, raising the possibility that results for our individualism measure in part reflect the influence of a country’s communist history. We address this concern by augmenting our baseline regression to include a transition economy dummy variable. As seen in Column (8), however, the transition measure is not significant, and its inclusion has little influence on the coefficient of the interaction term.

The final four columns include a variety of cultural variables. These specifications are designed to test whether the association between individualism and regulation is in fact driven by some omitted cultural factor. One such possibility involves the role of trust. As argued by Aghion et al. (2010), mistrust is systematically related to high levels of regulation. We address this argument in Column (9), by adding a measure of generalized trust as a regressor. Generalized trust is measured as the percentage of respondents answering “yes” to the question “most people can be

trusted,” collected from the IVS database. Consistent with Aghion et al. (2010), we find that the coefficient on trust is negative and significant at the 5% level. The interaction term remains significant.

Prior literature documents a strong causal relation between religion and regulation (Guiso et al. 2003). La Porta et al. (1999) argue that countries with high Catholic or Muslim populations are associated with inferior government performance. Furthermore, Islamic law tends to stifle business development and is critical of corporations; thus, a higher Muslim population may lead to stronger preferences for business regulation (Kuran 2004; Potrafke 2012). In addition, as pointed out in Davis (2021), the major religious traditions differ systematically in the degree to which they embrace individualist values. We therefore include the percentage of the population that is Protestant, Catholic or Muslim (McCleary and Barro 2006). Results are presented in Column (10). Although the coefficient on Catholic population share is positive and significant, the interaction term is robust to the inclusion of these religious controls.

Next, we include three dimensions of Hofstede's (2001) system of cultural values, which he referred to as power distance, masculinity, and uncertainty avoidance. Power distance measures the degree to which individuals accept that power is distributed unequally among various members of society. Masculinity reflects the emphasis in society on caring for others, solidarity, and quality of life (femininity), as opposed to achievement and success (masculinity). Uncertainty avoidance measures the degree to which members of society are comfortable in unstructured situations. As seen in Column (11), the interaction term is robust to the inclusion of these additional cultural variables.

Finally, it is possible that individualism may simply represent conservative economic or political ideology and these ideological factors, rather than individualism itself, drive changes in regulation. We therefore include proxies for the average level of a country's economic and political ideology collected from IVS. For economic ideology, we measure the degree to which respondents view economic competition as harmful. Our measure of political ideology is the average of respondents' self-reported position on a left-right political scale. Both measures are averaged across all waves in the IVS. As reported in Column (12), neither variable is significant and the coefficients on the interaction term and individualism remain significant.

Overall, our robustness checks incorporate a variety of economic, political, social, and cultural variables. Supporting the adaptability channel hypothesis, we find consistent evidence that individualism is associated with significantly lower levels of regulation in common law countries. In addition, the coefficient on individualism is both negative and significant in 9 of the 12 regressions examined in Table 4. This finding is consistent with the culture matters hypothesis and suggests that a social preference for lower levels of business regulation may influence regulatory outcomes through channels unrelated to a country's legal origins.

4.3 | Addressing the Endogeneity of Individualism

The preceding analysis is subject to two concerns related to the individualism index. One concern is that individualism, like many other survey-based variables, is subject to significant measurement

error. Indeed, various measures of individualism utilized in the economics literature tend to be modestly positively correlated with each other. Classical measurement error tends to attenuate coefficient estimates, and survey data is subject to a number of additional sources of measurement error that may bias estimates in either direction (Bertrand and Mullainathan 2001).

A second concern is that individualism is endogenous and potentially subject to a two-way association with regulation. For example, Alesina et al. (2015) argue that regulation may reduce economic mobility, which in turn may help to maintain traditional social structures, such as the extended family, that are closely related to collectivism (Davis and Williamson 2020). If so, then the OLS estimates presented above may be subject to endogeneity bias. In addition, La Porta et al. (2008, 309) holds that legal transplant involves not just institutions but human capital and “beliefs about how the law should deal with social problems.” This raises the possibility that cultural values are endogenous to the legal system. In either case, it is possible that the estimates presented above suffer from endogeneity bias.

We address these concerns using two estimation techniques. First, we estimate a series of two-stage least squares regression models in which we instrument for the two endogenous variables in the analysis, individualism and the interaction term. We begin by motivating two instruments used in the literature on individualism. As recommended by Wooldridge (2010), to address the endogeneity of the interaction term, we create two additional instruments by interacting the instruments for individualism with the common law dummy variable. One concern about this approach is that the interacted and non-interacted instruments are highly correlated by construction, which can result in weak instrument problems and inflate the standard errors for the endogenous variables (Pischke 2018). In light of this concern, as a robustness test, we also employ a control function (CF) estimator, as recommended for addressing endogeneity in nonlinear models (Ebbes et al. 2016; Wooldridge 2015). Control function techniques address endogeneity by first estimating the residuals from a first-stage regression, capturing the portion of the endogenous variable correlated with the error term, and then including those residuals as an additional regressor in the second-stage equation.

We use two instruments for individualism identified in the literature on the economics of culture, pronoun drop (Kashima and Kashima 1998; Davis and Abdurazokzoda 2016) and rainfall variation (Davis 2016). Pronoun drop refers to the grammatical rules of pronominal expression, which govern whether a speaker may drop a pronoun in subject position. Thus, for example, pronoun drop is permitted in Spanish, such that the English sentence “I speak” may be translated as either “Yo hablo” or simply “Hablo,” but it is not permitted in English, as the pronoun “I” is required to make sense of the sentence. In languages that permit pronoun drop, the identity of the subject is understood in the context of the rest of the sentence. In contrast, in languages that do not permit pronoun drop, the subject stands apart from the context. Pronoun drop is therefore associated with less individualist cultures.

Kashima and Kashima (1998) were the first to present empirical evidence of a relation between pronoun drop and measures

of individualism, and their work motivated the use of pronoun drop as an instrument for individualism by Licht et al. (2007), Tabellini (2008) and Davis and Williamson (2016). Here we use a version of this variable developed by Davis and Abdurazokzoda (2016), which is based on authoritative linguistic data from the World Atlas of Linguistic Structures. The variable pronoun drop equals the share of a country's population that speaks a language in which pronoun drop is permitted.

The second IV comes from Davis (2016), who finds that historic rainfall variation is negatively associated with contemporary measures of individualism. Preindustrial societies subject to high levels of rainfall variation may develop collectivist values to facilitate informal arrangements for sharing agricultural risk. Collectivist attitudes increase the disutility of reneging on a risk-sharing arrangement and thus allow individuals to credibly commit to greater transfers in the face of an adverse income shock. Davis (2016) finds a statistically significant negative relation between historical rainfall variation and contemporary levels of individualism. Moreover, this relation is robust to controlling for climatic, geographic and cultural variables.

Our measure of rainfall variation is taken from Davis (2016) and equals the natural log of the coefficient of variation of intertemporal monthly rainfall levels over the period from 1900 to 2009. To account for global migration, we adjust historic rainfall variation using ancestry data from Putterman and Weil (2010), to generate a measure of *ancestral rainfall variation*.

