

# Understanding legal origins: On the determinants and impact of legal traditions<sup>★</sup>

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## ABSTRACT

To shed light on the determinants and impact of legal traditions, I evaluate the idea that the uncertain common law can prevail over the certain civil law only when sufficiently heterogeneous legal preferences and/or sufficiently inefficient political institutions encourage the legislator to bias statutes in order to favor special interests. Operationally, I focus on 51 transplants for which I observe over the 1945–2005 period the evolution of the legal tradition, economic outcomes, control variables and the product of the time-varying population share of the ethnic group that was the largest at independence and either its long-lived norms of self-reliance or its genetic distance to the group that was the largest at independence in the exogenously assigned legal origin. These last two variables constitute time-varying proxies for, respectively, the transplant's aversion to inefficient political institutions and the differences between the transplant's legal preferences and those of its origin. Consistent with the testable predictions, reforms towards institutions typical of a pure common law legal tradition are found where genetic distance is the largest and a culture of self-reliance is the weakest. Moreover, not only did these reforms encourage stock market capitalization while curbing the unemployment rate in the developing transplants with the most heterogeneous legal preferences, but they also amplified labor market inefficiencies in developing transplants displaying the strongest norms of self-reliance.

“A legal tradition [...] is not a set of rules of law [...] rather it is a set of deeply rooted, historically conditioned attitudes about [...] the proper organization [...] of a legal system. [It] relates the legal system to the culture of which it is a partial expression” [Merryman (1969), p. 2].

## 1. Introduction

Why do different societies adopt different legal traditions to achieve the same goal of maximizing the citizens' welfare is the key question of comparative law (Sacco, 1991; Michaels, 2009). The legal tradition is the mix of the lawmaking and adjudication institutions shaping the functioning of the legal order and ranges between the fully decentralized pure common law system and the fully centralized pure civil law system. While the former entrusts a key role to judicial precedents—i.e., case law—and allows some discretion to lower courts, the latter relies on bright-line adjudication institutions and legislation by either the parliament, the executive or the president, i.e., statute law (Zweigert and Kötz, 1998). Exploiting these differences and the fact that legal traditions have been exogenously transplanted by Europeans via either occupation or colonization, the “legal origins” project has related present-day economic outcomes to the legal traditions initially assigned—i.e., legal origins—to the jurisdictions that did not develop their legal

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order autonomously, i.e., transplants (Berkowitz et al., 2003). Compared with transplants that initially received civil law, those with an English common law legal origin seem to display more efficient courts and governments, more limited regulation and, ultimately, better economic outcomes (Porta et al., 2008; Fredriksson and Wollscheid, 2015; Amico et al., 2015; Anderson, 2018).<sup>1</sup>

An expanding comparative law tradition has, however, criticized the ideas that transplanted legal traditions can be measured through legal origins dummies (Rosenthal and Voeten, 2007; Armour et al., 2009; Bradford et al., 2021), that they remained intact (Roe (2004), and that their evolution is unrelated to systematic differences among transplants (Rajan and Zingales, 2003; Beck et al., 2003; Klerman et al., 2011; Oto-Peralías et al., 2014; Cabrelli and Siems, 2015). These criticisms raise three burning questions about the legal origins literature. How can we measure the whole bundle of lawmaking and adjudication institutions characterizing each legal tradition? What are the mechanisms justifying the existence of such dissimilar institutions and their evolution? How do the determinants of legal traditions interact with the legal institutions themselves in shaping economic outcomes? To credibly answer the three questions together, I propose a new empirical approach extending a recent theoretical and empirical literature on “endogenous legal traditions.”

Theoretically, Guerriero (2016a,b) characterizes the bias versus volatility trade-off behind legal evolution. While under common law appellate judges’ biases offset one another at the cost of legal uncertainty, under civil law the legislator chooses a certain rule that is biased only when she favors special interests, i.e., when preferences over the law are sufficiently heterogeneous and/or political institutions are sufficiently inefficient. Only under this last scenario, common law can be selected and can produce better economic outcomes.

To analyze the evolution of legal traditions, Guerriero (2016a) constructs dummies for the lawmaking institution employed by 155 transplants at independence and in 2005 and four indicators for adjudication institutions modulating the degree of judicial discretion recorded in 99 of these countries at the same two points in time. Contrary to the legal origins literature assumption, 25 countries reformed the lawmaking institution and 95 modified at least one of the lawmaking and adjudication institutions. Hence, relying on the legal origins dummies is bound to deliver little insights. To capture legal preference diversity (Spolaore and Wacziarg, 2009; Guerriero, 2016a) focuses on the normalized—to range between 0 and 1—genetic distance between the most influential legal parties at independence, which were the largest origin’s and transplant’s ethnic groups. Since such a metrics only reflects casual genetic drifts among precolonial populations, it was randomly shaped by the transplantation process and is, therefore, exogenous. To measure the efficiency of the political process, Guerriero (2016a) relies on the Polity V constraints on executive score averaged between independence and 2005. To expunge from this proxy the endogenous component created by the European colonizers’ institutional strategy, which might, in turn, be related to the determinants of legal evolution, he consider three instruments suggested by social evolution theories. This literature claims that factors discouraging settlement, like an adverse disease environment and a dense native population favoring slavery, pushed the colonizers to impose extractive institutions and limit cultural diversity (Ahlerup and Olsson, 2012; Acemoglu and Johnson, 2005). This dynamic was restrained by the transplant’s cultural aversion to hierarchical control (Licht et al., 2007; Tabellini, 2008). As expected, in countries that inherited statute law, reforms towards case law are more likely the widest the genetic distance is and, in those to which case (statute) law was transplanted, reforms towards pure civil (common) law are found where the efficiency of political institutions is the strongest (weakest).

Then, the bias in the estimated impact of the legal origins dummies on outcomes can be decomposed in: (a) error in the measurement of legal origins/traditions; (b) bias due to the omission of the determinants of legal evolution and economic outcomes; (c) model misspecification caused by neglecting the interactions between legal institutions and their causes. The relevance of the latter is due to the fact that a pure common law tradition is more efficient if legal preferences are heterogeneous and/or political institutions are inefficient.

Guerriero (2016b) devises a two-step strategy to handle these issues and identify the impact of legal traditions on proxies for the legal order’s ability to favor the efficient exploitation of scarce resources, i.e., stock market capitalization as a percentage of the GDP, private credit as a percentage of the GDP, and employment rate (Acemoglu and Johnson, 2005; Porta et al., 2008; Dari-Mattiacci and Guerriero, 2015).<sup>2</sup> First, Guerriero (2016b) regresses these measures on the genetic distance index, constraints on executive score, a normalized—to range between 0 and 1—continuous proxy for legal institutions typical of a pure common law legal tradition and its interactions with the proxies for legal preference heterogeneity and the efficiency of the political process. The continuous proxy for a pure common law legal tradition is obtained as the first principal component extracted from the aforementioned lawmaking and adjudication institutions, and its construction handles the error in the measurement of the legal traditions (a). The inclusion of genetic distance and the strength of the constraints on executive, instead, takes care of the bias due to their omission (b), and the consideration of the terms interacting legal institutions and their determinants avoids model misspecification (c). Second, Guerriero (2016b) instruments the efficiency of the political process with the aforementioned factors identified by the social evolution literature. As expected, reforms towards institutions typical of a pure common law legal tradition in developing transplants with smaller (larger) than average genetic distance brake stock market capitalization and private credit (spur stock market development).

The consistency of the Guerriero (2016a,b) results hinges upon the exogeneity and relevance of the instruments for the efficiency of political institutions and the consideration of all the determinants of the European colonizers’ institutional strategy. Since these issues remain an open matter, I propose two key innovations on the Guerriero (2016a,b) approach.

<sup>1</sup> The extant literature proposes three main justifications for this evidence: (a) the tendency of the common law system to modify more often rules that are inefficient (Miceli, 2009); (b) the evolutionary and adaptability properties of common law (Cardozo and N, 1921; Posner, 2003; Rubin, 1977; Gennaioli and Shleifer, 2007), and (c) the supposed pro-market propensity of enduring English cultural values (Glaeser and Shleifer, 2002).

<sup>2</sup> Being a generic measure of economic development, the GDP is a less suitable proxy (Guerriero, 2016b).

First, I substitute the constraints on executive score with its strongest instrument, which is the transplant's cultural aversion to a hierarchical control (Guerriero, 2016a,b). According to the Sapir-Whorf hypothesis (Sapir, 1921; Douglas, 1970), this trait is mainly shaped by two pronoun rules (Kashima and Kashima, 1998, 2005). The first one bans the speaker from dropping the first person pronoun, and it is, for instance, present in English, where "I" must accompany the verb. The second one forbids the speaker to modulate the second person pronoun according to the social distance to the interlocutor as, for instance, it is instead possible in French, where both the informal "tu" and the formal "vous" are used. As Licht et al. (2007) clarify, the absence of the two grammatical constructs and, thus, a weaker culture of self-reliance eases the adoption of political institutions treating the "individual as an embedded part of hierarchically organized groups [and accommodating] exercise of power from above." Ultimately, I use as proxy for a more efficient political process an index equal to three if the language of the transplant's ethnic group that was the largest at independence foresaw both rules, two if it prescribed only one rule and one otherwise. Since both rules were usually crystallized at independence (Darin-Mattiaci and Guerriero, 2015), this proxy captures cultural features shaping legal traditions mainly via the political process and independent from the European colonizers' institutional strategy as confirmed by the under- and over-identification tests produced by the—more noisy—2SLS counterpart of my approach.

