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Keywords

ancestral distance, long-term relatedness, state capacity, civic culture

JEL Classification

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Ancestral Distance and the Cultural Foundations of State Capacity*

Trung V. Vu†‡

September 14, 2026

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This study investigates the role of long-term population relatedness in shaping global variation in state capacity. It argues that longer periods of ancestral separation are associated with greater divergence in intergenerationally transmitted civic norms governing voluntary compliance with state institutions. Ancestral distance may also hinder the international diffusion of effective state institutions, contributing to persistent cross-country differences in state capacity. The empirical analysis shows that countries with greater ancestral distance from the global frontier of effective state institutions exhibit lower state capacity. Dyadic regressions further indicate that ancestral distance is associated with greater divergence in state capacity. To examine a potential cultural foundation of this relationship, I exploit variation in cultural backgrounds among second-generation immigrants residing in the same country. I find that immigrant populations with greater ancestral distance exhibit larger differences in self-reported attitudes towards voluntary tax compliance. Taken together, the findings suggest that ancestral distance is an important historical predictor of cross-country disparities in state capacity, consistent with a role for divergence in civic norms and barriers to institutional diffusion.

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1 Introduction

A substantial body of evidence highlights the importance of state capacity, reflected in the ability to maintain law and order, raise tax revenue, regulate economic activity and provide public goods efficiently, for economic development (Acemoglu, 2005; Besley and Persson, 2010; Blattman and Miguel, 2010; Fearon and Laitin, 2003; Vu, 2025a).[1] Yet, despite its economic importance, ineffective state institutions remain a persistent feature of many societies across the world.[2] Understanding the deep historical origins of differences in state capacity is therefore an important question in the study of long-run comparative development.

This study argues that long-term relatedness between populations provides a deep historical source of global variation in state capacity. This argument builds on the seminal work of Spolaore and Wacziarg (2009), who introduce a comprehensive measure of genetic distance between populations based on their differences in the distribution of allelic frequencies. Genetic distance can be interpreted as a molecular clock capturing the length of time elapsed since two populations diverged from a common ancestor.[3] Longer periods of ancestral separation exposed populations to increasingly divergent historical trajectories and environments, potentially giving rise to persistent differences in preferences, beliefs, and norms that could be transmitted across generations (Becker et al., 2020; Spolaore and Wacziarg, 2009, 2016a, 2018; Vu, 2026). The central proposition of this study is that ancestral distance is therefore associated with greater divergence in civic norms, which constitute an important foundation of the collective action and public support necessary for effective state institutions.

These persistent differences in civic norms may contribute to cross-country differences in state capacity in several ways. Populations that have diverged from one another over longer periods are more likely to differ in cultural norms governing cooperation with state institutions and voluntary compliance with state policies and regulations, thereby generating persistent differences in the civic foundations of state capacity across countries. A complementary explanation is that differences in norms and preferences may impede the international diffusion of effective state policies, knowledge, and institutions by reducing the extent to which societies learn from and adapt institutional innovations developed elsewhere (Rogers, 1995; Rose, 1993; Spolaore and Wacziarg, 2016a,b; Vu, 2026). Ancestral distance

[1] For comprehensive reviews of this literature, see Bardhan (2016), Johnson and Koyama (2017), and Vu (2025a), among others.

[2] Highlighting the worldwide prevalence and persistence of state weakness, Migdal (1988, p. 33) observes that "in parts of the Third World, the inability of state leaders to achieve predominance in large areas of their countries has been striking . . . "

[3] Throughout the study, "ancestral distance" refers to the conceptual construct of long-term relatedness between populations, while "genetic distance" refers to its empirical proxy.

may therefore be associated not only with international differences in civic culture and state capacity, but also with deep-rooted barriers to the convergence of institutional development across countries.

Conventional explanations of the origins of effective state institutions emphasize the role of the state's organizational and coercive capacity in maintaining law and order and enforcing legal obligations (Besley and Persson, 2009, 2011; Hobbes, 1651; Weber, 1919).[4] An alternative perspective views state capacity as embedded in a social contract, whereby citizens accept obligations in exchange for a government that provides public goods and other collective benefits (Besley, 2020; Locke, 1690; Rousseau, 1762). From this perspective, state capacity depends not only on the state's coercive capacity but also on citizens' willingness to cooperate with state institutions and comply voluntarily with state policies and regulations. Civic norms therefore provide an important foundation for state capacity (Besley and Dray, 2024). On this basis, persistent differences in civic norms associated with longer periods of ancestral separation may serve as an important historical predictor of cross-country differences in state capacity.

A central challenge in testing the main hypothesis is to distinguish the relationship between ancestral distance and differences in intergenerationally transmitted civic norms from the influence of conventional institutional and economic determinants of cultural attitudes. This problem arises because norms and values may co-evolve with, and be jointly shaped by, institutional and economic development. Against this background, I employ two main complementary empirical approaches to examine whether greater ancestral distance is associated with persistent divergence in civic norms and, in turn, with cross-country variation in state capacity, as discussed below.

First, the empirical analysis employs a reduced-form approach to examine whether ancestral distance is associated with cross-country differences in state capacity. The cross-country evidence indicates that countries with greater genetic distance from the global frontier of effective state institutions tend to exhibit lower levels of state capacity. A one-standard-deviation increase in genetic distance from Denmark, the benchmark measure of ancestral distance from the frontier, is associated with a reduction in the 2015 state capacity index equivalent to 63.1% of a standard deviation of the cross-country distribution of state capacity.

Using a dyadic regression framework, I further find that pairs of countries characterized by longer periods of ancestral separation tend to exhibit greater divergence in state capac-

[4] Besley and Persson (2009) document that the accumulation of fiscal and legal capabilities depends on political stability, the distribution of economic and political power, and the provision of public goods that serve common interests (e.g., fighting external wars). Related studies further emphasize the role of military threats (Aghion et al., 2018) and mass mobilization driven by wars (Scheve and Stasavage, 2012) in fostering state capacity.

ity. Taken together, these estimates, albeit correlational, provide suggestive evidence that long-term relatedness between populations is an important historical predictor of the global distribution of state capacity. The findings are consistent with the proposition that ancestral distance imposes persistent constraints on the international diffusion of effective state institutions, thereby contributing to cross-country differences in state capacity.

Second, I examine variation in self-reported attitudes towards tax compliance, a dimension of civic culture closely related to state capacity, among second-generation immigrants residing within the same country. I exploit information from the Integrated Values Survey (2017 – 2022) on respondents born and currently residing in the same country but having one or both parents born in another country. For each country of origin represented within a given destination country, I calculate the mean self-reported preference for voluntary tax compliance among second-generation immigrants. I then construct dyadic comparisons across countries of origin, restricting the analysis to pairs of second-generation immigrant populations residing in the same country. This approach allows me to relate differences in self-reported civic attitudes to bilateral genetic distance between countries of origin while holding the institutional and economic environment of the country of residence constant.