Following Wooldridge (2010), to address the endogeneity of the interaction term, we create two additional instruments by interacting *ancestral rainfall variation* and *pronoun drop* with the common law dummy variable. First-stage regressions for individualism and the interaction term employ all four instruments. The estimated equations are as follows:

$$\text{regulation}_i = \alpha_1 + \beta_1 \text{individualism}_i + \gamma_1 \text{common}_i + \delta_1 \text{individualism}_i * \text{common}_i + \theta_1 X_i + \varepsilon_{i1} \quad (1)$$

$$\text{individualism}_i = \alpha_2 + \beta_2 Z_i + \delta_2 Z_i * \text{common}_i + \gamma_2 \text{common}_i + \theta_2 X_i + \varepsilon_{i2} \quad (2)$$

$$\text{individualism}_i * \text{common}_i = \alpha_3 + \beta_3 Z_i + \delta_3 Z_i * \text{common}_i + \gamma_3 \text{common}_i + \theta_3 X_i + \varepsilon_{i3} \quad (3)$$

where Z_i is a vector of instruments for individualism. This system of equations is estimated using two-stage least squares in which the Equations (2) and (3) are first-stage equations for the endogenous variables, individualism_i and $\text{individualism}_i * \text{common}_i$, and Z_i and $Z_i * \text{common}_i$ are instruments excluded from the second-stage regression specified in Equation (1).

First stage results for individualism and the interaction term are shown in Table 5, Panels A and B, respectively. In our baseline regressions, shown in Column (1), Panel A, all four instruments

are significant determinants of individualism. In addition, at least one of the four instruments is significant at the 5% level in each of the remaining regressions. As seen in Panel B, the interacted instruments are significant determinants of the interaction term in all five specifications.

Second stage results for our baseline model are shown in Column (1) of Table 6. The coefficient on the interaction term is negative and significant at the 5% level. Thus, business regulation is significantly lower in common law countries in which the exogenous component of individualism is higher, and regulation is higher in common law countries for which the exogenous component of culture is sufficiently collectivist. The estimated coefficient in the IV specification is significantly larger than the corresponding OLS estimate and implies that a one-standard deviation increase in the interaction term decreases regulation by over one standard deviation. This finding is consistent with a significant role for measurement error in the individualism variable and is a common finding in the empirical literature investigating the impact of individualism. See, for example, Gorodnichenko and Roland (2011) on individualism and per capita income, Davis and Williamson (2016) on individualism and the regulation of entry, and Davis (2025) on individualism and LGBT rights. Note also that the coefficient on the standalone measure of individualism is not significant in this specification. Thus, controlling for endogeneity, there is no evidence that culture influences business regulation in civil law countries.⁴

The final rows of Table 5, Panels A and B, report the first-stage F -statistic for the two endogenous variables, which is an indicator of instrument strength. As seen, the F -statistic for the first stage involving the interaction term is quite close to the threshold for concern over weak instrument bias. Table 6 provides p values for Hansen J chi-squared test of overidentifying restrictions. This test provides no basis for concern over the validity of our instruments. Because overidentifying restrictions tests are known to have low power, we also consider a number of possible challenges to instrumental validity suggested by the literature.

First, we include two variables that have previously been linked to rainfall variation. Buggle and Durante (2021) report that trust is higher in regions characterized by higher levels of rainfall variation, while Ager and Ciccone (2018) find that rates of religious attendance are greater in US counties with greater rainfall variation, an outcome that may reflect the insurance properties of religious communities. Data on religious attendance is collected from the IVS question: How often do you attend religious services? We average respondents' answers coded from 1 (*never*) to 8 (*more than once a week*). As seen in Columns (2) and (3) of Table 6, neither trust nor religious attendance is significant in the IV specification and the coefficient on the interaction term is robust to the inclusion of these controls.

A different concern arises with regard to the validity of pronoun drop. In particular, two global languages in which pronoun drop is permitted, Arabic and Spanish, are also closely associated with major world religions, Islam and Catholicism. As shown by Davis (2021), these religions are systematically associated with collectivism. As a result, it is possible that the impact of pronoun drop in part reflects the influence of these religions on patterns

TABLE 5 | Regulation and culture and law interactions, first-stage results.

Panel A. Dependent variable: individualism					
	(1)	(2)	(3)	(4)	(5)
Pronoun drop	−0.69*** (0.19)	−0.46** (0.17)	−0.59** (0.18)	−0.56** (0.18)	−0.55** (0.21)
Ancestry adj. rainfall variation	−0.73*** (0.21)	−0.66** (0.19)	−0.60** (0.21)	−0.25 (0.23)	−0.43 (0.29)
Common law*pronoun drop	0.92*** (0.26)	1.03*** (0.29)	0.63** (0.25)	0.54* (0.28)	0.50 (0.35)
Common law*rainfall variation	−0.75** (0.31)	−0.51* (0.27)	−0.40 (0.30)	−0.87** (0.27)	−0.57* (0.33)
Common law	0.04 (0.14)	−0.03 (0.14)	0.20 (0.13)	0.12 (0.15)	0.22 (0.22)
Trust		0.35*** (0.10)			
Religious attendance			0.27** (0.08)		
Catholic (% pop)				0.15 (0.29)	
Muslim (% pop)				−0.76** (0.24)	
Regional controls					Yes
Latitude	0.03*** (0.00)	0.02*** (0.01)	0.02*** (0.00)	0.04*** (0.00)	0.04*** (0.01)
Landlocked	0.08 (0.18)	0.16 (0.16)	0.14 (0.19)	0.13 (0.16)	0.13 (0.26)
Constant	−1.19*** (0.12)	−0.85*** (0.19)	−1.94*** (0.25)	−1.15*** (0.25)	−1.43*** (0.28)
# observations	75	75	75	74	75
F-stat excluded instruments	19.31	11.46	12.92	12.99	9.17
Panel B. Dependent variable: common law*individualism					
	(1)	(2)	(3)	(4)	(5)
Pronoun drop	−0.05 (0.04)	−0.01 (0.04)	−0.03 (0.04)	−0.01 (0.06)	0.03 (0.04)
Ancestry adj. rainfall variation	0.27** (0.11)	0.29** (0.11)	0.31** (0.12)	0.42** (0.16)	0.47** (0.16)
Common law*pronoun drop	0.36 (0.26)	0.38 (0.27)	0.28 (0.26)	0.23 (0.28)	0.03 (0.30)
Common law*rainfall variation	−1.95*** (0.34)	−1.91*** (0.33)	−1.85*** (0.33)	−1.99*** (0.32)	−1.59*** (0.41)

(Continues)

TABLE 5 | (Continued)

Panel B. Dependent variable: common law*individualism					
	(1)	(2)	(3)	(4)	(5)
Common law	−0.36** (0.12)	−0.37** (0.12)	−0.31** (0.11)	−0.32** (0.11)	−0.20 (0.19)
Trust		0.07 (0.04)			
Religious attendance			0.07** (0.04)		
Catholic (% pop)				0.09 (0.10)	
Muslim (% pop)				−0.22 (0.14)	
Regional controls					Yes
Latitude	0.01** (0.00)	0.01** (0.00)	0.01** (0.00)	0.01** (0.00)	0.02** (0.01)
Landlocked	−0.07 (0.09)	−0.06 (0.09)	−0.06 (0.09)	−0.05 (0.10)	0.10 (0.08)
Constant	−0.31** (0.10)	−0.24** (0.10)	−0.52** (0.18)	−0.32** (0.13)	−0.70** (0.23)
# observations	75	75	75	74	75
F-stat excluded instruments	9.28	8.98	9.11	10.98	4.84

Note: Regulation and individualism indices are standardized. Robust standard errors are clustered by country and reported in parentheses.