Second, I devise the first panel data set of the post-colonial evolution of the legal orders and its determinants. Starting from the latter, I multiply both the genetic distance to the legal origin and the strength of the transplant's norms of self-reliance by the time-varying population share of the transplant's ethnic group that was the largest at independence, which is available for the 1945–2013 period from the HIEF data set. Regarding the evolution of the legal order between independence and 2005, I consider the first year of major reforms of the lawmaking and/or adjudication institutions as their switching date. Ultimately, I focus on the 51 out of the 99 transplants studied in Guerriero (2016a) for which I can observe between 1945 and 2005 all the relevant independent variables.

Conditional on transplant and year fixed effects and the population share of the transplant's ethnic group that was the largest at independence, my reduced-form approach delivers two sets of results. First, reforms towards case/common law are significantly and positively related to the time-varying proxy for the diversity of legal preferences. Moreover, switches towards case law are significantly and negatively linked to the time-varying measure of the efficiency of political institutions. Second, the unemployment rate is negatively related to the product of the degree of genetic distance and institutions typical of a pure common law legal tradition and positively linked to the product of the strength of norms of self-reliance and institutions typical of a pure common law legal order. Moreover, not only did reforms towards institutions typical of a pure common law legal tradition encourage stock market capitalization while curbing the unemployment rate in the developing transplants with the most diverse legal preferences, but they also amplified labor market inefficiencies in those displaying the strongest norms of self-reliance. Albeit consistent with the testable predictions, these results may be capturing reverse causality, might be attenuated by measurement error and/or may be driven by omitted variables. I evaluate these issues in turn.

First, since only 18 % of the transplants' ethnic groups that were the largest at independence adopt the same languages of their origins' plurality ethnic groups at independence, it is unlikely that the identity of the colonizers determined at the same time legal tradition and prevailing norms of self-reliance. The fact that, moreover, lead values of either the strength of norms of self-reliance or the population share of the transplant's ethnic group that was the largest at independence are unrelated to the dependent variables is inconsistent with the ideas that either legal evolution and/or stronger economic development may feed back to the transplant's cultural aversion to a hierarchical control or a more technological efficient legal tradition and/or better economic outcomes might favor migration towards the transplant.

Second, my conclusions are unchanged when I either capture self-reliance with a dummy equal to one when the language of the transplant's ethnic group that was the largest at independence prescribes that the first person pronoun cannot be dropped and the second person pronoun does not vary according to social proximity or rely only on this second pronoun rule, which is the most closely related to the cultural aversion to a hierarchical control (see the Internet appendix). These robustness checks reassure that changes in the cardinal values of the proxy for the strength of norms of self-reliance do not merely entail ordinal switches or, even, no institutional evolution (Benati and Guerriero, 2022).

Finally, I follow a three-step strategy to assess the role of unobserved heterogeneity. First, I document in the Internet appendix that my results are similar if I exclude those transplants in which colonial rule had a sizable impact since only a minority of the present-day inhabitants is indigenous. Second, I document that the message of my analysis remains unchanged when I control—in the main text—for the strength of norms of morality and income per capita and—in the Internet appendix—for the strength of property rights, intensity of rule of law and lagged population share of the transplant's plurality ethnic group at independence. Finally, I calculate that the influence of the main unobservables would need to be on average more than thirty-five times greater than the influence of observables to explain away the links among culture, legal traditions and economic outcomes. This seems unlikely.

In the following, I first discuss in Section 2 the paper contributions to the existing literature. Next, I illustrate in Section 3 the theoretical framework. Then, I detail in sections 4 and 5 my measurement approach and my test. Finally, I conclude in Section 6.

## 2. Related literature

My analysis delivers three contributions over the extant literature on legal traditions.

First, building on Guerriero (2016a,b) theoretical framework, I devise and estimate a more credible empirical model of the determinants and impact of the evolution of the legal order. Even more consonant with the Guerriero (2016a,b) model than his estimates, I document that both the degree of preference diversity and the efficiency of the political process significantly shape the probability of a reform towards pure common law and that reforms towards institutions typical of a pure common law legal tradition are welfare-increasing only for sufficiently heterogeneous legal preferences and/or a sufficiently inefficient political process. From a

methodological point of view, my approach entails that two elements must always be part of any analysis of the economic impact of legal traditions. First, the whole bundle of lawmaking and adjudication institutions and their reforms must be considered to properly capture legal evolution. Despite this point has been first put forward by Guerriero (2016a,b), there are subsequent contributions still relying on legal origins dummies (Anderson, 2018; Bradford et al., 2021). Second, the endogeneity of the legal tradition to the transplants' heterogeneity in legal preferences and efficiency of political institutions as well as the modulating role of these two factors must be evaluated (Angrist and Pischke, 2009).

Second, my theory-based empirical framework qualifies not only the legal origins literature and its manifold mutations (Porta et al., 2008; Fredriksson and Wollscheid, 2015; Amico et al., 2015; Anderson, 2018), but also those strands of research that have either tried to downplay the role of legal traditions (Glaeser et al., 2004; Klerman et al., 2011; Cabrelli and Siems, 2015) or studied their interaction with the economic and political environments (Rajan and Zingales, 2003; Oto-Peralías et al., 2014; Schmiegelow and Schmiegelow, 2014; Spamann, 2024). Different from this last piece of literature, I formally evaluate the interaction among culture, politics, legal traditions and the economy.

Finally, my approach connects the analysis of endogenous legal traditions to both a growing body of research on law and culture, which suggests that long-lived norms shape the law and in particular, the strength of property rights (Gneezy and Rustichini, 2000; Licht et al., 2005, 2007; Lehari and Licht, 2011; Dari-Mattiacci and Guerriero, 2015; Dari-Mattiacci et al., 2016; Dari-Mattiacci and Guerriero, 2019; Guerriero, 2016c), and a huge literature on the interplay between formal and informal institutions and mostly, between a culture of cooperation and a more inclusive political process (Tabellini, 2008, 2010; Gorodnichenko and Roland, 2017; Boranbay and Guerriero, 2019; Benati and Guerriero, 2023). Different from these strands of research, I focus on the origins and economic role of the legal tradition (Guerriero et al., 2025).

### 3. Theory

This section summarizes the Guerriero (2016a,b) model to inform the empirical analysis.

#### 3.1. How do legal traditions evolve?

While designing the legal tradition, the key goal of a society is to maximize the welfare of citizens heterogeneous in their preferences over different legal rules (Gennaioli and Shleifer, 2007). The latter, in turn, have been linked by a vast body of cultural economics literature to the long-lasting values of different cultural—e.g., genetic, ethnic and linguistic—groups.<sup>3</sup> Crucially, legal preferences shape the decisions of the adjudication courts and the legislator, which are ultimately selected from the population. Since, however, this selection procedure is uncertain, the goal of the institutional designers becomes to minimize the expected bias of the law, i.e., expected distance between the prevailing legal rule and the optimal law mediating among the legal rules preferred by the cultural groups (Guerriero, 2016a). This task amounts to minimize the uncertainty and bias of the law, which, in turn, are functions of the degree of legal preference diversity and the quality of the political process only.

The two extreme legal traditions handle this task in very different ways. While common law is continuously revised by appellate judges randomly picked from the cultural groups and bearing variable costs of overruling a precedent, civil law is selected once and for all by a legislator who balances the maximization of the social welfare with the perquisites from favoring coalitions of the cultural groups (Guerriero, 2016a). Hence, appellate judges' biases offset one another at the cost of legal uncertainty, whereas the legislator chooses a certain legal rule that is biased only when special interests are favored. The latter is the case when legal preferences are sufficiently heterogeneous and/or political institutions are sufficiently inefficient. Then, only under this scenario, common law can be selected.<sup>4</sup>

These conclusions are robust to several alternative assumptions, e.g., appellate judges are politically selected and/or corruptible, the legislator is elected and the institutional designers maximize not only social welfare but also bribes (Guerriero, 2016a). While the first two robustness checks clarify that the message of my model is not an artifact of the asymmetric benevolence of appellate judges and the legislator, the last one implies that its normative predictions have a positive content. Then, whether guided by a democratic government or captured by an autocracy, each transplant has an incentive to achieve its optimal legal tradition as a way to maximize the social welfare and/or rents. As a result:

**Prediction 1:** *Reforms towards case/common law are more likely the more heterogeneous the preferences over the law are and the less efficient the political process is.*

#### 3.2. How do legal traditions shape economics outcomes?

The legal tradition's ability to favor the efficient exploitation of scarce resources is determined, instead, by its success in minimizing the expected technological bias of the law, i.e., expected distance between the prevailing legal rule and the technologically efficient

<sup>3</sup> While Herrmann et al. (2008) document that weak norms of civic cooperation and the weakness of the rule of law in a country are significant predictors of antisocial punishment, Mocan (2013) provides evidence consistent with the fact that vengeful feelings are stronger in those countries that are collectivist.

<sup>4</sup> Consistent with two untested model predictions, more democratic jurisdictions produce fairer legislation and more diverse societies experience legal uncertainty (Williamson, 2021; Zhelyazkova et al., 2023).



**Table 1**  
The Sample.

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Algeria, Argentina, Australia, Belgium, Brazil, Bulgaria, Canada, Chile, China, Colombia, Croatia, Czech Republic, Dominican Republic, Egypt, El Salvador, Finland, Greece, Guatemala, Hungary, Indonesia, Iran, Ireland, Israel, Italy, Japan, Jordan, Korea Republic, Mexico, Morocco, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Peru, Philippines, Poland, Portugal, Romania, Singapore, Slovenia, South Africa, Spain, Taiwan, Tanzania, Turkey, Uganda, United States, Uruguay, Venezuela, Zimbabwe.
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law, which society would select absent cultural biases (Guerriero, 2016b). Because of the uncertainty in the selection of adjudication courts and the legislator, this task, in turn, amounts to minimize both the uncertainty and the technological bias of the law.