I find that pairs of second-generation immigrant populations characterized by greater ancestral distance tend to exhibit greater divergence in attitudes towards voluntary tax compliance. The baseline estimates indicate that moving from the 10th to the 90th percentile of the distribution of bilateral genetic distance across countries of origin is associated with an increase in the absolute difference in mean preferences for tax compliance equivalent to 37% of a standard deviation. These results are consistent with the hypothesis that longer periods of ancestral separation are associated with persistent differences in intergenerationally transmitted civic norms. This relationship persists among children of immigrants born and raised in the same institutional and economic environment, consistent with the interpretation that ancestral distance is an important historical predictor of variation in intergenerationally transmitted civic attitudes. Given the importance of civic culture for effective state institutions, the migrant-level evidence provides complementary support for the broader hypothesis that long-term relatedness between populations is associated with the large and persistent disparities in state capacity observed across the world.

The migrant-level evidence is robust to a range of sensitivity and heterogeneity analyses. First, the findings remain intact when restricting the sample to pairs of countries of origin located in the Old World and using genetic distance in 1500 CE as an instrumental variable for long-term population relatedness, reducing concerns about large-scale post-1500 population movements. Second, the estimated relationship is weaker among pairs of countries of origin with greater differences in ancestral climatic stability, consistent with the idea

that ancestral instability may attenuate the intergenerational persistence of cultural norms. Third, the findings are unlikely to be driven exclusively by migrant selectivity, adaptation to destination-country environments, or differences in formal institutions and colonial experiences across countries of origin. Finally, the results remain robust to using alternative measures of self-reported civic attitudes and controlling for differences in a broad range of geographic, historical, institutional, socioeconomic, and cultural characteristics.

The remainder of the study is structured as follows. Section 2 reviews the related literature. Section 3 develops the conceptual framework linking ancestral distance, civic culture, and state capacity. Section 4 describes the key variables, data sources, and empirical strategy. Section 5 presents cross-country evidence on the association between ancestral distance and state capacity. Section 6 examines whether ancestral distance is associated with persistent differences in self-reported civic attitudes among second-generation immigrant populations residing within the same country. Section 7 concludes.

2 Related literature

This paper is closely related to a growing literature examining the role of long-term relatedness between populations in shaping comparative economic development across countries. This line of research builds on the seminal contribution of Spolaore and Wacziarg (2009), who show that genetic distance from the global frontier of technological innovation is associated with greater barriers to the cross-border diffusion of technologies and, consequently, lower levels of income per capita.

More recent contributions extend this framework to the international diffusion of institutions. Spolaore and Wacziarg (2016b), for example, show that countries characterized by greater genetic distance from the United States, regarded as a global frontier of institutional innovations, are more likely to experience persistent institutional underdevelopment. Spolaore and Wacziarg (2018) further document a relationship between genetic distance from the United States and several dimensions of institutional quality, including democratic institutions, contract enforcement, protection against expropriation, and the rule of law. These studies show that ancestral distance is associated not only with differences in economic development but also with persistent cross-country differences in institutional outcomes.

The cross-country analysis in this paper builds on but differs from these contributions in several respects. Specifically, I examine state capacity as a distinct dimension of institutional development. I use a comprehensive measure that captures the state's ability to exercise authority, raise tax revenue, administer public resources, enforce rules, and provide public goods efficiently. Unlike many conventional measures of institutional quality that

focus on particular dimensions of political or legal institutions, this index provides a broader measure of the state's capacity to implement policies and deliver public goods and is available over an extended period from 1900 to 2018.[5] This allows me to examine whether the association between ancestral distance and state capacity persists over a substantially longer period, rather than focusing on institutional outcomes observed in a single year. The use of internationally comparable data on state capacity over an extended period is particularly relevant for assessing whether the relationship between long-term population relatedness and institutional performance reflects persistent historical differences.

Furthermore, the analysis goes beyond documenting a reduced-form association between ancestral distance and state capacity by examining a potential civic-cultural foundation of this relationship. The analysis exploits heterogeneity in the ancestral origins of second-generation immigrant populations exposed to a common contemporary institutional and economic environment. Specifically, I examine whether greater ancestral distance is associated with greater divergence in intergenerationally transmitted civic norms. This approach complements the existing cross-country evidence by examining whether differences in civic attitudes associated with ancestral distance persist across generations even among populations born and raised within a shared institutional environment. The results therefore provide complementary evidence consistent with the interpretation that persistent differences in civic norms may constitute an important channel through which long-term population relatedness is associated with cross-country differences in state capacity.

Several studies provide evidence that genetic distance is associated with differences in norms, values, and preferences between populations. Spolaore and Wacziarg (2016a), in particular, show that country pairs with higher genetic distance tend to exhibit greater divergence in self-reported cultural values. A related study by Desmet et al. (2011) documents a positive association between genetic distance and differences in self-reported cultural attitudes across European countries. The migrant-level analysis in this paper is closely related to the approach adopted in Becker et al. (2020), who examine the role of ancestral distance in explaining variation in economic preferences, including risk-taking, prosocial behaviour, negative reciprocity, and patience. The paper is also related to Desmet et al. (2017), who examine the relationship between genetic distance between ethnic groups within populations and differences in cultural values.

While these studies consider broad measures of cultural values or a range of economic preferences, the present analysis focuses more narrowly on civic norms that are directly re-

[5] As discussed below, the sub-indicators of state capacity are sourced from the Varieties of Democracy (V-Dem) dataset, based on expert-coded assessments of countries' political and institutional characteristics. For further details, see https://www.v-dem.net/.

lated to the development and functioning of state institutions, particularly attitudes towards voluntary tax compliance. An important distinction in this context is between generalized trust in other people and trust in government policies and regulations. There is growing evidence that citizens' exposure to effective state institutions, for example, through their growth-enhancing effects, can strengthen trust in state institutions (see, e.g., Acemoglu et al., 2025; Besley, 2020; Besley et al., 2026; Besley and Dray, 2024). By contrast, Besley et al. (2026) find no evidence that exposure to the growth-enhancing effects of state institutions is associated with interpersonal trust.