*** $p < 0.001$.

** $p < 0.05$.

* $p < 0.10$.

of business regulation. To see if this is the case, we augment our baseline model to include variables measuring the share of a country's population that adheres to Catholicism and Islam. Results are shown in Column (4). Although the Catholic population share is significantly associated with greater regulation, the inclusion of these variables has little impact on the coefficient of the interaction term.

A final concern is that weather patterns, languages, and legal systems are not randomly distributed across the globe, raising the question of whether the results are driven in part by omitted regional variables that are correlated with our instruments. To address this concern, we augment the baseline model to include the familiar set of 10 regional dummy variables. As seen in Column (5), the coefficient on the interaction term is significant at the 5% level in this specification, though the inclusion of the regional dummy variables reduces the estimated coefficient on the interaction term by roughly one third. Our IV results suggest that the findings of the baseline model are driven more by inter-regional than intraregional variation in individualism and legal origin. In addition, as seen in Table 5, Panel B, the first-stage F -statistic indicates there may be some concern over weak instrument bias in this specification, which reduces our confidence in the coefficient estimate.

The final column of Table 6 shows the results for our baseline model using a control function approach. This approach addresses concerns over weak IVs and inflated standard errors due to the construction of the instruments. As seen, the results are identical to those from two-stage least squares. The interaction term's coefficient is statistically significant, and individualism's coefficient is insignificant, reinforcing the robustness of our findings.⁵ The control function coefficients (first-stage residuals) indicate that individualism is not significantly endogenous ($p = 0.53$), but the interaction term is endogenous at the 5% level ($p = 0.03$), supporting the use of IV analysis.

Overall, the IV regression results provide strong support for the idea that law and culture interact. In particular, we find consistent evidence that business regulation is lower in more individualist countries with common law legal systems. Our findings suggest that a country's legal system plays a central role in determining whether social preferences over the intensity of regulation are reflected in actual regulatory structures, providing support for the *adaptability hypothesis*. In the IV regressions, we do not find consistent evidence that individualism matters for the intensity of business regulation in countries with a civil law legal origin. These findings are robust to the use of controls to address a wide array of concerns over

TABLE 6 | Regulation and culture and law interactions, second-stage results.

Dependent variable: regulation index	(1)	(2)	(3)	(4)	(5)	(6)
Common law*individualism	−1.03** (0.31)	−0.96** (0.32)	−1.01** (0.33)	−1.09*** (0.30)	−0.66** (0.31)	−1.03** (0.31)
Individualism	−0.18 (0.22)	−0.08 (0.28)	−0.15 (0.24)	−0.11 (0.36)	0.08 (0.32)	−0.18 (0.22)
Common law	−0.30 (0.32)	−0.26 (0.32)	−0.32 (0.32)	0.09 (0.28)	−0.45 (0.28)	−0.30 (0.32)
Trust		−0.24 (0.16)				
Religious attendance			−0.04 (0.14)			
Catholic (% pop)				1.33** (0.43)		
Muslim (% pop)				0.74 (0.49)		
Regional controls					Yes	
Latitude	−0.01 (0.01)	−0.01 (0.01)	−0.01 (0.02)	−0.00 (0.02)	−0.02 (0.02)	−0.01 (0.01)
Landlocked	−0.24 (0.20)	−0.30 (0.21)	−0.25 (0.20)	−0.14 (0.18)	−0.05 (0.21)	−0.24 (0.20)
Constant	0.51 (0.60)	0.41 (0.57)	0.67 (0.72)	−0.41 (0.63)	0.76 (0.60)	0.51 (0.60)
# observations	75	75	75	74	75	75
Adj. R^2	0.20	0.23	0.19	0.27	0.38	0.18
Hansen J 's p value	0.14	0.09	0.14	0.25	0.29	0.30
Control function individualism						−0.15
Control function common law*individualism						1.15**

Note: Regulation and individualism indices are standardized. Individualism and common law*individualism are instrumented with pronoun drop, ancestry-adjusted rainfall variation, common law*pronoun drop and common law*ancestry-adjusted rainfall variation. Robust standard errors are clustered by country and reported in parentheses.

*** $p < 0.001$.

** $p < 0.05$.

instrumental validity identified in the literature. However, it is possible that our instruments are correlated with some unobserved dimension of institutions that affect regulation through other channels.

5 | Examining Legal Channels of Influence

The preceding evidence is consistent with the claim that regulation in common law countries is more responsive to cultural values, at least as far as individualism and collectivism are concerned. One question the analysis above does not address is why, exactly, this is so. Our theoretical framework proposes that common law amplifies individualism's deregulatory effect through

greater adaptability, enabled by decentralized adjudication, judge-made precedent, and judicial discretion, which facilitate the incorporation of societal preferences into legal outcomes. In contrast, civil law's rigid codes and centralized structure constrain such flexibility.

To test these mechanisms, we disaggregate the regulation index by type (private versus public, court-involved versus administrative) and examine interactions with specific legal features (judicial review, case law, and legal justification). These tests help distinguish whether the culture-law interaction varies with regulatory domains or institutional legal traits, providing evidence on how common law channels cultural preferences into reduced regulation.

TABLE 7 | Regulation and culture and law interactions, channels of influence.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Private regulation index	Public regulation index	Court involved regulation	Less court involved regulation	Regulation index	Regulation index	Regulation index
Common law*individualism	−0.62** (0.21)	−0.52** (0.19)	−0.70** (0.22)	−0.40** (0.17)			
Individualism	−0.32** (0.10)	−0.32** (0.11)	−0.25** (0.11)	−0.37*** (0.09)	−0.53** (0.19)	−0.73*** (0.18)	−0.37 (0.26)
Common law	−0.19 (0.25)	−0.09 (0.26)	−0.14 (0.26)	−0.06 (0.25)			
Judicial review* individualism					−0.26** (0.11)		
Judicial review					0.40** (0.17)		
Case law* individualism						0.04 (0.23)	
Case law						−0.38 (0.34)	
Legal justification* individualism							−0.12 (0.30)
Legal justification							0.74* (0.39)
Latitude	−0.01 (0.01)	−0.01 (0.01)	−0.01 (0.01)	−0.01 (0.01)	0.02 (0.01)	0.00 (0.02)	−0.02 (0.01)
Landlocked	−0.28 (0.18)	−0.08 (0.20)	−0.33* (0.19)	0.02 (0.19)	0.28 (0.23)	0.14 (0.27)	0.26 (0.20)
Constant	0.40 (0.37)	0.30 (0.42)	0.50 (0.36)	0.19 (0.45)	−0.89* (0.53)	0.27 (0.70)	−0.03 (0.40)
# observations	94	94	94	94	54	54	73
Adj. R^2	0.31	0.25	0.33	0.23	0.40	0.36	0.32

Note: Regulation and individualism indices are standardized. Robust standard errors are clustered by country and reported in parentheses.