Two are the relevant scenarios. When legal preference are sufficiently homogeneous and/or political institutions are sufficiently efficient, common law and civil law are both unbiased but only the latter is certain. Then, common law must be technologically inefficient. When, instead, legal preferences become sufficiently heterogeneous and/or the political process turns sufficiently inefficient, also civil law becomes biased and possibly less technological efficient than common law (Guerriero, 2016b). As a consequence:

**Prediction 2:** *While the interaction between institutions typical of a pure common law legal tradition and the degree of heterogeneity in the preferences over the law has a positive effect on economic outcomes, the interaction between the same institutions and the efficiency of the political process has a negative impact on economic outcomes. Furthermore, reforms towards institutions typical of a pure common law legal tradition have a negative effect on economic outcomes when legal preferences are sufficiently homogeneous and/or political institutions are sufficiently efficient and they have a positive impact otherwise.*

#### 4. Measurement

As further detailed in the historical Appendix,<sup>5</sup> I follow Guerriero (2016a,b) to select the cross-sectional identifiers of the sample. First, I exclude from the sample Austria, Denmark, France, Germany, Russia,<sup>6</sup> Sweden, Switzerland, and England because they are origins, but I treat Finland, Norway, and the USA as transplants since their post-independence legal systems were designed by, respectively, Swedish, Danish, and English lawyers to resemble those of their native countries [David and et al (1995), p. F-39, N-76, U-141; Berkowitz et al. (2003), p. 186–187]. Results available upon request reveal that this choice has no relevant impact on the estimates. Second, I also exclude from the sample Andorra, Guinea-Bissau, Mongolia, Mozambique, Netherlands Antilles, San Marino and Suriname for lack of data and the religious orders of Afghanistan, Bhutan, Iraq, Maldives, Oman and Saudi Arabia because of their peculiar structure.<sup>7</sup> Finally, I exclude from the remaining 99 transplants for which I observe both lawmaking and adjudication institutions those jurisdictions for which I cannot construct the proxies for legal preference heterogeneity and the efficiency of political institutions as well as the control variables discussed in Section 5.3.3 (Guerriero, 2016a,b). This last restriction on the sample helps compare the estimates of the specifications conditioning only for fixed effects with those of the equations conditioning also for observable factors. At the end of this procedure, I am left with a sample of 51 transplants (see Table 1).

Regarding the time dimension of the sample, I focus on the 1945–2005 period since, as detailed below, only for this interval I can observe the evolution of the legal traditions and the population share of the transplant's ethnic group that was the largest at independence.

##### 4.1. Measuring legal traditions

Building on the vast comparative law literature on the systematic differences between legal traditions (e.g., Finlason (1877), Engelmann (1927), Merryman (1969), Campbell and Campbell (1995), Ward and Wragg (2005)), I classify the transplants in the sample along a continuum between a pure common law and a pure civil law legal tradition using five indicators capturing the lawmaking and main adjudication institutions. I first construct these indexes for the 2005 and the independence year and then, I elicit panel variation exploiting the fact that, over the period for which I observe the regressors—i.e., 1945–2005, three of the 51 transplants switched—just once—towards case law, three took—just once—the opposite journey and 27 reformed—just once—at least one of the lawmaking and/or adjudication institutions (see the historical appendix).<sup>8</sup> To identify the timing of these reforms, I consider the first year of major institutional discontinuities as the switching date (see the historical appendix).

Regarding the lawmaking institution, I build on David and et al (1995) and Acartürk and et al (2005) and I code a transplant as employing case law at independence (2005) if its adjudicating courts considered at that point in time the decisions of some appellate

<sup>5</sup> The historical appendix is available [here](#).

<sup>6</sup> The Russian experience was significantly more autonomous and shaped by the reformers' desire to implement the Marxist ideal of a stable and certain legal order [David and et al (1995), p. U-26].

<sup>7</sup> The message of the analysis remains similar when I exclude from the sample Bulgaria, China, Greece, Japan, Romania, Taiwan and Turkey, which were never colonized but borrowed from the European codes considered most advanced at the time their initial legal tradition (Acartürk and et al, 2005; David and et al, 1995). In the cases of multiple transplantation episodes—e.g., Israel and the ex-Eastern Bloc, I focus on the most recent one. Often—i.e., Bulgaria and Romania, the most recent transplantation episode did not modify the legal institutions in place before independence [Acartürk and et al (2005), p. 107 and 660].

<sup>8</sup> The underlying data set is available at <https://www.sciencedirect.com/science/article/pii/S2352340916303377>.

**Table 2**  
Summary of Variables.

Cross-section:	Variable	Definition and Sources	Statistics
Legal traditions:	<i>Case-Law-2005:</i>	Case law dummy measured in 2005. Source: Guerriero (2016d). (0.504)	0.471 (0.504)
	<i>Case-Law-I:</i>	Case law dummy measured at independence. Source: Guerriero (2016d). (0.503)	0.451 (0.503)
	<i>Common-Law-2005:</i>	Normalized first principal component extracted from a case law dummy and four indexes for discretion in adjudication measured in 2005. Source: Guerriero (2016d).	0.413 (0.254)
	<i>Common-Law-I:</i>	Normalized first principal component extracted from a case law dummy and four indexes for discretion in adjudication at independence. Source: Guerriero (2016d).	0.397 (0.392)
Culture:	<i>Genetic-Distance-P:</i>	Coancestry coefficient between the transplant's and origins' ethnic groups that were the largest at independence calculated for the year 1500. Source: Guerriero (2016d).	0.352 (0.276)
	<i>Self-Reliance-P:</i>	Score equal to: three if the language of the transplant's ethnic group that was the largest at independence prescribes that the first person pronoun cannot be dropped and the second person pronoun does not vary according to social proximity; two if only one rule is foreseen; one otherwise. Source: <a href="https://muse.union.edu/davis/">https://muse.union.edu/davis/</a>	1.549 (0.783)
Panel	Variable	Definition and Sources	Statistics
Economic outcomes:	<i>Stock-Market-to-GDP:</i>	Natural logarithm of market capitalization of listed domestic firms as a percentage of GDP. Source: <a href="http://wdi.worldbank.org">http://wdi.worldbank.org</a>	3.225 (1.328)
	<i>Private-Credit-to-GDP:</i>	Natural logarithm of credit to the private sector as a percentage of GDP. Source: <a href="http://wdi.worldbank.org">http://wdi.worldbank.org</a>	3.418 (1.056)
	<i>Unemployment-Rate:</i>	Unemployment rate. Source: <a href="http://wdi.worldbank.org">http://wdi.worldbank.org</a>	7.749 (5.008)
Legal traditions:	<i>Case-Law:</i>	Case law dummy. Source: Guerriero (2016d).	0.480 (0.500)
	<i>Common-Law:</i>	Normalized first principal component extracted from a case law dummy and four indexes for discretion in adjudication. Source: Guerriero (2016d).	0.340 (0.342)
Culture:	<i>Plurality:</i>	Time-varying population share of the ethnic group that was the largest at independence. Source: HIEF data set, <a href="https://cadmus.eui.eu/handle/1814/64606">https://cadmus.eui.eu/handle/1814/64606</a>	60.984 (36.126)
	<i>Genetic-Distance:</i>	Product of <i>Genetic-Distance-P</i> and <i>Plurality</i> . Sources: Guerriero (2016d) and HIEF data set, <a href="https://cadmus.eui.eu/handle/1814/64606">https://cadmus.eui.eu/handle/1814/64606</a>	0.165 (0.191)
	<i>Self-Reliance:</i>	Product of <i>Self-Reliance-P</i> and <i>Plurality</i> . Sources: <a href="https://muse.union.edu/davis/">https://muse.union.edu/davis/</a> and HIEF data set, <a href="https://cadmus.eui.eu/handle/1814/64606">https://cadmus.eui.eu/handle/1814/64606</a>	0.853 (0.684)
	<i>Self-Reliance-D:</i>	Product of a dummy for <i>Self-Reliance-P</i> = 3 and <i>Plurality</i> . Sources: <a href="https://muse.union.edu/davis/">https://muse.union.edu/davis/</a> and <a href="https://cadmus.eui.eu/handle/1814/64606">https://cadmus.eui.eu/handle/1814/64606</a>	0.062 (0.216)
Economic outcomes:	<i>Culture:</i>	Normalized first principal component extracted from the share of respondents that agreed that strangers can generally be trusted and the share of respondents that mentioned "tolerance and respect for other people" as being important. Sources: World Value Surveys and European Values Studies.	0.476 (0.161)
	<i>Income:</i>	GDP per capita in constant 2015 US dollars. Source: <a href="http://wdi.worldbank.org">http://wdi.worldbank.org</a>	8.536 (1.238)

Note: 1. The last column lists mean value and, in parentheses, the standard deviation of both the cross-sectional variables, which are employed to obtain Figs. 1 to 4, and the panel variables, which are used to get Tables 3 to 6. All these statistics are calculated for the sample of 51 transplants described in table 1.