This distinction illustrates why societies with similar levels of generalized trust may nevertheless differ substantially in political trust and, consequently, in citizens' willingness to comply with state policies and regulations. Thus, although previous studies have established that ancestral distance is associated with differences in social trust and other cultural values and economic preferences, this relationship does not mechanically imply corresponding differences in civic norms governing citizens' voluntary compliance with state institutions. Whether ancestral distance is associated with persistent differences in such civic norms, which are closely related to voluntary compliance, collective action, and public support for state institutions, therefore remains an open empirical question. Focusing on this narrower dimension of cultural attitudes is important for understanding the potential civic-cultural foundations of state capacity.

3 Conceptual framework and hypotheses

3.1 Ancestral distance and the ancient origins of civic culture

There is a widespread consensus that the prehistoric exodus of anatomically modern humans from East Africa tens of thousands of years ago had a persistent influence on the genetic composition of contemporary populations (Ashraf and Galor, 2018; Ashraf et al., 2021; Henn et al., 2012). The out-of-Africa theory of human origins posits that Homo sapiens began populating the entire globe from East Africa approximately 60,000 years ago. This process occurred through a large number of discrete migratory steps, each involving a group of humans leaving an ancestral settlement to establish new societies further away.

Along these migratory routes, human populations became increasingly separated from one another, giving rise to persistent differences in the genetic composition of contemporary populations (Spolaore and Wacziarg, 2009, 2018). As human societies diverged from a common ancestor, they were also exposed to different location-specific selective pressures, contributing to divergence across a wide range of genetic and cultural traits.

Population geneticists show that genetically dissimilar populations tend to differ in the frequencies of neutral alleles, or variants of genes. Accordingly, genetic distance can be interpreted as a molecular clock indicating the length of time that has elapsed since two populations diverged from a common ancestor (Spolaore and Wacziarg, 2009, 2018). Ancestral distance between populations can therefore be captured by differences in allelic frequencies (Spolaore and Wacziarg, 2009, 2018).

Importantly, longer periods of ancestral separation are associated not only with greater divergence in genetic composition but also with differences across a wide range of intergenerationally transmitted traits, including culture, languages, preferences, beliefs, norms, and traditions (Spolaore and Wacziarg, 2009, 2018). A potential explanation is that societies with greater ancestral distance may have followed different historical trajectories (Becker et al., 2020). Over time, these divergent experiences may translate into differences in economic preferences, shaped by idiosyncratic experiences and, more broadly, by the composition of people's environment (Becker et al., 2020). Moreover, cultural traits may be transmitted across generations through cultural interactions (Dohmen et al., 2012) and genetic channels (Cesarini et al., 2009), contributing to divergence in norms, values, and preferences.

These arguments suggest that long-term relatedness between populations may constitute an important source of variation in civic culture across contemporary countries. Specifically, populations that experienced longer periods of ancestral separation are more likely to differ in intergenerationally transmitted norms governing cooperation with, and voluntary compliance with, state policies and regulations. This leads us to the following proposition:

Prediction 1 (Ancient origins of civic culture). *Contemporary populations with greater ancestral distance are more likely to differ in persistent civic norms.*

3.2 Ancestral distance, civic values and state capacity

A growing body of evidence suggests the importance of civic culture and social capital for the development of effective state institutions. Central to Besley's (2020) theoretical model of intrinsic reciprocity is the role of civic culture in fostering quasi-voluntary tax compliance, which, in turn, strengthens fiscal capacity. In this framework, trust and civic values are internalized into individuals' preferences, and a strong civic culture incentivizes a sense of reciprocal obligation among citizens. Such reciprocity arises from citizens' willingness to comply with their obligations and the state's provision of public goods and services.[6]

[6]This line of reasoning draws on Levi's (1988) influential historical analysis highlighting the importance of voluntary compliance for the development of the power to tax. It is also consistent with a long-standing political-science literature emphasizing that well-functioning polities depend critically on civic participation

Although conventional models emphasize enforcement-based incentives for compliance (Allingham and Sandmo, 1972), a substantial body of research demonstrates that citizens' willingness to comply with state policies and regulations is also shaped by non-pecuniary motivations. Individuals may comply because they regard public authority as legitimate and view compliance as a civic responsibility (Andreoni et al., 1998; Tyler, 2006; Weigel and Kabue Ngindu, 2023). Voluntary compliance may also be incentivized by reciprocity, whereby citizens' willingness to fulfil their obligations depends partly on the perceived benefits generated by the state's provision of public goods and services (Besley, 2020; Fjeldstad and Semboja, 2001; Levi, 1988).

Social norms can further reinforce these motivations. Individuals' willingness to comply may be influenced by the behaviour of their peers and by informal rewards or sanctions (Luttmer and Singhal, 2014). This argument is consistent with previous studies documenting that cooperation in the provision of public goods critically depends on beliefs about the trustworthiness and reciprocal behaviour of others (Ostrom, 1990, 2000). Accordingly, social enforcement within peer groups can play an important role in promoting compliance with government policies (Besley and Dray, 2024).

Taken together, the existing literature suggests that state capacity depends not only on governments' coercive capacity but also on citizens' willingness to cooperate voluntarily with public institutions. To the extent that ancestral distance is associated with persistent differences in civic culture, it may constitute a deep-rooted source of variation in state capacity across the contemporary world.

Prediction 2 (Cultural foundations of state capacity). *Persistent differences in civic norms associated with longer periods of ancestral separation contribute to the wide and persistent variation in state capacity observed across countries.*

3.3 Ancestral distance and barriers to the international diffusion of state institutions

Consistent with Spolaore and Wacziarg (2009) and Vu (2026), ancestral distance may also influence state capacity through shaping barriers to the international diffusion of effective state policies, knowledge, and institutions. Opportunities to observe and learn from policy experiences in foreign jurisdictions play an important role in the accumulation of state capabilities. A central feature of Buera et al.'s (2011) theoretical framework, for example, is that

and social capital (Almond and Verba, 1963; Putnam, 1993). Taken together, these arguments point to a potential complementarity between civic culture and state capacity.

policymakers rely on the experiences of other countries when assessing the political feasibility and effectiveness of alternative policies, thereby affecting the adoption of state-interventionist versus market-oriented policies. More broadly, state capacity and political institutions can spread across national borders through learning-based policy diffusion, knowledge spillovers, and peer effects (Shipan and Volden, 2008; Volden et al., 2008).

The effectiveness of such learning and diffusion processes arguably depends on the degree of long-term relatedness between populations (Vu, 2026). Closely related countries tend to share more similar preferences for state policies and forms of government (Spolaore and Wacziarg, 2016c), which may facilitate communication, learning, emulation, and the adaptation of institutional innovations (Rogers, 1995; Rose, 1993).