*** $p < 0.001$.

** $p < 0.05$.

* $p < 0.10$.

Results are presented in Table 7. We first test for differences between private regulations, involving primarily private actors, and public regulations, entailing significant government interactions. Columns (1) and (2) show the individualism–common law interaction is negative and significant at the 5% level for both, with coefficients of −0.62 (private) and −0.52 (public). These findings indicate the adaptability effect holds across domains, though slightly stronger for private regulations. While the public regulation result aligns with hypotheses of greater flexibility through regulatory discretion and jurisdictional dualism in common law, the lack of significant difference between private and public adaptability implies the latter does not drive our overall findings.

To assess courts' role in the regulatory domain, Columns (3) and (4) divide regulations into court-involved, where judicial processes are central, and less court-involved, which we view as primarily administrative. The interaction term is significant in both estimations but larger for court-involved (−0.70) than less court-involved (−0.40), indicating adaptability is more pronounced in judicially intensive areas.

To further investigate the mechanisms at work here, we shift from the common law indicator and interact individualism with three specific legal features: judicial review, case law, and legal justification. Judicial review measures the power of judges

to review the constitutionality of laws. The variable equals 2 if there is full review, equals 1 if there is limited review, and 0 if there is no review of the constitutionality of laws. Case law is an indicator variable equal to 1 if judicial decisions are a source of law, 0 otherwise. Data for both judicial review and case law are collected from La Porta et al. (2004). Legal justification is an index measuring the level of legal reasoning required in the legal process. The index ranges from 0 to 1, where higher values mean a higher use of legal language or justification. Data are collected from Djankov, La Porta, et al. (2003) and Djankov, Glaeser, et al. (2003).

In these estimations, we drop common law as the primary measure of legal institutions and instead incorporate judicial review, case law, and legal justification as the legal mechanism. The coefficient for judicial review's interaction term (Column 5) is negative and significant, suggesting stronger judicial review enhances individualism's deregulatory effect. In Column (6), the interaction with case law is insignificant, suggesting that the adaptability of common law may not depend on precedent-setting. Similarly, in Column (7), the interaction with legal justification is insignificant, indicating that legal justification is not a primary channel for the interaction effect.

By shifting from the broad common law indicator to specific legal features, we refine our analysis to specific mechanisms mediating the culture-regulation connection. These findings clarify how common law amplifies individualism while highlighting the difficulty in empirically disentangling bundled legal transplants.

6 | Conclusion

We present evidence that culture and law interact to determine business regulation. Specifically, individualism consistently reduces regulation, with this effect amplified in common law countries. This result holds across various regulations and is robust to controls for economic, political, ethnic, historical, religious, and cultural factors, as well as IV methods. IV estimates suggest OLS results are biased toward zero, a finding that is consistent with attenuation bias due to classical measurement error.

To unpack these mechanisms, we disaggregate regulations and test specific legal features. The individualism-common law interaction is negative and significant for both private and public regulation, showing adaptability extends beyond public domains, though slightly more pronounced in court-involved areas—highlighting greater cultural sensitivity where judicial processes predominate. Interacting individualism with judicial review yields a significant effect. Contrary to expectations, interactions with case law and legal justification are insignificant; however, given data limitations, we do not overemphasize these non-findings. Overall, the results affirm common law's adaptability while underscoring challenges in isolating institutional effects.

We interpret these findings as supporting the adaptability channel hypothesis: Common law countries are more responsive to cultural preferences for optimal regulatory policy than civil law countries. These findings present a substantial advancement

within the predominant legal origins perspectives concerning the determination of regulation. First, holding the level of individualism constant, we do not find that regulation is systematically lighter in common law countries, which supports prior works criticizing legal origins theory. This presents an important challenge to the empirical relevance of the political channel, and in doing so, echoes previous findings by Beck et al. (2003).

Moreover, our findings refine the adaptability channel. While the adaptability channel posits that common law's jurisprudence enables local influences on legal evolution, existing literature overlooks which environmental aspects direct this change. Our evidence suggests cultural values—reflected in individualism-collectivism—can shape law's evolution in common law countries, with stronger effects in court-involved regulations where judicial processes dominate. Judicial review appears key, though not necessarily jurisprudence or legal reasoning, highlighting the bundled and multifaceted nature of legal adaptability.

Similar to other studies on the economics of culture, identifying precise policy implications is challenging. Policymakers face constraints in addressing broader economic phenomena as culture evolves slowly and is potentially difficult to change. Additionally, policymakers need to exercise prudence when anticipating benefits from transferring formal institutions as the functioning of legal systems depends on the cultural context.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Endnotes

¹ Prior works demonstrate that culture and common law interact to reduce entry regulation (Davis and Williamson 2016, 2018) and labor regulation (Ang and Fredriksson 2018). Their interaction increases women's rights (Davis and Williamson 2022) and financial development (Ang 2019). Chang (2023) examines how individualism and legal families interact to influence property law.

² The impact of legal origin on property rights may be gendered. Anderson (2018) finds that in sub-Saharan Africa, the common law tradition undermines women's marital property rights, reducing their bargaining power over safe sex and increasing their likelihood of contracting AIDS.

³ We are aware of criticisms of legal origins theory emphasizing the way in which legal systems historically were transplanted may be more important than a country's legal system's origin (see, Berkowitz et al. 2003a, 2003b). We continue to employ the legal origin dummy variable, however, due to its exogeneity. In addition, our focus is on adaptability of legal systems not quality of legal rules adopted as in Bradford et al. (2021), for example.

⁴ This finding is confirmed if one conducts IV analysis of the common law and civil law subsamples. Results are available upon request.

⁵ Our findings are similar using a simultaneous equations framework. Results are available from the authors.