courts, but not just those of the Constitutional court, as a source of private law and treated them as binding, i.e., *Case-Law-I* (*Case-Law-2005*) (see Tables 2 and I of the Internet appendix for the definition and sources of all the variables that I use in my analysis). For the independence year, the lawmaking institution of each transplant corresponds to that employed at the time by its origin. As discussed in detail in the historical appendix, Austria, France and Russia exported statute law, whereas the remaining origins transplanted case law (Engelmann, 1927; Campbell and Campbell, 1995; Zweigert and Kötz, 1998; Ward and Wragg, 2005). Turning to the main adjudication institutions determining the degree of judicial discretion, I exploit secondary sources on both the history of the adjudication procedures of the origins and the procedural rules that governed in 2005 the adjudication of an ubiquitous legal

dispute—i.e., eviction of a non-paying tenant—in each transplant (see the historical appendix for the former and both Djankov et al. (2003) and Acartürk and et al (2005) for the latter).<sup>9</sup> Building on a long comparative law tradition (Engelmann, 1927; Campbell and Campbell, 1995; Damasäka, 1986; Zweigert and Kötz, 1998; Glendon et al., 1999; Ward and Wragg, 2005), I focus on the following indexes. The first is an indicator equal to zero if issues of both law and fact can be reviewed in appeal and one if only new evidence or issues of law can be reviewed in appeal, or if there is no appeal. The second one equals zero if judgments must be on law only, and one when they may be based on equity grounds as well. The third indicator is zero if judges can request or take evidence that has not been introduced by the parties and can refuse to collect or admit requested evidence, 0.5 if they have only one of the two prerogatives, and 1 otherwise. The last one is a dummy turning on if the evidence is mostly submitted orally, rather than in written form. My approach is consonant with the ideas that extensive reviews and written records limit discretionary decisions, whereas an inquisitorial procedure curbs the parties' incentives to report noisy evidence, which facilitates, as the use of equity, legal interpretation [Merryman (1969), p. 123–127; Damasäka (1986), p. 3–6]. The aforementioned literature suggests that the mix of case (statute) law and all (none of the) four adjudication institutions characterizes a pure common (civil) law legal tradition. While France and the England transplanted, respectively, a pure civil and a pure common law legal tradition, Austria and Russia exported statute law plus some discretion in adjudication, and Denmark, Germany, Sweden, and Switzerland disseminated case law plus some discretion in adjudication [Merryman (1969), p. 52, 123–127; Zweigert and Kötz (1998), p. 272].

Ultimately, I capture the proximity of the legal tradition to a pure common benchmark at independence (in 2005) via the normalized—to range between 0 and 1—first principal component extracted from *Case-Law-I* (*Case-Law-2005*) and the four indexes for discretion in adjudication prevailing in that year, i.e., *Common-Law-I* (*Common-Law-2005*). Instances in which *Common-Law-I* (*Common-Law-2005*) equals 1 suggest that the legal tradition was the closest to a pure common law at independence (in 2005). Lower values, instead, imply that the transplant was adopting at independence (in 2005) institutions more similar to a pure civil law legal tradition. A comparison between top and bottom graphs of Figs. 1 and 2 immediately reveals the deep reforms implemented by the transplants. Among those that received statute (case) law, six (six) have reformed—after independence and just once—their lawmaking institution and eighteen (twelve) have switched—after independence and just once—towards one more legal institution typical of a pure common (civil) law legal tradition.<sup>10</sup> This observation implies that the legal origins dummies do not capture any meaningful legal variation. To elaborate, the correlation between *Common-Law-2005* and the English common law dummy devised by the legal origins scholars is 14 % and statistically insignificant, conditional on the determinants of legal evolution discussed below. Crucially, almost 80 % of the reforms that followed independence happened over my sample and the 51 transplants that I consider displayed in 2005 a legal tradition ranging between the almost pure common law model of Singapore and the almost pure civil law system of Jordan. By considering the first year of major institutional change as the date of a reform, I can define a time-varying case law dummy—i.e., *Case-Law*—and time-varying versions of the four indexes for discretion in adjudication, and I can assemble a time-varying measure of the proximity of the transplant's legal tradition to a pure common law legal tradition, i.e., *Common-Law*. This is the normalized—to range between 0 and 1—first principal component extracted from *Case-Law* and the four time-varying judicial discretion indexes. Fig. 3 clearly displays the sizable variation in both *Case-Law* over the sub-sample of transplants that reformed the lawmaking rule and *Common-Law* over the sub-sample of transplants that reformed at least one of the five institutions structuring the legal tradition and discussed before.

The measurement strategy underlying the construction of *Common-Law* is justified by three extra pieces of empirical evidence. First, the estimates of a two-parameter Logistic item response model entail that the factor loadings on the five indicators do not differ significantly from one (see the Internet appendix of Guerriero (2016b)). Accordingly, the five indexes are equally important in capturing the latent “common law” construct (Rosenthal and Voeten, 2007). Second, the message of the empirical analysis is robust to the stepwise exclusion of each of the four indexes for discretion in adjudication. To illustrate, table II of the Internet appendix documents that the estimates remain similar when I exclude from the first principal component underlying the continuous measure of the proximity of the legal tradition to a pure common benchmark either the indicator for the lack of a comprehensive appeal—i.e., *Common-Law-Ap*, the dummy for the use of equity—i.e., *Common-Law-E*, the indicator for the adoption of adversarial evidence gathering—i.e., *Common-Law-Ad*—or the dummy for the prevalent use of oral evidence, i.e., *Common-Law-O*. Finally, conditional on both transplant and year fixed effects, both *Case-Law* and *Common-Law* are statistically unrelated to dimensions of the legal order, such as the degree of judicial independence, a forceful constitutional review of judicial decisions and the efficiency of the public enforcement of the law,<sup>11</sup> which, according to a vast economic development literature (Porta et al., 2008; Klerman et al., 2011; Schmiegelow and Schmiegelow, 2014; Spamann, 2024), but not the aforementioned comparative law literature, should distinguish different legal traditions.

#### 4.2. Measuring the heterogeneity in legal preferences

To capture the heterogeneity in legal preferences, I build on the link between such tastes and the long-lasting values of the cultural groups introduced when discussing the model in Section 3. To elaborate, I rely on the normalized—to range between 0 and

<sup>9</sup> My results are similar if I consider the procedure for collecting a bounced check (Acartürk and et al, 2005).

<sup>10</sup> To draw this and the following maps, I divide the range of each variable into four equal intervals.

<sup>11</sup> To illustrate, they are not correlated with a 1–10 index increasing with the independence of the judiciary and produced by the Fraser Institute, a dummy for constitutions allowing the evaluation by the constitutional court of judicial decisions developed by the comparative constitutions project and a 1–10 index rising with the efficiency in the enforcement of contracts by the legal system, again developed by the Fraser Institute.

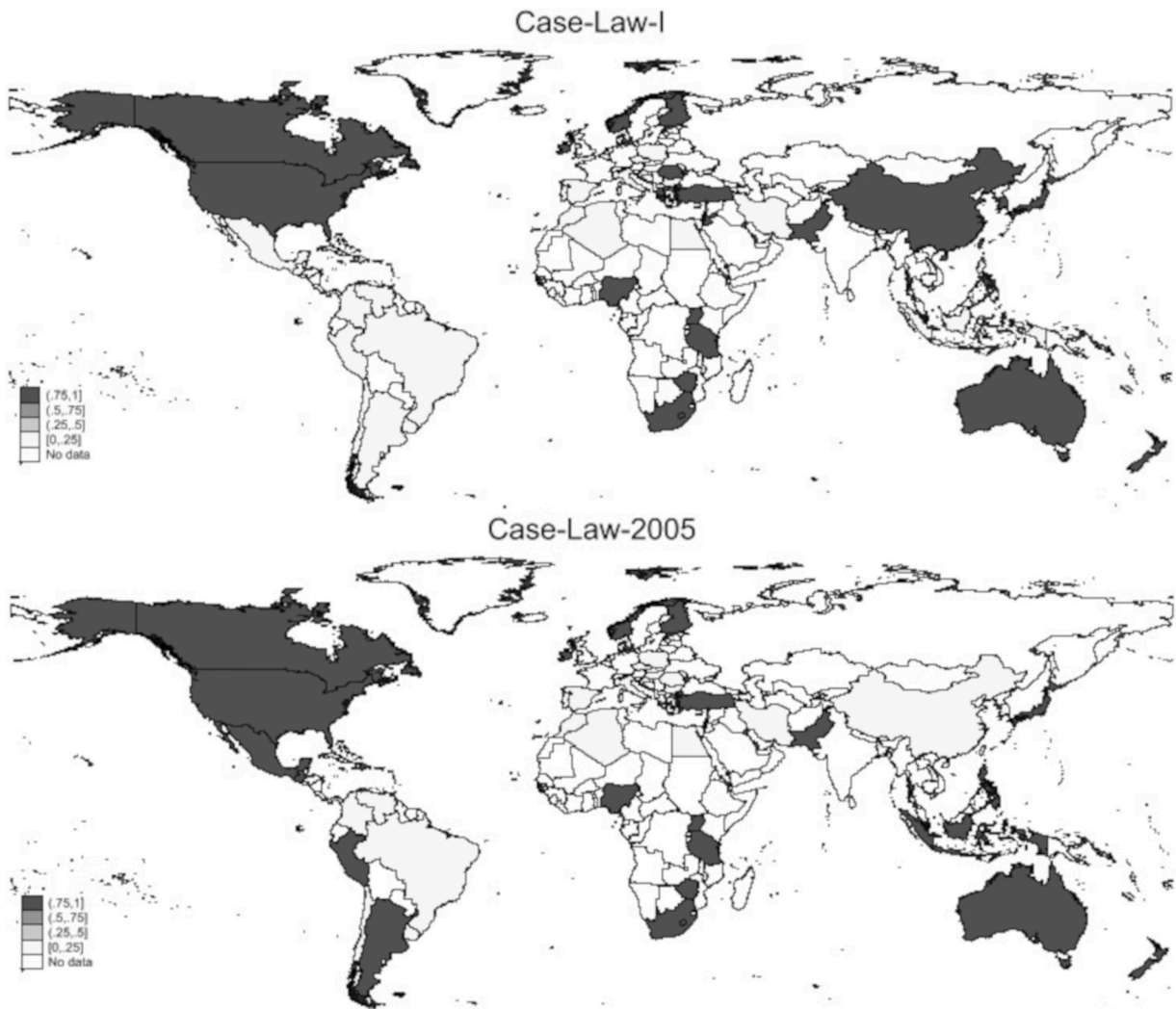


Fig. 1. Lawmaking at Independence and in 2005.