Simmons and Elkins (2004) further argue that learning from policy adoption in culturally similar contexts provides policymakers with more informative insights into potential socioeconomic and political consequences of alternative policies. Perceived similarities in policy consequences therefore serve as an important cognitive shortcut when policymakers face uncertain or poorly understood environments. In a similar vein, reference-group theory emphasizes that learning from culturally proximate societies is central to shaping international policy diffusion (Rose, 1993).

These arguments suggest that the cultural divergence associated with longer periods of ancestral separation may impede communication and interaction between societies, thereby creating barriers to the cross-border diffusion and adoption of institutional innovations.

Prediction 3 (Deep-rooted cultural barriers). *Ancestral distance may create persistent barriers to the international diffusion of effective state policies, knowledge, and institutions, thereby contributing to cross-country differences in state capacity.*

4 Data and methods

4.1 Main variables

State capacity. To capture cross-country differences in state capacity, I use the comprehensive state capacity index developed by O'Reilly and Murphy (2022). The index is constructed as the first principal component of six dimensions of legal, fiscal, and organizational capacity, capturing the rule of law, the territorial authority of the state, the rigour and impartiality of public administration, the extent to which public expenditures are directed towards particularistic interests or public goods, the modernity of the state's revenue sources, and the universality of education provision. These measures are drawn from the Va-

rieties of Democracy (V-Dem) dataset. The index provides internationally comparable data on state capacity over an extended period and has been used in previous studies examining the economic importance of effective state institutions (e.g., Vu, 2025a).

Self-reported civic norms. As emphasized by Besley (2020), the development of fiscal capacity depends, in part, on citizens' willingness to comply with tax obligations. However, obtaining an internationally comparable measure of tax compliance is challenging, largely because actual tax evasion is either unobserved or measured with substantial noise. I therefore use self-reported attitudes towards tax obligations as an indicator of the civic norms underlying voluntary tax compliance. This measure is not intended to provide a comprehensive measure of state capacity, nor does it directly capture actual tax compliance. Rather, it captures one important dimension of civic culture that contributes to the development and functioning of effective state institutions. This approach rests on the premise that citizens who view paying taxes as a civic duty are, on average, more supportive of the collective action required to develop effective state institutions (Besley, 2020; Besley and Dray, 2024).

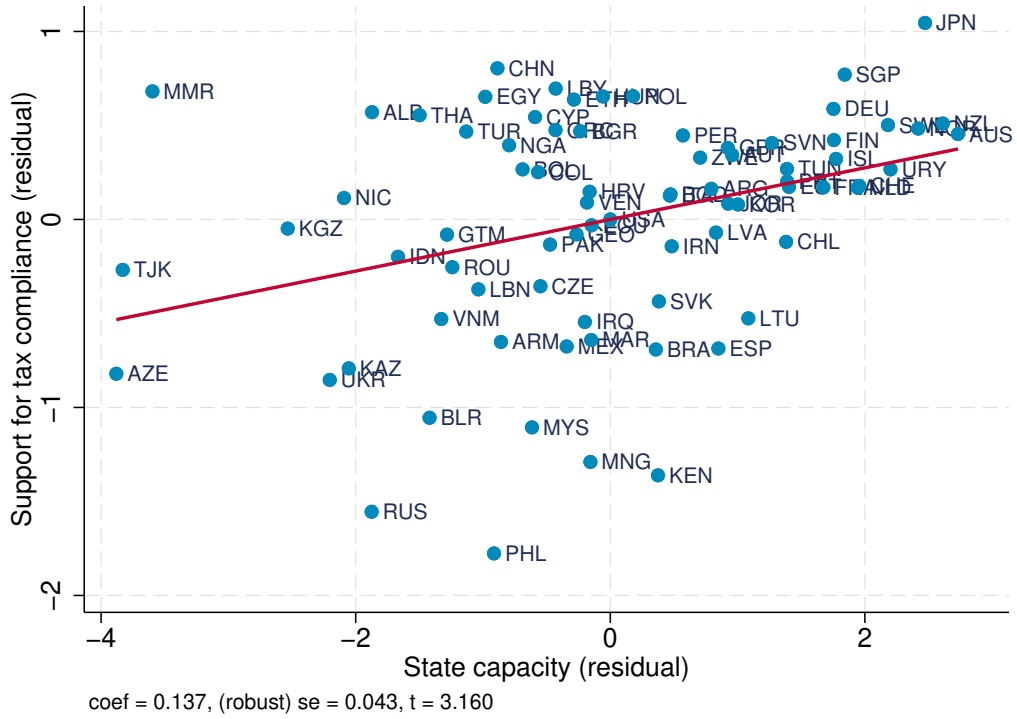
The Integrated Values Survey (IVS, 2017 – 2022) asks respondents: "Is it justifiable to cheat on taxes if you have a chance?" Responses are recorded on a categorical scale from 1 ("never justifiable") to 10 ("always justifiable"), with higher values indicating more favourable attitudes towards tax evasion and, correspondingly, weaker norms of voluntary tax compliance.[7] Because the measure is based on self-reported attitudes, it may also reflect cross-cultural differences in response behaviour, including social desirability and willingness to express sensitive views. I therefore interpret the measure as an indicator of self-reported attitudes towards voluntary policy compliance rather than as a direct measure of actual compliance behaviour. Nevertheless, using self-reported attitudes towards tax obligations to capture civic norms is consistent with the approach of, for example, Besley (2020) and Besley and Dray (2024), who examine the relationship between civic culture and state capacity.

Validation of civic-culture measure. To assess whether attitudes towards tax obligations capture a dimension of civic culture that is related to broader state capacity, I examine their cross-country association with the state capacity index of O'Reilly and Murphy (2022). For each country, I calculate the mean response to the IVS question on whether cheating on taxes is justifiable. Then, I reverse-code the measure so that higher values indicate stronger opposition to tax evasion and, hence, stronger norms of voluntary tax compliance.

Figure 1 illustrates the relationship between the country-level measure of tax compliance and the state capacity index, accounting for unobserved, time-invariant heterogeneity

[7]The IVS combines data from the World Values Survey (WVS) and the European Values Study (EVS), providing a harmonized dataset of internationally comparable measures of values and attitudes.

Figure 1: Self-reported civic culture and state capacity across countries



Notes: This figure illustrates the partial cross-country relationship between state capacity and mean preferences for voluntary tax compliance, based on all participants in the IVS (2017 – 2022). The relationship is conditional on binary indicators for world regions, including Europe and Central Asia, Latin America and the Caribbean, the Middle East and North Africa, North America, South Asia, and Sub-Saharan Africa, with East Asia and the Pacific serving as the omitted reference category.

across world regions. The association is positive and statistically significant: a one-standard-deviation increase in support for tax compliance is associated with a 0.423-standard-deviation increase in the state capacity index across countries ($t = 3.16$, $p = 0.002$). Thus, countries in which respondents express stronger support for tax compliance tend, on average, to have higher levels of state capacity. This positive association provides suggestive evidence that self-reported attitudes towards tax compliance capture a dimension of civic culture that is closely related to effective state institutions.