References

- Ager, P., and A. Ciccone. 2018. "Agricultural Risk and the Spread of Religious Communities." *Journal of the European Economic Association* 16, no. 4: 1021–1068.
- Aghion, P., Y. Algan, P. Cahuc, and A. Shleifer. 2010. "Regulation and Distrust." *Quarterly Journal of Economics* 125, no. 3: 1015–1049.
- Alesina, A., Y. Algan, P. Cahuc, and P. Giuliano. 2015. "Family Values and the Regulation of Labor." *Journal of the European Economic Association* 13, no. 4: 599–630.
- Alesina, A., A. Devleeschauwer, W. Easterly, S. Kurlat, and R. Wacziarg. 2003. "Fractionalization." *Journal of Economic Growth* 8, no. 2: 155–194.
- Alesina, A., W. Easterly, and J. Matuszeski. 2011. "Artificial States." *Journal of the European Economic Association* 9, no. 2: 246–277.
- Alesina, A., and N. Fuchs-Schündeln. 2007. "Good-Bye Lenin (or Not?): The Effect of Communism on People's Preferences." *American Economic Review* 97, no. 4: 1507–1528.
- Alfaro, L., A. Auerbach, M. Cárdenas, T. Ito, S. Kalemli-Özcan, and J. Sandefur. 2021. *Doing Business: External Panel Review*. World Bank.
- Anderson, S. 2018. "Legal Origins and Female HIV." *American Economic Review* 108, no. 6: 1407–1439.
- Ang, J. B. 2019. "Culture, Legal Origins, and Financial Development." *Economic Inquiry* 57, no. 2: 1016–1037.
- Ang, J. B., and P. G. Fredriksson. 2018. "Culture, Legal Heritage and the Regulation of Labor." *Journal of Comparative Economics* 46, no. 2: 616–633.
- Arruñada, B. 2007. "Pitfalls to Avoid When Measuring Institutions: Is Doing Business Damaging Business?" *Journal of Comparative Economics* 35, no. 4: 729–747.
- Arruñada, B. 2009. "How Doing Business Jeopardizes Institutional Reform." *European Business Organization Law Review* 10, no. 4: 555–574.
- Basu, K. 2018. *The Ease of Doing Business Comes With Trade-Offs*. Brookings Institution.
- Beck, T., A. Demirgüç-Kunt, and R. Levine. 2003. "Law and Finance: Why Does Legal Origin Matter?" *Journal of Comparative Economics* 31, no. 4: 653–675.
- Berkowitz, D., and K. Clay. 2011. *The Evolution of a Nation: How Geography and Law Shaped the American States*. Princeton University Press.
- Berkowitz, D., K. Pistor, and J. F. Richard. 2003a. "The Transplant Effect." *American Journal of Comparative Law* 51, no. 1: 163–203.
- Berkowitz, D., K. Pistor, and J. F. Richard. 2003b. "Economic Development, Legality, and the Transplant Effect." *European Economic Review* 47, no. 1: 165–195.
- Bertrand, M., and S. Mullainathan. 2001. "Do People Mean What They Say? Implications for Subjective Survey Data." *American Economic Review* 91, no. 2: 67–72.
- Besley, T., and R. Burgess. 2004. "Can Labor Regulation Hinder Economic Performance? Evidence From India." *Quarterly Journal of Economics* 119, no. 1: 91–134.
- Besley, T. 2015. "Law, Regulation, and the Business Climate: The Nature and Influence of the World Bank Doing Business Project." *Journal of Economic Perspectives* 29, no. 3: 99–120.
- Beugelsdijk, S., R. Maseland, and A. Van Hoorn. 2015. "Are Scores on Hofstede's Dimensions of National Culture Stable Over Time? A Cohort Analysis." *Global Strategy Journal* 5, no. 3: 223–240.
- Botero, J. C., S. Djankov, R. La Porta, F. Lopez-de-Silanes, and A. Shleifer. 2004. "The Regulation of Labor." *Quarterly Journal of Economics* 119, no. 4: 1339–1382.
- Bradford, A., Y. C. Chang, A. Chilton, and N. Garoupa. 2021. "Do Legal Origins Predict Legal Substance?" *Journal of Law and Economics* 64, no. 2: 207–231.
- Brown, L. N., J. Bell, and J. M. Galabert. 1998. *French Administrative Law*. Oxford University Press.
- Buggle, J. C., and R. Durante. 2021. "Climate Risk, Cooperation and the Co-Evolution of Culture and Institutions." *Economic Journal* 131, no. 637: 1947–1987.
- Chang, Y. C. 2023. *Property Law: Comparative, Empirical, and Economic Analyses*. Cambridge University Press.
- Cheibub, J. A., J. Gandhi, and J. R. Vreeland. 2010. "Democracy and Dictatorship Revisited." *Public Choice* 143, no. 1–2: 67–101.
- Chrystal, K. A., and P. D. Mizen. 2003. "Goodhart's Law: Its Origins, Meaning and Implications for Monetary Policy." In *Central Banking, Monetary Theory and Practice: Essays in Honour of Charles Goodhart*, edited by P. D. Mizen, vol. 1, 221–243. Edward Elgar.
- Cline, B. N., and C. R. Williamson. 2016. "Trust and the Regulation of Corporate Self-Dealing." *Journal of Corporate Finance* 41: 572–590.
- Cline, B. N., and C. R. Williamson. 2017. "Individualism, Democracy, and Contract Enforcement." *Journal of Corporate Finance* 46: 284–306.
- Cline, B. N., C. R. Williamson, and H. Xiong. 2021. "Culture and the Regulation of Insider Trading Across Countries." *Journal of Corporate Finance* 67: 101917.
- Cooley, T., R. Marimon, and V. Quadrini. 2004. "Aggregate Consequences of Limited Contract Enforceability." *Journal of Political Economy* 112, no. 4: 817–847.
- Cumming, D., and A. Knill. 2012. "Disclosure, Venture Capital and Entrepreneurial Spawning." *Journal of International Business Studies* 43, no. 6: 563–590.
- Dabla-Norris, E., M. Gradstein, and G. Inchauste. 2008. "What Causes Firms to Hide Output? The Determinants of Informality." *Journal of Development Economics* 85, no. 1–2: 1–27.
- Davis, K. E., and M. B. Kruse. 2007. "Taking the Measure of Law: The Case of the Doing Business Project." *Law & Social Inquiry* 32, no. 4: 1095–1119.
- Davis, L. S. 2016. "Individual Responsibility and Economic Development: Evidence From Rainfall Data." *Kyklos* 69, no. 3: 426–470.
- Davis, L. S. 2021. "On the Origin of Religious Values: Does Italian Weather Affect Individualism in Bolivia?" *Journal of Economics, Management and Religion* 2, no. 2: 2150005.
- Davis, L. S., and F. Abdurazokzoda. 2016. "Language, Culture and Institutions: Evidence From a New Linguistic Dataset." *Journal of Comparative Economics* 44, no. 3: 541–561.
- Davis, L. S., and C. R. Williamson. 2016. "Culture and the Regulation of Entry." *Journal of Comparative Economics* 44, no. 4: 1055–1083.
- Davis, L. S., and C. R. Williamson. 2018. "Open Borders for Business? Causes and Consequences of the Regulation of Foreign Entry." *Southern Economic Journal* 85, no. 2: 508–536.
- Davis, L. S., and C. R. Williamson. 2019. "Does Individualism Promote Gender Equality?" *World Development* 123: 104627.
- Davis, L. S., and C. R. Williamson. 2020. "Cultural Roots of Family Ties." *Journal of Institutional Economics* 16, no. 6: 785–808.
- Davis, L. S., and C. R. Williamson. 2022. "Individualism and Women's Economic Rights." *Journal of Economic Behavior & Organization* 198: 579–597.
- Davis, L. 2025. "Cultural Foundations of Lesbian, Gay, and Bisexual Rights." *Journal of Economic Behavior and Organization* 237: 107183.
- De Mel, S., D. McKenzie, and C. Woodruff. 2013. "The Demand for, and Consequences of, Formalization Among Informal Firms in Sri Lanka." *American Economic Journal: Applied Economics* 5, no. 2: 122–150.