1—coancestry coefficient between the transplant's and origins' ethnic groups that were the largest at independence, i.e., *Genetic-Distance-P* (see Fig. 4). These were the most influential players at independence since often the transplant's plurality ethnic group—e.g., Australian—continued to face after independence the influence of the origin's plurality ethnic group—e.g., English—in the form of economic partnerships and/or immigration (Berkowitz et al., 2003).

The coancestry coefficient is defined as the sum of the random drift-driven differences in the frequencies of DNA polymorphisms between indigenous populations in place before 1500 (Cavalli-Sforza et al., 1994). A vast literature at the crossroads of economics and cultural anthropology suggests that this index is a meaningful measure of the cultural distance between populations since, as clarified by Spolaore and Wacziarg (2009),<sup>12</sup> it summarizes “the degree of genealogical relatedness of different populations over time [and] it can be interpreted as a general metrics for average differences in characteristics transmitted across generations” like preferences over the law (Desmet et al., 2011). To construct *Genetic-Distance-P*, I first identify the relevant ethnic groups that were the largest at independence using ethnic composition data (Alesina et al., 2003; Putterman and Weil, 2010). Next, I match these groups to the macro-populations reported by Cavalli-Sforza et al. (1994). Finally, I normalize the resulting coancestry coefficients to make them range between 0 and 1. Larger values of *Genetic-Distance-P* reveal a longer separation and, in turn, a larger cultural distance between transplant's and origin's ethnic groups that were the largest at independence.

To elicit panel variation, I construct the variable *Genetic-Distance* by multiplying *Genetic-Distance-P* by *Plurality*, which is the time-varying population share of the transplant's ethnic group that was the largest at independence. This last piece of information is

<sup>12</sup> Desmet et al. (2011) report strong correlations between the coancestry coefficient and the distance among answers to the “life, family, and religion and moral” questions given to four World Value Surveys.

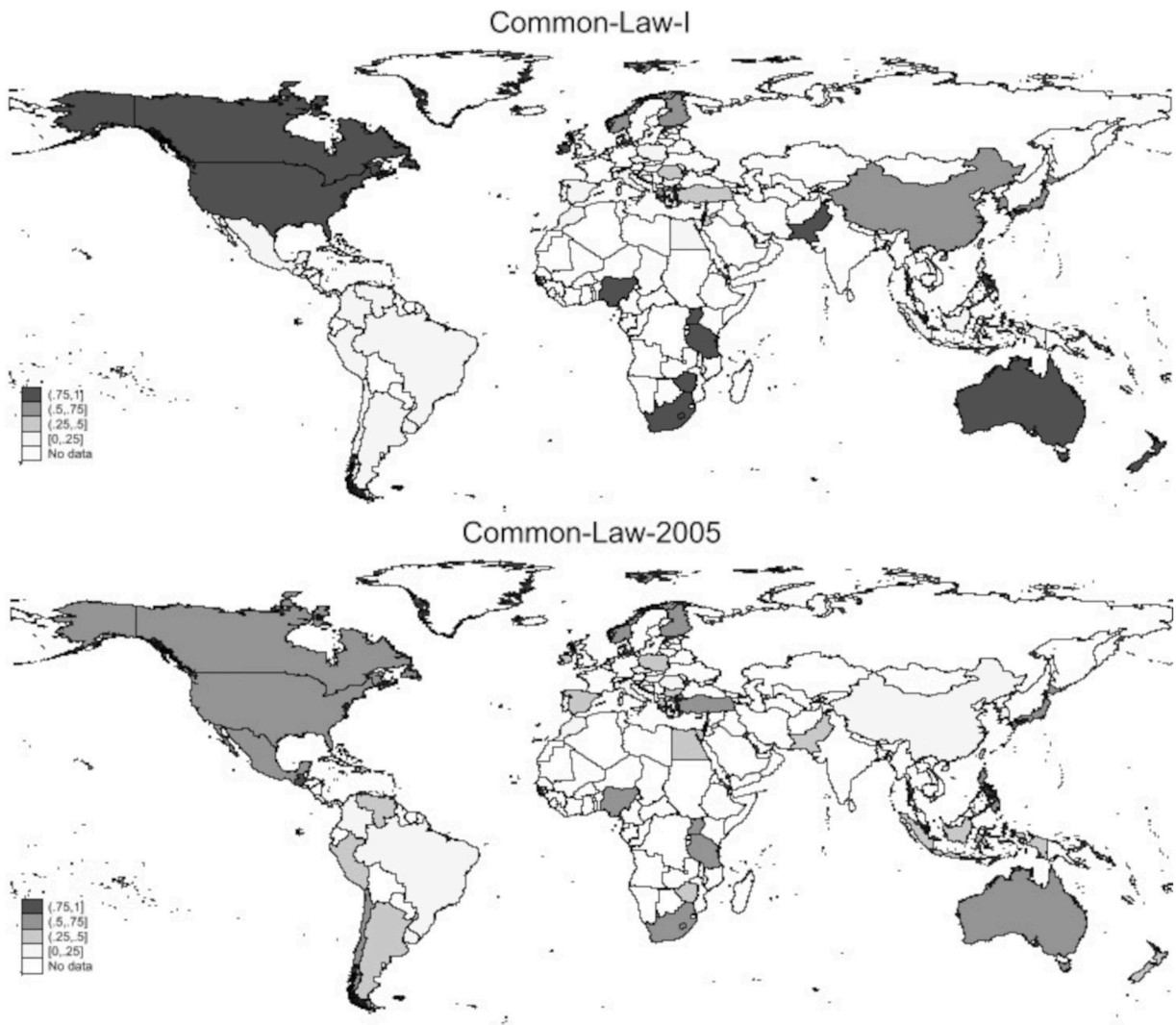


Fig. 2. Legal Traditions at Independence and in 2005.

available from the HIEF data set for the 1945–2013 period.<sup>13</sup> Since, however, I observe the evolution of the legal traditions only between independence and 2005, my sample is bound to span the 1945–2005 period. Ultimately, *Genetic-Distance* represents a time-varying proxy for the diversity of legal preferences. Since it incorporates only casual genetic drifts among precolonial populations, it is also randomly determined by the random colonial transplantation process and is, then, exogenous. This remark, however, cannot exclude the eventuality that a more technological efficient legal tradition and better economic outcomes might favor migration towards the transplant, shaping the population share of the ethnic group that was the largest at independence. Section 5.3.1 discusses extra evidence showing that this is unlikely.

#### 4.3. Measuring the efficiency of the political process

To proxy the efficiency of the political process, I rely on the strongest among the instruments proposed by Guerriero (2016a,b) to isolate its exogenous variation and, notably, the transplant's cultural aversion to a hierarchical control, i.e., *Self-Reliance-P*. Such an index equals three if the grammar of the language of the transplant's ethnic group that was the largest at independence prescribes that the first person pronoun cannot be dropped and that the second person pronoun does not vary according to social proximity, two if only one of these rules is present, and one otherwise (see Fig. 4). To elicit panel variation, I construct the variable *Self-Reliance* by multiplying *Self-Reliance-P* by the variable *Plurality*.

<sup>13</sup> See <https://cadmus.eui.eu/handle/1814/64606>.



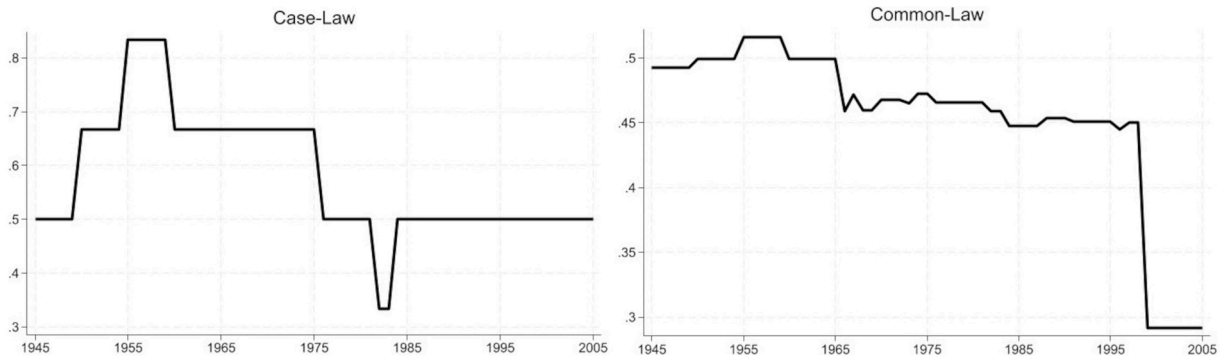


Fig. 3. The Evolution of Lawmaking and Legal Traditions over Time.

Consonant with Licht et al. (2007) and Gorodnichenko and Roland (2017), *Self-Reliance* is a strong predictor of the Polity V constraints on executive score in the 2SLS counterparts of my reduced form equations with dependent variable *Common-Law*, whereby the relative F-test is 54.75 conditional on *Genetic-Distance*, *Plurality* and fixed effects (see table III of the Internet appendix). Furthermore, I can always reject the null hypothesis of the Anderson under-identification test. This is not always the case when the dependent variable is one of the measures of economic outcomes discussed below because they are available from the World Development Indicators only for an unbalanced post-1960 subsample (see table III of the Internet appendix). Accordingly, I focus on the reduced forms.