Ancestral distance. I employ a prehistorically determined measure of genetic distance to capture long-term relatedness between populations in terms of ancestry and historical trajectories. The genetic distance index is developed by Spolaore and Wacziarg (2018), building on the ethnicity-level dataset on genetic composition of Pemberton et al. (2013) and the original approach developed by Spolaore and Wacziarg (2009).

The measure is based on expected heterozygosity, which captures the probability that two individuals randomly selected from a population differ with respect to a given set of ge-

netic markers (Ashraf and Galor, 2018). Genetic distance between populations is measured by differences in the distribution of allelic frequencies across genetic markers. For example, the index takes a value of zero when two populations have identical allelic frequencies, with higher values indicating greater genetic dissimilarity. The country-level measure constructed by Spolaore and Wacziarg (2018) aggregates these ethnicity-level distances using weights based on the proportional representation of indigenous ethnic groups within contemporary populations. The index aims to capture ancestral relatedness between populations, determined well before the development of modern state institutions or European contact.

Table 1 presents descriptive statistics for the key variables included in the main analysis. See Appendices A1 and A2 for details on country lists, variable definitions, and data sources.

Table 1: Summary statistics of key variables

	N	Mean	SD	Min	Max
Panel A. Variables used in the cross-country analysis					
State capacity in 2015	129	0.377	1.863	-4.512	4.049
Genetic distance to Denmark	129	0.026	0.018	0.0005	0.054
Abs. diff. in state capacity in 2015	12,246	2.092	1.525	0.0004	8.561
Bilateral genetic distance	12,246	0.035	0.018	0	0.095
Bilateral genetic distance relative to Denmark	11,781	0.021	0.015	0	0.069
Panel B. Variables used in the immigrant-population analysis					
Father's country of birth					
Absolute difference in mean preferences for voluntary tax compliance	4,686	1.479	1.375	0	9
Bilateral genetic distance	4,686	0.022	0.017	0	0.087
Mother's country of birth					
Absolute difference in mean preferences for voluntary tax compliance	4,127	1.465	1.385	0	9
Bilateral genetic distance	4,127	0.024	0.018	0	0.087
Parents' same country of birth					
Absolute difference in mean preferences for voluntary tax compliance	1,521	1.638	1.327	0	9
Bilateral genetic distance	1,521	0.027	0.018	0	0.087

4.2 Empirical strategy

Estimating the role of ancestral distance in shaping global variation in state capacity is inherently challenging because of substantial unobserved heterogeneity across countries. I therefore begin with a reduced-form approach that examines the cross-country relationship between ancestral distance and state capacity. Although this analysis is primarily corre-

lational in nature, it provides broad, suggestive evidence on whether long-term relatedness between populations is an important predictor of the worldwide distribution of state capacity.

I then complement the cross-country evidence with an immigrant-origin dyadic analysis that examines whether ancestral distance is associated with persistent differences in civic values that contribute to the variation in state capacity observed worldwide. This approach complements and extends the cross-country analysis by providing evidence on differences in intergenerationally transmitted values and preferences associated with longer periods of ancestral separation. Thus, it provides a useful framework for examining the intergenerational persistence of cultural norms as a potential channel underlying the reduced-form relationship between ancestral distance and state capacity.

A central challenge in examining the relationship between ancestral distance and contemporary civic attitudes is that intergenerationally transmitted preferences may be jointly determined by the economic and institutional environments. For example, cooperative norms may shape the development of formal institutions, which, in turn, accommodate, reinforce or reshape prevailing values and preferences (Guiso et al., 2006). This interdependence makes it difficult to assess the extent to which differences in civic attitudes associated with ancestral separation reflect deep-rooted cultural attributes rather than differences in contemporary institutional and economic environments.

To reduce this source of heterogeneity, I examine variation across second-generation immigrant populations residing in the same destination country. Although these individuals are exposed to a relatively common institutional and economic environment, they differ substantially in ancestral backgrounds. This variation provides a useful setting for examining whether longer-term relatedness between countries of origin is associated with persistent differences in civic values. In particular, the within-destination comparison reduces confounding from shared destination-country economic or institutional conditions.[8]

Nevertheless, several empirical challenges remain. Countries of origin exhibit substantial heterogeneity in geography, historical trajectories, institutional development, colonial experiences, and other fundamental characteristics that may be correlated with both genetic distance and civic culture. Although it is difficult to address all potential sources of confounding within a unified empirical framework, I rely on several complementary approaches to assess whether the estimated relationship is sensitive to particular sources of bias and alternative explanations.

First, I use Oster's (2019) coefficient stability test to assess the scale of selection on

[8]This design is consistent with the epidemiological approach that has been widely adopted to examine whether historically determined characteristics are associated with contemporary socioeconomic and political outcomes through the transmission of cultural values across generations (see, e.g., Arbatlı et al., 2020; Galor and Özak, 2016; Vu, 2025b; Vu and Ang, 2026).

unobservables required to fully explain away the estimated relationship between ancestral distance and divergence in self-reported civic attitudes. This exercise provides a sensitivity analysis of the potential importance of omitted variables relative to selection on observed control variables.

Second, following Arbatlı et al. (2020) and Vu and Ang (2026), I restrict the analysis to pairs of countries of origin located in the Old World, such as Europe, Africa and Asia. This restriction helps mitigate concerns related to large-scale population movements after 1500 CE, especially systematic migrations from the Old World to the New World, including the Americas and Oceania (Putterman and Weil, 2010). These movements substantially altered the ancestral composition of populations in many New World countries. As a result, genetic distance between prehistorically indigenous populations may not capture the degree of ancestral separation associated with contemporary populations in the New World.

Additionally, these migration patterns may also be related to historically persistent differences in institutions and cultural values. Restricting the sample to the Old World therefore provides a setting in which genetic distance between indigenous ethnic groups is more likely to serve as a reasonable proxy for long-term relatedness among contemporary populations, given the relatively limited extent of large-scale population replacement in these regions after 1500 CE (Arbatlı et al., 2020; Vu and Ang, 2026).