- Djankov, S. 2009. "The Regulation of Entry: A Survey." *World Bank Research Observer* 24, no. 2: 183–203.
- Djankov, S., E. Glaeser, R. La Porta, F. Lopez-de-Silanes, and A. Shleifer. 2003. "The New Comparative Economics." *Journal of Comparative Economics* 31, no. 4: 595–619.
- Djankov, S., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer. 2002. "The Regulation of Entry." *Quarterly Journal of Economics* 117, no. 1: 1–37.
- Djankov, S., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer. 2003. "Courts." *Quarterly Journal of Economics* 118, no. 2: 453–517.
- Djankov, S., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer. 2008. "The Law and Economics of Self-Dealing." *Journal of Financial Economics* 88, no. 3: 430–465.
- Dutta, N., L. Giddings, and R. S. Sobel. 2021. "Does Trust Always Help Gender Role Attitudes? The Role of Individualism and Collectivism." *Social Indicators Research* 159, no. 1: 379–408.
- Easterly, W., and R. Levine. 1997. "Africa's Growth Tragedy: Policies and Ethnic Divisions." *Quarterly Journal of Economics* 112, no. 4: 1203–1250.
- Ebbes, P., D. Papies, and H. J. van Heerde. 2016. "Dealing With Endogeneity: A Nontechnical Guide for Marketing Researchers." In *Handbook of Market Research*, edited by C. Homburg, M. Klarmann, and A. Vomberg, 1–37. Springer International Publishing.
- Geginat, C., and R. Ramalho. 2018. "Electricity Connections and Firm Performance in 183 Countries." *Energy Economics* 76: 344–366.
- Glaeser, E. L., and A. Shleifer. 2002. "Legal Origins." *Quarterly Journal of Economics* 117, no. 4: 1193–1229.
- Gorodnichenko, Y., and G. Roland. 2011. "Which Dimensions of Culture Matter for Long-Run Growth?" *American Economic Review* 101, no. 3: 492–498.
- Gorodnichenko, Y., and G. Roland. 2012. "Understanding the Individualism-Collectivism Cleavage and Its Effects: Lessons From Cultural Psychology." In *Institutions and Comparative Economic Development*, edited by M. Aoki, T. Kuran, and G. Roland, 213–236. Palgrave Macmillan.
- Gorodnichenko, Y., and G. Roland. 2021. "Culture, Institutions and Democratization." *Public Choice* 187, no. 1–2: 165–195.
- Guan, L., and H. Pourjalali. 2010. "Effect of Cultural Environmental and Accounting Regulation on Earnings Management: A Multiple Year-Country Analysis." *Asia-Pacific Journal of Accounting & Economics* 17, no. 2: 99–127.
- Guiso, L., P. Sapienza, and L. Zingales. 2003. "People's Opium? Religion and Economic Attitudes." *Journal of Monetary Economics* 50, no. 1: 225–282.
- Gwartney, J., R. Robert Lawson, and R. Murphy. 2024. "Economic Freedom Dataset." In *Economic Freedom of the World: 2024 Annual Report*. Fraser Institute.
- Haerpfer, C., R. Inglehart, A. Moreno, et al. 2021. *World Values Survey Time-Series (1981–2020) Cross-National Data-Set. Version 2.0.0*. JD Systems Institute.
- Hall, R. E., and C. I. Jones. 1999. "Why Do Some Countries Produce So Much More Output Per Worker Than Others?" *Quarterly Journal of Economics* 114, no. 1: 83–116.
- Hao, W. 2022. *The Numbers Don't Lie, or Do They? Measuring Justice With the World Bank's 'Doing Business' Indicators*. McGill Business Law Platform.
- Hayek, F. A. 1945. "The Use of Knowledge in Society." *American Economic Review* 35, no. 4: 519–530.
- Hayek, F. A. 1960. *The Constitution of Liberty*. University of Chicago Press.
- Hofstede, G. 2001. *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations*. Sage Publications.
- Hyland, M., S. Djankov, and P. K. Goldberg. 2020. "Gendered Laws and Women in the Workforce." *American Economic Review: Insights* 2, no. 4: 475–490.
- Kashima, E. S., and Y. Kashima. 1998. "Culture and Language: The Case of Cultural Dimensions and Personal Pronoun Use." *Journal of Cross-Cultural Psychology* 29, no. 3: 461–486.
- Kaufmann, D., and A. Kraay. 2021. *Worldwide Governance Indicators*. World Bank.
- Kaufmann, D., A. Kraay, and M. Mastruzzi. 2011. "The Worldwide Governance Indicators: Methodology and Analytical Issues." *Hague Journal on the Rule of Law* 3, no. 2: 220–246.
- Klerman, D. M., P. G. Mahoney, H. Spamann, and M. I. Weinstein. 2011. "Legal Origin or Colonial History?" *Journal of Legal Analysis* 3, no. 2: 379–409.
- Kuran, T. 2004. "Why the Middle East Is Economically Underdeveloped: Historical Mechanisms of Institutional Stagnation." *Journal of Economic Perspectives* 18, no. 3: 71–90.
- La Porta, R., F. Lopez-de-Silanes, C. Pop-Eleches, and A. Shleifer. 2004. "Judicial Checks and Balances." *Journal of Political Economy* 112, no. 2: 445–470.
- La Porta, R., F. Lopez-de-Silanes, and A. Shleifer. 2008. "The Economic Consequences of Legal Origins." *Journal of Economic Literature* 46, no. 2: 285–332.
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. Vishny. 1999. "The Quality of Government." *Journal of Law, Economics, and Organization* 15, no. 1: 222–279.
- Lewans, M. 2016. *Administrative Law and Judicial Deference*. Hart Publishing.
- Licht, A., C. Goldschmidt, and S. H. Schwartz. 2007. "Culture Rules: The Foundations of the Rule of Law and Other Norms of Governance." *Journal of Comparative Economics* 35, no. 4: 659–688.
- Lu, Y., and Z. Tao. 2009. "Contract Enforcement and Family Control of Business: Evidence From China." *Journal of Comparative Economics* 37, no. 4: 597–609.
- Marshall, M. G., and T. R. Gurr. 2022. *Polity5: Political Regime Characteristics and Transitions, 1800–2018. Dataset Users' Manual*. Center for Systemic Peace.
- McCleary, R. M., and R. J. Barro. 2006. "Religion and Economy." *Journal of Economic Perspectives* 20, no. 2: 49–72.
- McCormack, G. 2018. "Why 'Doing Business' With the World Bank May Be Bad for You." *European Business Organization Law Review* 19, no. 4: 649–676.
- Nikolaev, B., and R. Salahodjaev. 2017. "Historical Prevalence of Infectious Diseases, Cultural Values, and the Origins of Economic Institutions." *Kyklos* 70, no. 1: 97–128.
- Nunn, N. 2007. "Relationship-Specificity, Incomplete Contracts, and the Pattern of Trade." *Quarterly Journal of Economics* 122, no. 2: 569–600.
- Olson, M. 1982. *The Rise and Decline of Nations: Economic Growth, Stagflation, and Social Rigidities*. Yale University Press.
- Ostrom, E. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press.
- Oto-Peralías, D., and D. Romero-Ávila. 2014a. "The Distribution of Legal Traditions Around the World: A Contribution to the Legal-Origins Theory." *Journal of Law and Economics* 57, no. 3: 561–628.
- Oto-Peralías, D., and D. Romero-Ávila. 2014b. "Legal Traditions and Initial Endowments in Shaping the Path of Financial Development." *Journal of Money, Credit and Banking* 46, no. 1: 43–77.