Building on 2SLS models employing as excluded instruments for the constraints on executive score the product of *Plurality* and either a dummy for the ban on dropping the first person pronoun or a dummy for second person pronoun not varying according to social proximity, I also document that the Sargan test of over-identification restrictions cannot be rejected (see table II of the Internet appendix). This evidence squares with the idea that “language evolves slowly over time, almost certainly more so than values. Moreover, the two grammatical rules on the use of pronouns capture deep and stable features of the language [...]. Hence, there is little doubt that they are correlated with distant cultural traditions, rather than with more recently acquired traits” [Tabellini (2008), p. 278]. Consistent with this view, Murray and Schaller (2010) and Murray et al. (2013) show that the two rules evolved over the long run in response to the pathogen load whereby a more severe parasite-stress produces more hierarchy-prone societies.<sup>14</sup> Such a persistent nature of a culture of self-reliance should exclude a reverse link from the legal tradition and/or economic outcomes to *Self-Reliance*. Section 5.3.1 discusses evidence formally confirming this intuition.

#### 4.4. Measuring economic outcomes

Following Porta et al. (2008), Acemoglu and Johnson (2005) and Guerriero (2016b), I proxy the legal order’s ability to favor the efficient exploitation of scarce resources by producing laws closer to the technologically efficient one with: (a) the natural logarithm of the market capitalization of listed domestic firms as a percentage of GDP, i.e., *Stock-Market-to-GDP*,<sup>15</sup> (b) the natural logarithm of the credit to the private sector as a percentage of GDP, i.e., *Private-Credit-to-GDP*; and (c) the unemployment rate, i.e., *Unemployment-Rate*.

While the first two proxies pick, respectively, the efficiency of financial and credit markets to provide, respectively, equity finance and credit to the private sector,<sup>16</sup> *Unemployment-Rate* captures the inefficiency of the labor markets to properly allocate human capital.

### 5. Evidence

The asymmetric evolution of the—below-average *Self-Reliance*—Philippines and the—below-average *Genetic-Distance*—Taiwan is a poster child of the predictive power of my theoretical model. While, indeed, Philippines received the inefficient—for its long run quality of political process—French civil law model from Spain and started to treat the decisions of Supreme and Appeals Courts as binding with the adoption of the 1950 civil code [David and et al (1995), p. P-135], Taiwan inherited the inadequate—for its long run degree of preference diversity—German common law model from Japan and started to reform its legal order towards a pure civil law legal tradition commencing with the adoption of the 1968 code of civil procedure [David and et al (1995), p. R-1]. Even if this and similar anecdotal evidence is instructive, empirical evidence might be more convincing. Accordingly, I first study the determinants of the evolution of the legal traditions and then, I assess the impact of both these forces and the prevailing legal institutions on economic outcomes.

<sup>14</sup> Skepticism towards the Sapir-Whorf hypothesis derives from the idea that languages are manifestations of a uniform innate “universal grammar” and thus, cannot shape the speakers’ thinking (Chomsky, 1957). Expanding evidence, however, is debunking this view by documenting that languages are absorbed via usage, imitation, and pattern finding rather than being innate (Tomasello, 2003; Evans and Levinson, 2009).

<sup>15</sup> I consider the natural logarithms of stock capitalization and private credit being their distributions skewed.

<sup>16</sup> Biedny (2014) reviews a literature doubting that equity finance captures financial markets efficiency.

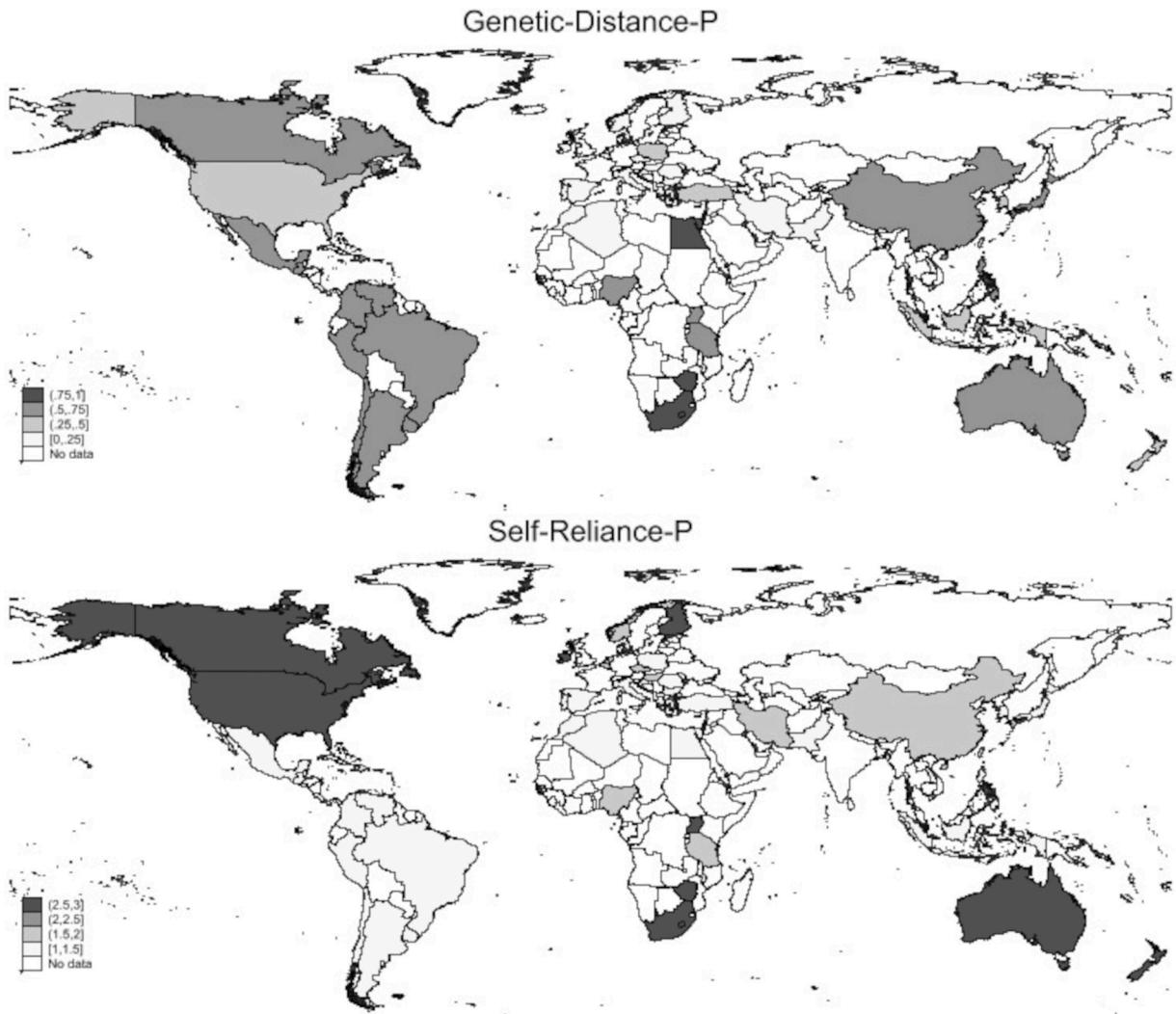


Fig. 4. Heterogeneity in Legal Preferences and Norms of Self-reliance.

### 5.1. Endogenous legal traditions

To evaluate the first prediction, I run by OLS the following panel models:

$$L_{c,t} = \alpha_c + \rho_t + \beta_1 H_{c,t} + \gamma_1 P_{c,t} + \Phi_1' x_{c,t} + e_{c,t}, \quad (1)$$

where  $L_{c,t}$  is either *Case-Law* or *Common-Law*,  $H_{c,t}$  labels *Genetic-Distance*,  $P_{c,t}$  represents *Self-Reliance* and  $x_{c,t}$  possibly incorporates the control variables discussed in Section 5.3.3. The transplant fixed effects  $\alpha_c$  capture time-independent determinants of  $L_{c,t}$  such as the geographic features affecting the diversity of legal preferences, the efficiency of political institutions and economics outcomes (Benati and Guerriero, 2022) as well as predetermined shocks like the out-of-Africa exodus of humankind, agricultural revolution and the factors determining the European colonizers' institutional strategy, e.g., prevalence of disease-causing pathogens and population density in 1500 (Ahlerup and Olsson, 2012).  $\rho_t$  encapsulates, instead, year dummies picking up global shocks, like pandemics, and macroeconomics imbalances. To preserve the within variation, I do not cluster the standard errors at either the transplant, regional, colonial origins or language family level. Should I do so, the message of the analysis will be similar but the estimates will be more noisy (see table IV of the Internet appendix).<sup>17</sup>

<sup>17</sup> To obtain these results, I consider six geographical regions—i.e., Africa, North America, South America, East Asia, West Asia and Europe, five main European colonizers—i.e., France, Netherlands, Portugal, Spain and UK—and the ten language families spoken over the sample according to the Ethnologue data set, i.e., Afro-Asiatic, Arabic, Austronesian, Chinese, Indo-European, Japonic, Koreanic, Swahili, Turkic and Uralic.

**Table 3**  
Endogenous Legal Traditions — Determinants and Economic Impact.

	(1)	(2)	(3)	(4)	(5)
	The dependent variable is:				
	<i>Case-Law</i>	<i>Common-Law</i>	<i>Stock-Market-to-GDP</i>	<i>Private-Credit-to-GDP</i>	<i>Unemployment-Rate</i>
<i>Genetic-Distance</i>	2.573 (0.462)***	3.164 (0.353)***	- 18.942 (7.822)**	5.724 (11.277)	5.984 (26.609)
<i>Self-Reliance</i>	- 1.335 (0.165)***	- 0.033 (0.126)	6.988 (2.811)**	- 7.644 (4.646)*	66.120 (10.850)***
<i>Common-Law</i>			0.813 (0.392)**	- 0.226 (0.512)	0.397 (1.523)
<i>Genetic-Distance*Common-Law</i>			2.262 (2.392)	- 0.615 (2.368)	- 32.495 (7.900)***
<i>Self-Reliance*Common-Law</i>			- 0.043 (0.285)	- 0.601 (1.071)	3.937 (0.986)***
OLS					
Within R <sup>2</sup>	0.03	0.15	0.45	0.17	0.27
Number of Observations	3111	2989	665	1051	1,113

Notes: 1. Standard errors in parentheses. \*\*\* denotes significant at the 1 % confidence level; \*\*, 5 %; \*, 10 %.