Third, as a complementary approach to the Old World restriction, I follow Spolaore and Wacziarg (2009) and use genetic distance measured in 1500 CE as an instrumental variable (IV) for contemporary genetic distance. The purpose of this strategy is not to eliminate all potential concerns about omitted variable bias. In particular, genetic distance in 1500 CE could still be correlated with historically persistent institutional development and other pairwise characteristics of countries of origin. Rather, the historical measure is primarily useful for addressing concerns about measurement errors in contemporary genetic distance and the influence of post-1500 population movements on its construction.

Spolaore and Wacziarg (2009) show that genetic distance measured for 1500 CE can be constructed more directly using information on the expected heterozygosity of indigenous populations and their respective geographic locations before the large-scale post-1500 population movements that altered the composition of populations in many countries. By contrast, constructing contemporary measures requires tracing the ancestral origins of present-day populations or matching indigenous ethnic groups to contemporary countries, a process that is potentially complicated by large-scale migration and population replacement after 1500 CE. The IV estimates should therefore be interpreted as complementary evidence that is less sensitive to potential measurement errors in the genetic distance index, rather than as a strategy that eliminates all possible sources of confounding.

Finally, I examine the extent to which the results can be driven by migrant selectivity, thereby reducing concerns about non-random migration decisions. I further re-estimate mean civic attitudes for each country of origin while accounting for unobserved host-country-specific factors that may influence origin-specific adaptation patterns and thereby confound reported attitudes among immigrant populations. Moreover, I employ several heterogeneity and sub-sample analyses as complementary strategies to examine whether the findings can be confounded by colonial history.

Taken together, these complementary approaches strengthen the analysis of the relationship between ancestral distance and persistent differences in civic attitudes. Even if the results remain stable across these exercises, however, unobserved factors, including historically persistent institutional development and other fundamental characteristics, may still contribute to the estimated relationship. The empirical strategy should therefore be interpreted as providing suggestive and complementary evidence, rather than establishing a definitive causal effect, that ancestral distance is an important historical correlate of global variation in civic norms. To the extent that civic culture is key to developing well-functioning state institutions, the findings provide a potential cultural perspective on the relationship between ancestral distance and state capacity across countries.

5 Ancestral distance and state capacity across countries

5.1 Analysis of state capacity in cross-sectional data

The baseline model. The empirical analysis begins by examining the cross-country relationship between state capacity and ancestral distance from the global frontier of effective state institutions, separately for each year between 1900 and 2018. I test the hypothesis that greater ancestral distance from the frontier is associated with greater barriers to the international diffusion of effective state policies, knowledge, and institutions and, consequently, with lower levels of state capacity.

For this purpose, I estimate the following cross-sectional model:

$$STCAP_i = \alpha + \beta GDIST_i^{FT} + \gamma X_i + \delta_r + \varepsilon_i, \tag{1}$$

where $STCAP_i$ is the state capacity index for country i measured separately for each year between 1900 and 2018; $GDIST_i^{FT}$ denotes genetic distance between country i and the

benchmark frontier country; X_i is a vector of key control variables, including geographic and agroclimatic characteristics, predicted genetic diversity, and ancestry-adjusted state history; δ_r captures unobserved, time-invariant heterogeneity across world regions, including Europe and Central Asia, Latin America and Caribbean, Middle East and North Africa, North America, South Asia, and Sub-Saharan Africa, with East Asia and Pacific serving as the omitted reference category; and ε_i is an unobserved disturbance term.

I initially use genetic distance to Denmark as the benchmark measure of ancestral distance to the frontier of effective state institutions and subsequently examine the robustness of the results using alternative frontier countries. This choice is motivated by the prominent position of Scandinavian countries, particularly Denmark, Norway, and Sweden, among the world's leading societies in terms of state capacity and broader socioeconomic development.[9] These countries consistently rank among the most economically developed in the world and are widely regarded as having highly capable and effective public institutions. Their strong institutional performance is reflected, among other dimensions, in their ability to raise tax revenue efficiently (Kleven, 2014; Kleven et al., 2011) and to provide public goods and services in ways that support well-functioning markets and economic activity (Blomquist et al., 2010; Heckman and Landersø, 2022; Lans Bovenberg and Jacobs, 2005).

All specifications control for geographic and agroclimatic conditions, including absolute latitude, distance to the nearest waterway, terrain ruggedness, average land suitability for agriculture, mean elevation, and a landlocked dummy, consistent with the long-run development literature (see, e.g., Arbatlı et al., 2020; Vu and Ang, 2026).[10] I also control for deep-rooted population diversity (Arbatlı et al., 2020; Ashraf and Galor, 2013) and accumulated statehood experience (Borcan et al., 2018; Owen and Vu, 2022), both of which play important roles in shaping comparative development within and across countries.

Main results. The estimates of Equation (1) are reported in Tables A1 and A2. The coefficient on genetic distance to Denmark is negative and statistically significant across all OLS specifications. The results are robust to using genetic distance in 1500 CE as an IV for long-term relatedness between populations. The estimated relationship remains negative and statistically significant when using alternative frontier countries, except when Norway is used as the frontier country.[11]

[9]Based on the state capacity index, Denmark consistently has the highest score among all countries in the world over the period 1970 – 2015.

[10]These fundamental characteristics may be correlated with both long-term population relatedness and historically persistent institutional development (Spolaore and Wacziarg, 2013).

[11]Although genetic distance to Denmark is strongly correlated with genetic distance to Norway across countries, the estimates become substantially less precise when Norway is used as the alternative frontier country. In a parsimonious specification, genetic distance to Norway is negatively and significantly associated

Although these estimates should be interpreted cautiously, they are consistent with the hypothesis that countries characterized by greater ancestral distance from the frontier of effective state institutions tend to exhibit lower levels of state capacity. This relationship is illustrated in Figure 2. A potential explanation is that greater ancestral distance creates persistent barriers to the cross-border diffusion and adoption of effective state policies, knowledge, and institutions. Taken together, the results provide supportive, albeit partial, evidence for the hypothesized relationship between ancestral distance from the frontier and state capacity across the world.