- Oto-Peralías, D., and D. Romero-Ávila. 2017. *Colonial Theories of Institutional Development: Toward a Model of Styles of Imperialism*. Springer.
- Pinotti, P. 2012. "Trust, Regulation and Market Failures." *Review of Economics and Statistics* 94, no. 3: 650–658.
- Pischke, J.-S. 2018. "Weak Instruments." In *Lecture Slides*. London School of Economics.
- Posner, R. A. 1977. "Gratuitous Promises in Economics and Law." *Journal of Legal Studies* 6, no. 2: 411–426.
- Potrafke, N. 2012. "Islam and Democracy." *Public Choice* 151, no. 1–2: 185–192.
- Przeworski, A. 2000. *Democracy and Development: Political Institutions and Well-Being in the World, 1950–1990*. Cambridge University Press.
- Putterman, L., and D. N. Weil. 2010. "Post-1500 Population Flows and the Long-Run Determinants of Economic Growth and Inequality." *Quarterly Journal of Economics* 125, no. 4: 1627–1682.
- Rajan, R. G., and L. Zingales. 2003. "The Great Reversals: The Politics of Financial Development in the Twentieth Century." *Journal of Financial Economics* 69, no. 1: 5–50.
- Rivera-Rozo, J. J., M. M. García-Huitrón, O. O. Steenbeek, and S. F. van der Lecq. 2018. "National Culture and the Configuration of Public Pensions." *Journal of Comparative Economics* 46, no. 2: 457–479.
- Roe, M. J. 2006. "Legal Origins, Politics, and Modern Stock Markets." *Harvard Law Review* 120, no. 2: 460–527.
- Rose-Ackerman, S., P. L. Lindseth, and B. Emerson, eds. 2019. *Comparative Administrative Law*. 2nd ed. Edward Elgar Publishing.
- Rubin, P. H. 1982. "Common Law and Statute Law." *Journal of Legal Studies* 11, no. 2: 205–223.
- Spamann, H. 2010a. "The 'Antidirector Rights Index' Revisited." *Review of Financial Studies* 23, no. 2: 467–486.
- Spamann, H. 2010b. "Legal Origin, Civil Procedure, and the Quality of Contract Enforcement." *Journal of Institutional and Theoretical Economics* 166, no. 1: 149–165.
- Tabellini, G. 2008. "Institutions and Culture." *Journal of the European Economic Association* 6, no. 2–3: 255–294.
- Tarabar, D., and J. E. Portillo. 2021. "Does Culture Affect Electoral Outcomes? Evidence From Transition Countries." *Contemporary Economic Policy* 39, no. 1: 141–155.
- Torvik, R. 2002. "Natural Resources, Rent Seeking and Welfare." *Journal of Development Economics* 67, no. 2: 455–470.
- Williamson, C. R. 2021. "Culture, Democracy and Regulation." *Constitutional Political Economy* 32, no. 1: 98–126.
- Williamson, C. R., and C. B. Kerekes. 2011. "Securing Private Property: Formal Versus Informal Institutions." *Journal of Law and Economics* 54, no. 3: 537–572.
- Wooldridge, J. M. 2010. *Econometric Analysis of Cross Section and Panel Data*. MIT Press.
- Wooldridge, J. M. 2015. "Control Function Methods in Applied Econometrics." *Journal of Human Resources* 50, no. 2: 420–445.
- World Bank. 2020a. *Doing Business*. World Bank.
- World Bank. 2020b. *World Development Indicators*. World Bank.
- World Factbook. 2020. *Central Intelligence Agency*. CIA.
- Zweigert, K., and H. Kötz. 1998. *An Introduction to Comparative Law*, edited by T. Weir, 3rd ed. Clarendon Press.

Appendix A

Data Description and Sources

Variables	Data description and source
Individualism	Standardized index created by extracting the first principal component from four IVS questions: (1) Private ownership of business and industry should be increased vs. government ownership of business and industry should be increased, (2) one of main goals in life is to make parents proud, (3) whether abortion is justified, and (4) whether homosexuality is justified. A higher score reflects a greater level of individualism. Averaged across all respondents for a given country and across all IVS waves. Data collected from Integrated Values Survey, Haerpfer et al. (2021).
Common law	Indicator variable equals one for a country with an English legal origin, and zero otherwise. Collected from Hyland et al. (2020).
Common law*individualism	Interaction term created by multiplying individualism and common law.
Regulation measures	
Entry regulation index	Standardized index created by extracting the first principal component of procedures and time to open a new business. Data are collected from World Bank (2020a), and averaged from 2015 to 2019.
Contract regulation	Time to enforce a contract in a court. Data are collected from World Bank (2020a), averaged from 2015 to 2019, and standardized.
Property regulation index	Standardized index created by extracting the first principal component of procedures and time to register property. Data are collected from World Bank (2020a), and averaged from 2015 to 2019.
Trade regulation index	Standardized index created by extracting the first principal component of time (in hours) of document and border compliance to import and export goods. Data are collected from World Bank (2020a), and averaged from 2015 to 2019.
Construction regulation index	Standardized index created by extracting the first principal component of procedures and time to build a warehouse. Data are collected from World Bank (2020a), and averaged from 2015 to 2019.

Variables	Data description and source
Utility regulation index	Standardized index created by extracting the first principal component of procedures, time, and cost to obtain a permanent electricity connection for a new warehouse. Averaged from 2015 to 2019.
Debt regulation	Time to resolve insolvency proceedings involving domestic legal entities. Data are collected from World Bank (2020a), averaged from 2015 to 2019, and standardized.
Tax regulation index	Standardized index created by extracting the first principal component of time and payments of the administrative burden of paying taxes and complying with post filing procedures. Data are collected from World Bank (2020a) and averaged from 2015 to 2019.
Regulation index	Standardized index created by extracting the first principal component of the eight regulation indices to open and legally operate a business.
Private regulation index	Standardized index created by extracting the first principal component of contract, trade and debt regulations.
Public regulation index	Standardized index created by extracting the first principal component of entry, property, construction, utility and tax regulations.
Court involved regulation index	Standardized index created by extracting the first principal component of contract, tax, property, and debt regulations.
Less court involved regulation index	Standardized index created by extracting the first principal component of entry, utility, construction, and trade regulations.
EFW Regulation Index	Measures the extent to which regulations restrict entry into markets and interfere with the freedom to voluntary exchange. The index accounts for credit market regulation, labor market regulation, business regulation, and freedom to compete aggregating data from multiple sources, including Doing Business, V-Dem, WDI, Economic Intelligence Unit, and World Economic Forum. Data are measured in 2019 and collected from Gwartney et al. (2024).
Control variables	
Latitude	Measured as the absolute value of the latitude of the country. Collected from CIA World Fact Book (2020).
Landlocked	Dummy variable for whether a country is landlocked. Collected from CIA World Fact Book (2020).