2. All specifications include transplant and year fixed effects as well as *Plurality*.

The first two columns of Table 3 reveal that, consistent with the first testable prediction, the coefficient on *Genetic-Distance* is positive and always statistically significant at 1 %, whereas the coefficient on *Self-Reliance* is negative when statistically significant, i.e., when the dependent variable is *Case-Law* (see column (2) of Table 3). To elaborate, a one standard-deviation increase in *Genetic-Distance* leads to almost half a rise in the linear probability of a reform towards case law and induces reforms towards the decentralized legal order covering more than a half—i.e., 60.4 %—of the distance between a pure common law and a pure civil law legal tradition.<sup>18</sup> A one standard-deviation increase in *Self-Reliance* entails a 0.91 fall in the linear probability of a reform towards case law. Different from Guerriero (2016a), both the proxy for the degree of legal preference diversity and the measure of the efficiency of the political process significantly shape the probability of a reform towards case law.

## 5.2. Endogenous legal traditions and economic outcomes

To test the second prediction, I need an empirical strategy tackling the endogeneity of *Common-Law* as well as correctly incorporating the way in which the legal tradition, degree of legal preference heterogeneity and the efficiency of political institutions interact in shaping economic outcomes. Building on Guerriero (2016b), I run by OLS the panel models:

$$Y_{c,t} = \alpha_c + \rho_t + \beta_2 H_{c,t} + \gamma_2 P_{c,t} + \delta_1 L_{c,t} + \delta_2 H_{c,t} \cdot L_{c,t} + \delta_3 P_{c,t} \cdot L_{c,t} + \Phi'_2 \mathbf{x}_{c,t} + \eta_{c,t}, \quad (2)$$

where  $Y_{c,t}$  labels either *Stock-Market-to-GDP*, *Private-Credit-to-GDP* or *Unemployment-Rate*,  $\mathbf{x}_{c,t}$  possibly incorporates the control variables discussed in Section 5.3.3 and  $\alpha_c$  and  $\rho_t$  pick, respectively, time- and transplant-independent determinants of the legal order's ability to favor the efficient exploitation of scarce resources. Two are the key observations. First, by considering *Genetic-Distance* and *Self-Reliance*, I take care of the bias in the estimate of the coefficient on *Common-Law* due to the omission of the determinants of the evolution of legal traditions.<sup>19</sup> Second, by including the interactions between *Common-Law* and both *Genetic-Distance* and *Self-Reliance*, I can evaluate the asymmetric impact of reforms towards institutions typical of a pure common law legal tradition in jurisdictions differing in the degree of diversity of legal preferences and/or the efficiency of political institutions.

Columns (3) to (5) of Table 3 corroborate the second testable prediction whereby the unemployment rate is significantly and negatively related to *Genetic-Distance* multiplied by *Common-Law* and significantly and positively linked with *Self-Reliance* multiplied by *Common-Law*. Even more important is the effect of reforms towards institutions typical of a pure common law legal tradition in the developing jurisdictions in the sample, since many of these policy interventions have been recently justified on the bases of the legal origins results (World Bank, 2004). To formally evaluate these reforms, I calculate by the delta method what would be their impact in the developing transplants with the highest degree of legal preference heterogeneity and in those with the most forceful culture of self-reliance.<sup>20</sup> Consonant with the second prediction, a one standard-deviation rise in *Common-Law* entails a marginally significant—at 10 %—0.64 standard-deviations increase in the logarithm of the stock market capitalization and a significant—at 1 %—1.41 standard-deviations fall in the unemployment rate in the most heterogeneous developing transplants, and it leads to a significant—at 1 %—0.47 standard-deviations rise in the unemployment rate in the developing transplants displaying the strongest norms of self-reliance. These last two empirical results are novel in the endogenous legal traditions literature Guerriero (2016b).

<sup>18</sup> *Genetic-Distance* is zero for the European countries that received the Napoleonic codes and share with France the same macro-population—i.e., Belgium, Czech Republic, Finland, Ireland, Norway and Spain—and one for South Africa, whose largest ethnic group at independence is Bantu and whose origin is England.

<sup>19</sup> I obtain similar results when  $L_{c,t}$  is captured by *Case-Law* (results available upon request).

<sup>20</sup> The mean of *Genetic-Distance* (*Self-Reliance*) is 0.77 (1) in the former case and 0.03 (1.92) in the latter one.

**Table 4**  
Evaluating Reverse Causality.

	(1)	(2)	(3)	(4)	(5)
Panel A. The dependent variable is:					
	<i>Case-Law</i>	<i>Common-Law</i>	<i>Stock-Market-to-GDP</i>	<i>Private-Credit-to-GDP</i>	<i>Unemployment-Rate</i>
<i>Genetic-Distance</i>	3.507 (0.484)***	2.090 (0.374)***	- 26.723 (8.753)***	4.395 (11.416)	2.956 (25.535)
<i>Self-Reliance</i>	- 1.209 (0.165)***	0.213 (0.128)	9.357 (3.048)***	- 8.722 (4.792)*	60.999 (10.596)***
<i>Common-Law</i>			0.789 (0.398)**	- 0.386 (0.517)	1.173 (1.458)
<i>Genetic-Distance*Common-Law</i>			2.052 (2.443)	1.169 (2.461)	- 36.006 (7.574)***
<i>Self-Reliance*Common-Law</i>			- 0.080 (0.289)	- 0.869 (1.084)	3.536 (0.954)***
OLS					
P-value of <i>t</i> -test for <i>Plurality</i> (+1) = 0	0.25	0.01	0.10	0.93	0.01
Within R <sup>2</sup>	0.08	0.18	0.46	0.18	0.34
Number of Observations	3111	2989	665	1051	1,113
Panel B. The dependent variable is:					
	<i>Case-Law</i>	<i>Common-Law</i>	<i>Stock-Market-to-GDP</i>	<i>Private-Credit-to-GDP</i>	<i>Unemployment-Rate</i>
<i>Genetic-Distance</i>	2.623 (0.464)***	3.188 (0.355)***	- 18.813 (7.891)**	3.454 (11.680)	11.229 (27.046)
<i>Self-Reliance</i>	- 6.076 (5.268)	2.909 (4.013)	36.420 (43.803)	- 69.180 (50.607)	219.886 (184.544)
<i>Common-Law</i>			0.808 (0.394)**	- 0.143 (0.517)	0.323 (1.525)
<i>Genetic-Distance*Common-Law</i>			2.341 (2.395)	- 0.371 (2.381)	- 32.261 (7.911)***
<i>Self-Reliance*Common-Law</i>			- 4.513 (133.098)	320.427 (222.745)	- 616.993 (570.566)
OLS					
P-value of <i>t</i> -test for <i>Self-Reliance</i> (+1) = 0	0.25	0.46	0.50	0.23	0.41
P-value of <i>t</i> -test for <i>Self-Reliance</i> (+1)* <i>Common-Law</i> (+1) = 0			0.97	0.15	0.28
Within R <sup>2</sup>	0.03	0.15	0.46	0.17	0.27
Number of Observations	3111	2989	665	1051	1113

Notes: 1. Standard errors in parentheses. \*\*\* denotes significant at the 1 % confidence level; \*\*, 5 %; \*, 10 %.

2. The specifications in panel A (B) include transplant and year fixed effects, *Plurality* as well as *Plurality*(+1) (*Self-Reliance*(+1) and *Self-Reliance*(+1)\**Common-Law*(+1)), where (+1) labels a variable lead one year.

### 5.3. Gaining more insights about causality

In the following, I evaluate the credibility of the estimates just discussed.

#### 5.3.1. Evaluating reverse causality

Albeit the coancestry coefficient between the transplant's and origins' plurality ethnic groups cannot shape legal evolution by construction being exogenously determined by the combination of colonization and pre-colonial random drift-driven polymorphisms, three other, more subtle, forms of reverse causation might drive the results discussed so far. First, the identity of the colonizers, as embedded in the transplanted legal tradition, might have determined also the prevailing language.<sup>21</sup> This is not the case in my sample since just nine transplants' ethnic groups that were the largest at independence employed at that point in time the same languages of the origins' plurality ethnic groups at independence. Accordingly, the correlation between the strength of the norms of self-reliance of the two sets of countries equals - 0.07 and is statistically insignificant, conditional on *Genetic-Distance-P* and *Common-Law-I*. Second, both a more technological efficient legal tradition and better economic outcomes might favor migration towards the transplant, shaping, in turn, the population share of the transplant's plurality ethnic group at independence. If this was the case, then

<sup>21</sup> A correlation between historical prevalence of disease-causing pathogens of transplants and origins might induce a similar link (Davis and Abdurazokzoda, 2016). Yet, this correlation is, in the Murray and Schaller (2010) data, 0.12 and statistically insignificant, conditional on *Genetic-Distance-P* and *Common-Law-I*.