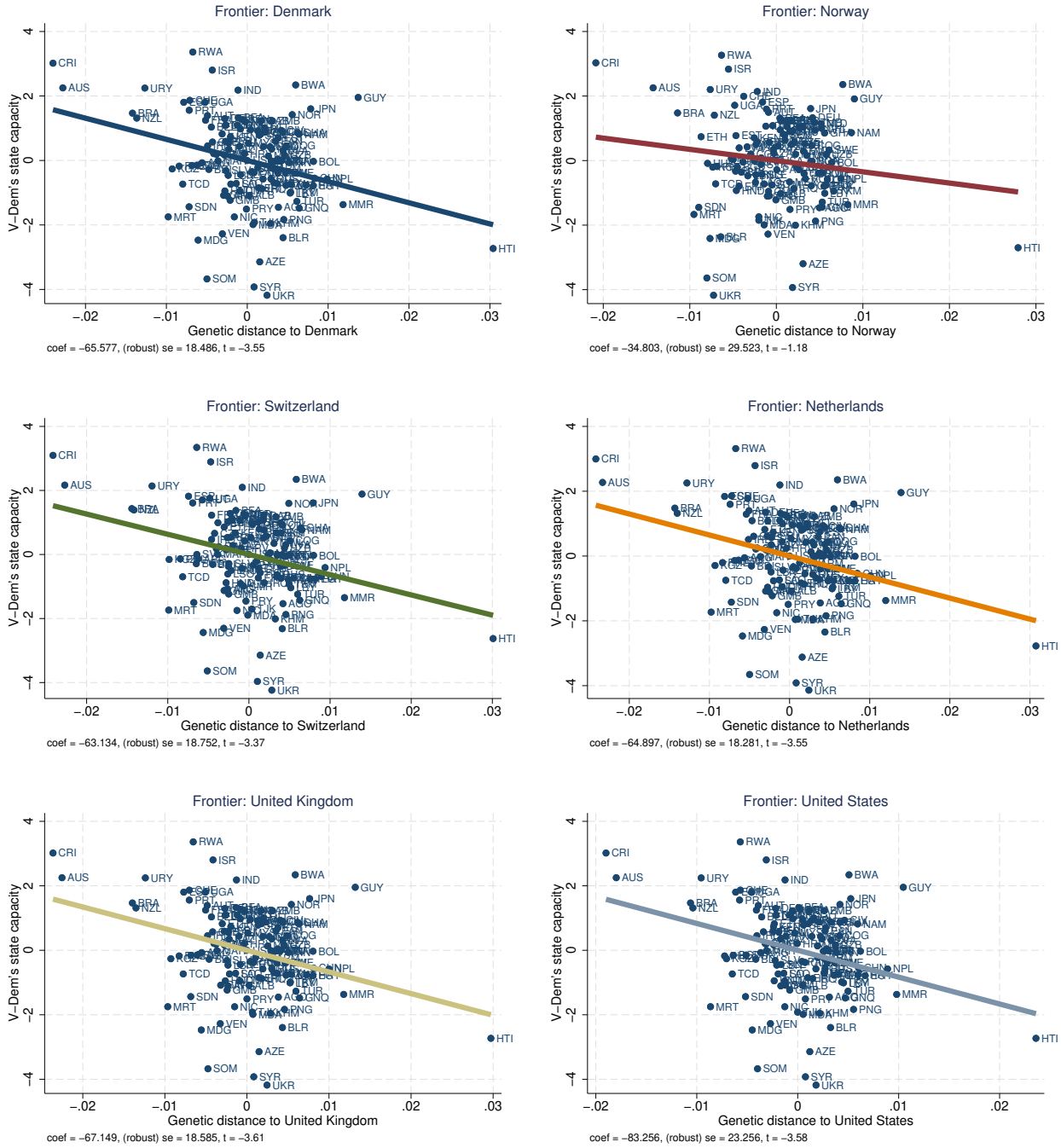
The baseline estimates suggest that a one-standard-deviation increase in genetic distance to Denmark is associated with a decline in state capacity by approximately 0.631 standard deviations of the 2015 state capacity index. To illustrate the magnitude of this relationship, Austria and Italy have genetic-distance-to-Denmark values of 0.0007 and 0.0065, respectively, implying a difference equivalent to approximately one-third of a standard deviation of genetic distance to Denmark across countries. Austria's state capacity score is 3.136, compared with 2.317 for Italy. Based on the baseline estimate, if Austria were characterized by a level of genetic distance to Denmark similar to that of Italy, its predicted state capacity score would decline by more than 0.20 standard deviations of the 2015 state capacity index.

The magnitude of this relationship is also larger than that associated with state history, another deep-rooted determinant of state capacity examined in the literature. The estimated coefficient on state history is negative and statistically significant, consistent with previous studies showing that countries with a very long history of statehood tend to be characterized by powerful elites, over-centralization of power, and institutional stagnation. The benchmark estimates suggest that a one-standard-deviation increase in statehood experience is associated with a decline in the 2015 state capacity index by nearly 0.28 standard deviations. Illustratively, Austria has an ancestry-adjusted state history score of 0.302, compared with 0.414 for Italy. An increase in Austria's statehood experience to Italy's level, equivalent to a 0.69-standard-deviation increase, would be associated with a decline in its state capacity score by approximately 0.18 standard deviations.

Additionally, the adjusted R-squared indicates that the full model explains approximately 44% of the cross-country variation in state capacity in 2015 (Table A1, Column 1). The partial R-squared further indicates that the residual variation in genetic distance to Denmark explains more than 9% of the residual cross-country variation in state capacity, conditional on the baseline control variables. This finding highlights the strong predictive power of

with state capacity. However, the coefficient becomes statistically insignificant after including the baseline controls and region fixed effects. Similarly, the inclusion of additional covariates substantially weakens the predictive power of genetic distance in 1500 CE for contemporary genetic distance from Norway, resulting in imprecisely estimated IV coefficients in the full specification. See Table A1.

Figure 2: Genetic distance from the frontier and state capacity across countries



Notes: This figure depicts OLS estimates of the partial cross-country relationship between genetic distance from the global frontier of effective state institutions and the 2015 state capacity index. The estimates are conditional on geographic and agroclimatic characteristics, predicted genetic diversity, ancestry-adjusted state history, and binary indicators for world regions. The full estimates, together with results using additional alternative frontier countries, are reported in Tables A1 and A2.

long-term relatedness between populations for global variation in state capacity. Overall, the results suggest that the cross-country relationship between genetic distance to Denmark and state capacity is of sizeable economic significance.

Long-term persistence. To examine the persistence of the estimated relationship over time, I re-estimate Equation(1) separately for each year between 1900 and 2018. I implement 119 repeated cross-sectional regressions using the state capacity index measured in each year as the outcome variable. I then assess the stability of the estimated relationship over time by tracing changes in the point estimates and 95% confidence intervals of the coefficient on genetic distance to Denmark.

As depicted in Figure 3, the coefficient on genetic distance to Denmark is consistently negative and statistically significant throughout the 1900 – 2018 period. The magnitude and statistical precision of the estimates, however, vary across years, particularly during the 1915 – 1935 period. It is noteworthy that the analysis covers fewer than 100 countries before 1964. The greater variation in the estimates may therefore partly reflect changes in the feasible sample size and sample composition, as the set of countries for which historical data on state capacity are available becomes increasingly limited in earlier periods.