Variables	Data description and source
Log GDP per capita	Log GDP per capita, PPP, constant international \$. Averaged from 1981 to 2020. Collected from World Bank (2020b).
Manufacturing (% GDP)	The total output of the manufacturing sector in a country as a percentage of GDP. Averaged from 1981 to 2020. Collected from World Bank (2020b).
Trade (% GDP)	Trade is the sum of exports and imports of goods and services measured as a share of GDP. Averaged from 1981 to 2020. Collected from World Bank (2020b).
Natural resources (% GDP)	Share of the economy from natural resource rents. Averaged from 1981 to 2020. Collected from World Bank (2020b).
Trust	Percentage of respondents answering “yes” most people can be trusted. Data are standardized. Averaged across all respondents for a given country and across all IVS waves. Data collected from Integrated Values Survey, Haerpfer et al. (2021).
Catholic (% pop)	Share of population that is Catholic in 2000. Collected from McCleary and Barro (2006).
Protestant (% pop)	Share of population that is Protestant in 2000. Collected from McCleary and Barro (2006).
Muslim (% pop)	Share of population that is Muslim in 2000. Collected from McCleary and Barro (2006).
Ethnic fractionalization	Measures the probability that two randomly selected individuals from a country's population will belong to the same ethnic group. Ranges from 0 to 1. Collected from Alesina et al. (2003).
Linguistic fractionalization	Language fractionalization Measures the probability that two randomly selected individuals from a country's population will belong to the same language. Ranges from 0 to 1. Collected from Alesina et al. (2003).
Religious fractionalization	Religious fractionalization Measures the probability that two randomly selected individuals from a country's population will belong to the same religion. Ranges from 0 to 1. Collected from Alesina et al. (2003).
Partitioned	Share of a country's population belonging to an ethnic group that is partitioned by the country's borders. Collected from Alesina et al. (2011).
Transition	Dummy variable equals 1 if a country is a transition country for a given year. Averaged from 1980 to 2020. Collected from CIA World Fact Book (2020).

Variables	Data description and source
Power distance	Measures the degree to which less powerful members of society accept and expect power is distributed unequally capturing how society handles inequalities among people. In low power distance cultures, people strive to equalize the distribution of power and demand justification for inequalities of power. Collected from Hofstede (2001).
Masculinity	Reflects the emphasis in society on caring for others, solidarity, and quality of life (Femininity), as opposed to achievement and success (Masculinity). Collected from Hofstede (2001).
Uncertainty avoidance	The degree to which members of society are comfortable in unstructured situations. Highly uncertainty avoidant cultures are characterized by a strong need for predictability and control over the environment. Collected from Hofstede (2001).
Competition harmful	Mean score from 1 to 10 to the question: Competition is good (1) or competition is harmful (10). Data collected from Integrated Values Survey, Haerpfer et al. (2021).
Left-right wing	Score from 1 to 10: In political matters, people talk of "the left" and "the right". How would you place your views on this scale, left (1) to right (10)? Averaged across all respondents for a given country and across all IVS waves. Data collected from Integrated Values Survey, Haerpfer et al. (2021).
Religious attendance	Respondent's answer coded from 1 (<i>never</i>) to 8 (<i>more than once a week</i>) to the WVS/EVS question: How often do you attend religious services? Averaged across all respondents for a given country and across all IVS waves. Data collected from Integrated Values Survey, Haerpfer et al. (2021).
Voice	Captures perceptions to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. Averaged from 1996 to 2020. Kaufmann and Kraay (2021).
Polity2	Polity2 captures the level of democracy versus autocracy and ranges from -10 to 10 with 10 representing strong democracy. Averaged from 1981 to 2018. Collected from Polity V.
Democracy	Dichotomous democracy ranking from Przeworski (2000). Updated in Cheibub et al. (2010). Averaged from 1981 to 2008.

Variables	Data description and source
Regional controls	Dummy variables reflecting a country's location in the following regions: East Asia Pacific, Eastern and Central Europe, Middle East and North Africa, South Asia, Western Europe, Sub-Saharan Africa, Latin America and the Caribbean, and North America, as defined by the World Bank (2020b) and World Bank (2020b).
Judicial review	This variable measures the extent to which judges (either Supreme Court or constitutional court) have the power to review the constitutionality of laws in a given country. The variable equals 2 if there is full review of constitutionality of laws, 1 if there is limited review, and 0 if there is no review of constitutionality of laws. Collected from La Porta et al. (2004).
Case law	This variable is a dummy taking value 1 if judicial decisions in a given country are a source of law, 0 otherwise. Collected from La Porta et al. (2004).
Legal justification	The index measures the level of legal justification required in the legal process. The index is formed by the normalized sum of: (i) complaint must be legally justified, (ii) judgment must be legally justified, and (iii) judgment must be on law (not on equity). The index ranges from 0 to 1, where higher values mean a higher use of legal language or justification. Collected from Djankov, La Porta, et al. (2003) and Djankov, Glaeser, et al. (2003).
Instruments	
Pronoun drop	Equals the share of a country's population that speaks a language in which pronoun drop is permitted. Collected from Davis and Abdurazokzoda (2016).
Ancestry adj. rainfall variation	Natural log of the coefficient of variation of intertemporal monthly rainfall levels over the period from 1900 to 2009, collected from Davis (2016). Ancestry adjusted using Putterman and Weil (2010).

Appendix B
Correlation Matrix

	Regulation index	Individualism	Common law	Latitude	Landlocked	Log GDP pc	Voice	Polity2	Democracy	Trust	Catholic	Protestant	Muslim	Religious attend	Pronoun drop	Ancestry adj. rain
Regulation index	1.00															
Individualism	-0.48	1.00														
Common law	0.05	-0.11	1.00													
Latitude	-0.41	0.67	-0.33	1.00												
Landlocked	-0.03	-0.06	-0.09	-0.05	1.00											
Log GDP pc	-0.52	0.71	-0.14	0.58	-0.35	1.00										
Voice	-0.33	0.80	-0.01	0.45	-0.23	0.70	1.00									
Polity2	-0.09	0.65	0.00	0.34	-0.26	0.56	0.87	1.00								
Democracy	0.00	0.55	-0.08	0.24	-0.22	0.50	0.78	0.90	1.00							
Trust	-0.51	0.73	-0.04	0.53	-0.16	0.53	0.46	0.28	0.27	1.00						
Catholic	0.26	0.08	-0.26	-0.18	-0.03	0.13	0.26	0.40	0.42	-0.20	1.00					
Protestant	-0.35	0.63	0.16	0.29	-0.02	0.29	0.47	0.31	0.28	0.61	-0.18	1.00				
Muslim	0.13	-0.50	-0.01	-0.11	0.08	-0.31	-0.52	-0.60	-0.54	-0.27	-0.46	-0.29	1.00			
Religious attend	-0.47	0.70	-0.28	0.74	-0.12	0.68	0.42	0.31	0.24	0.65	-0.10	0.28	-0.28	1.00		
Pronoun drop	0.01	-0.12	-0.13	0.15	0.00	-0.05	-0.10	-0.08	-0.10	-0.19	-0.07	-0.10	0.09	0.03	1.00	
Ancestry adj. rain	0.41	-0.61	0.17	-0.49	0.11	-0.52	-0.45	-0.44	-0.33	-0.41	-0.13	-0.32	0.53	-0.55	-0.02	1.00