**Table 5**  
Evaluating Unobserved Heterogeneity.

	(1)	(2)	(3)	(4)	(5)
	The dependent variable is:				
	<i>Case-Law</i>	<i>Common-Law</i>	<i>Stock-Market-to-GDP</i>	<i>Private-Credit-to-GDP</i>	<i>Unemployment-Rate</i>
<i>Genetic-Distance</i>	3.393 (0.474)***	2.629 (0.370)***	- 23.973 (8.606)***	4.285 (11.334)	3.120 (25.614)
<i>Self-Reliance</i>	- 1.183 (0.164)***	0.087 (0.128)	7.673 (2.877)***	- 8.645 (4.700)*	65.824 (10.476)***
<i>Common-Law</i>			0.811 (0.399)**	- 0.382 (0.514)	1.252 (1.462)
<i>Genetic-Distance*Common-Law</i>			2.067 (2.447)	1.188 (2.449)	- 37.208 (7.584)***
<i>Self-Reliance*Common-Law</i>			- 0.013 (0.286)	- 0.879 (1.077)	3.255 (0.952)***
<i>Culture</i>	0.011 (0.044)	0.190 (0.034)***	0.768 (0.465)*	- 0.419 (0.368)	2.958 (1.268)**
<i>Income</i>	- 0.119 (0.010)***	- 0.009 (0.008)	0.125 (0.230)	0.225 (0.084)***	- 3.947 (0.421)***
OLS					
Within R <sup>2</sup>	0.08	0.16	0.46	0.18	0.33
Number of Observations	3111	2989	665	1051	1113

Notes: 1. Standard errors in parentheses. \*\*\* denotes significant at the 1 % confidence level; \*\*, 5 %; \*, 10 %.

2. All specifications include transplant and year fixed effects as well as *Plurality*.

one would expect an even stronger correlations between the dependent variables and *Plurality* lead one year, given the plausible lag with which the legal tradition and/or economic outcomes affect migration patterns (Angrist and Pischke, 2009). Panel A of Table 4 reveals that this is not the case. Finally, a similar reasoning clarifies why legal evolution and/or economic outcomes have not affected the long-lasting grammatical rules encapsulated in the proxy for the strength of norms of self-reliance (Dari-Mattiacci and Guerriero, 2015). To illustrate, *Self-Reliance* and *Self-Reliance\*Common-Law*, both lead one year, are unrelated to the dependent variables (see panel B of Table 4).

### 5.3.2. Evaluating measurement errors

A second source of concerns is that the proxy for the strength of a culture of self-reliance is measured with error and changes in its cardinal values just correspond to ordinal switches or, even, no institutional evolution (Benati and Guerriero, 2022). To evaluate this issue, I show in table V of the Internet appendix that my conclusions are similar if either I substitute *Self-Reliance* with the variable *Self-Reliance-D* obtained by multiplying *Plurality* by a dummy for whether *Self-Reliance-P* equal three or I only rely on the pronoun rule most closely related to the cultural aversion to a hierarchical control (Licht et al., 2007), which is the ban to modulate the second person pronoun according to the social distance to the interlocutor.<sup>22</sup>

### 5.3.3. Evaluating the omitted variables bias

Turning to the importance of unobserved heterogeneity, I pursue a three-step strategy.

First, I document in table VI of the Internet appendix that my results are qualitatively similar if I exclude from the sample the transplants in which a minority of the present-day inhabitants descended from the indigenous population in 1500 according to the Putterman and Weil (2010) data. In these jurisdictions, the impact of the colonial rule was sizable.

Second, I evaluate the effect on the basic estimates of considering the other two key determinants of legal evolution and economic outcomes. The first one is the normalized—to range between 0 and 1—first principal component extracted from the share of respondents to all World Value Surveys and European Values Studies run over the sample agreeing that strangers can generally be trusted and the share of those mentioning “tolerance and respect for other people” as being important qualities that children should be encouraged to learn, i.e., *Culture*. As proposed by Guerriero (2016a,b), *Culture* captures the citizens’ cultural propensity to abide by the law, which makes less relevant a centralized means of regulation of deviant acts like civil law (Aghion et al., 2010). Furthermore, a culture of morality facilitates exchange and investment (Bornabay and Guerriero, 2019; Benati and Guerriero (2023, 2024)). The second variable that I evaluate is the GDP per capita in constant 2015 US dollars collected from the World Development Indicators, i.e., *Income*. Crucially, considering *Income* accounts for the possibility that the degree of genetic distance to the legal origins is capturing the distance to the technological frontier and/or a barrier to trade, as put forward by a growing body of cultural economics (Guiso et al., 2009; Spolaore and Wacziarg (2009), Gorodnichenko and Roland (2017)). As Table 5 suggests, incorporating in the analysis *Culture* and *Income* does not change the gist of my analysis. Similarly, I show in table VII of the Internet appendix that the message of my empirical test remains the same when I also include in the specification either lagged values of *Plurality* or the degree of protection

<sup>22</sup> Yet, both rules are strong predictors of democratization (see table III of the Internet appendix).



**Table 6**  
Using Selection on Observables to Assess the Bias from Unobservables.

	(1)	(2)	(3)	(4)	(5)
	The dependent variable is				
	<i>Case-Law</i>	<i>Common-Law</i>	<i>Stock-Market-to-GDP</i>	<i>Private-Credit-to-GDP</i>	<i>Unemployment-Rate</i>
Index for					
<i>Genetic-Distance</i>	4.14	4.91			
<i>Self-Reliance</i>	7.78	0.73			
<i>Common-Law</i>			406.5	2.45	1.46
<i>Genetic-Distance*Common-Law</i>			11.6	0.66	7.89
<i>Self-Reliance*Common-Law</i>			1.43	3.16	4.77

Note: 1. The restricted set of controls includes those employed in the specifications reported in Table 3, whereas the full set of covariates incorporates those used in the specifications listed in Table 5. The sample sizes are those reported in Table 5.

of property rights and the intensity of the rule of law.<sup>23</sup> As suggested by an expanding literature on endogenous market institutions, the last two dimensions also respond to the diversity in legal preferences and the efficiency of the political process (Guerriero, 2016c, 2023).

Finally, I calculate how much greater the influence of unobservables, relative to that of all observables, would need to be to explain away the entire links among culture, legal tradition and economic outcomes (Bellows and Miguel, 2009). To see how the index is calculated, consider a regression with a restricted set of controls and one with a full set of controls. Next, denote the estimate of the coefficient on the variable of interest from the first regression  $\lambda^R$ , where  $R$  stands for “restricted,” and that from the second regression  $\lambda^F$ , where  $F$  stands for “full.” Then, the index is the absolute value of  $\lambda^F/(\lambda^R - \lambda^F)$ . The intuition behind the formula is as follows. The lower the absolute value of  $(\lambda^R - \lambda^F)$  is, the less the estimate of the coefficient on the variable of interest is affected by selection on observables, and the stronger selection on unobservables needs to be to explain away the entire effect. The higher the absolute value of  $\lambda^F$  is, the greater is the effect that needs to be explained away by selection on unobservables. I consider the specifications reported in Table 3 as the restricted regressions and those in Table 5 as the full regressions, and I report the indexes calculated from the regressions with dependent variable *Case-Law*, *Common-Law*, *Stock-Market-to-GDP*, *Private-Credit-to-GDP* and *Unemployment-Rate* in columns (1) to (5) of Table 6, respectively. I focus on the variables testing the key model predictions. The average (median) of the indexes is 35.2 (4.1). Therefore, to attribute the entire estimates to selection effects, selection on unobservable factors would have to be on average more than thirty-five times greater than selection on all observables, which seems unlikely.

## 6. Conclusions

My analysis documents, across several identification strategies, how fundamental cultural forces, which also shape economic outcomes, have pushed legal transplants to turn their legal origin into the legal tradition maximizing their social welfare and what the economic impact of these reforms is. To illustrate, reforms towards institutions typical of a pure common law legal tradition are found where the genetic distance to the legal origin is the largest and a culture of self-reliance is the weakest. Furthermore, not only did these reforms encourage stock market capitalization while curbing the unemployment rate in the developing transplants with the most heterogeneous legal preferences, but they also amplified labor market inefficiencies in developing transplants displaying the strongest norms of self-reliance.

From a policy point of view, this last set of findings validates the key model ramification that common law should be preferred to civil law only for sufficiently heterogeneous legal preferences and/or a sufficiently inefficient political process. This conclusion is strikingly at odds with the legal origins literature mantra that common law must always dominate civil law, while providing a justification for the failure of the reforms supported by Doing Business project. To elaborate, these policy interventions have not been calibrated on the heterogeneity of the legal preferences and/or the efficiency of the political process of the transplants (World Bank, 2004). More important, my framework suggests that, in an increasingly democratic world (North et al., 2009), civil law will become more dominant in maximizing the social welfare and the technological efficiency of the prevailing law.

To conclude, my analysis should be evaluated within the limits of my empirical approach, which, in turn, open two crucial avenues for future research. First, the external validity of my results should be tested by studying other instances of evolution of the legal traditions. Ancient societies are obvious candidates. To elaborate, both Bronze Age Mesopotamia and Ancient Rome have witnessed several switches from a less to a more centralized legal tradition and the other way around (Stein, 1999; Westbrook, 2003), and these reforms were implemented by economies sufficiently simple to credibly link legal evolution to its determinants (Benati and

<sup>23</sup> Lagged values of the dependent variables and the proxies for the heterogeneity in legal preferences and the efficiency of the political process are not plausible regressors given their limited within variation. While, indeed, each lawmaking and adjudication institution has been reformed at most once over the sample, *Genetic-Distance* and *Self-Reliance* vary over time only because *Plurality* evolves across years.

Guerriero, 2021, 2023, 2024; Guerriero et al., 2025). Second, I assess the impact of culture on legal evolution going through the distance between the legal preferences of each transplant and those of its origin as well as the transplant's norms of self-reliance. Yet, culture is a multifaceted notion and other cultural features might shape legal evolution.

## Data availability

Data will be made available on request.

## Declaration of competing interest

This is to declare that I have no relevant or material financial interests that relate to the research described in the paper I am submitting to the Journal of Economic Behavior & Organization, i.e., "Understanding Legal Origins: on the Determinants and Impact of Legal Traditions". Moreover, no party had the right to review the paper prior to its circulation.

## Supplementary material

Supplementary material associated with this article can be found in the online version at [10.1016/j.jebo.2025.107305](https://doi.org/10.1016/j.jebo.2025.107305).

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