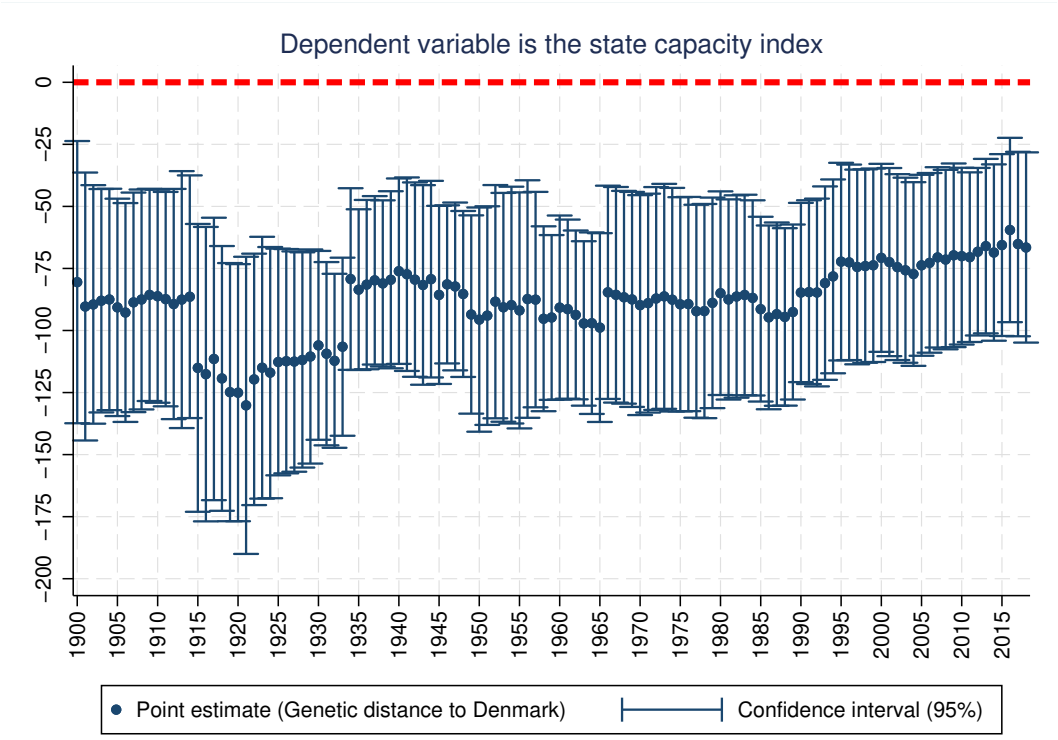
Despite these variations, the sign and statistical significance of the estimated relationship remain unchanged throughout the entire period. Overall, the findings provide suggestive evidence of a persistent relationship between genetic distance from the global frontier and state capacity between 1900 and 2018.

Previous studies examining the origins and consequences of state capacity have used GDP per capita as a proxy for fiscal capacity and the state's ability to provide public goods and services in ways that enhance economic performance. Against this background, I re-estimate Equation (1) using the log of GDP per capita, measured separately for each year between 1900 and 2014, as the dependent variable.[12] As depicted in Figure A1, the estimates consistently indicate a negative and significant association between genetic distance to Denmark and GDP per capita during the 1900 – 2014 period. This finding provides further evidence that ancestral distance from the frontier is a strong correlate of persistent cross-country differences in economic development, an alternative outcome closely related to state capacity.

Sensitivity analysis. Appendix A3 shows that the relationship between genetic distance to Denmark and the 2015 state capacity index is robust to controlling for potential historical confounders and geographic, linguistic, and religious proximity to Denmark (Tables A3 and A4). The findings also remain largely unchanged when using alternative measures of state capacity, including government effectiveness, rule of law, control of corruption, and progres-

[12]Data on GDP per capita were obtained from the Maddison Project database (Fariss et al., 2022).

Figure 3: Genetic distance from the frontier and state capacity across countries (1900 – 2018)



Notes: This figure depicts OLS estimates of the partial cross-country relationship between genetic distance to Denmark and the state capacity index measured annually from 1900 to 2018. The estimates are conditional on geographic and agroclimatic characteristics, predicted genetic diversity, ancestry-adjusted state history, and binary indicators for world regions.

sive income redistribution (Table A5). Further robustness checks using alternative measures of genetic distance, spatial-autoregressive models, truncated samples, and adjustments for influential observations and outliers yield similar findings (Tables A6 to A9).[13]

As an additional exercise, I examine whether the main findings can be driven by conventional proximate correlates of comparative development. Because variables such as economic development, political institutions, and conflict may co-evolve with state capacity, I implement the sequential g-estimation procedure proposed by Acharya et al. (2016).[14] The results show that the negative association between genetic distance to Denmark and state capacity remains statistically significant after accounting for a range of potential mediating development factors (Figure A2). These findings suggest that the estimated relationship is not

[13]To facilitate comparison across the sensitivity analyses, Table A10 reproduces the baseline estimate and summarizes the point estimates and 95% confidence intervals from alternative specifications that are directly comparable to the baseline.

[14]See, for example, Vu and Ang (2026) and Vu (2026) for a similar application of sequential g-estimation in the long-run development literature.

exclusively attributable to conventional correlates of cross-country comparative development. In the interest of brevity, full details are reported in Appendix A4.

5.2 Analysis of state capacity in bilateral data

The baseline model. I next implement dyadic regression analyses following the empirical framework proposed by Spolaore and Wacziarg (2009). Specifically, I relate the absolute difference in the state capacity index between countries to their bilateral genetic distance. The hypothesis is that country pairs characterized by greater genetic distance tend to exhibit larger differences in state capacity.

This empirical framework allows me to examine whether ancestral distance is positively associated with persistent differences in state capacity across countries. It provides a complementary test of the proposition that deep-rooted differences in population relatedness, and the resulting divergence in cultural traits, may generate persistent constraints on the cross-border diffusion of effective state institutions. In this regard, the dyadic framework follows the logic of gravity-type models that have been widely used to examine how different forms of distance between countries impede cross-border exchanges of goods, services, ideas, and knowledge.

The dyadic empirical analysis is specified as follows:

$$|STCAP_i - STCAP_j| = \alpha + \beta GDIST_{ij} + \delta f_i + \tau f_j + \varepsilon_{ij}, \tag{2}$$

where $|STCAP_i - STCAP_j|$ is the absolute difference in the state capacity index between countries i and j measured separately for each year between 1900 and 2018; $GDIST_{ij}$ denotes bilateral genetic distance between countries i and j; f_i and f_j capture unobserved, time-invariant heterogeneity associated with countries i and j, respectively; and ε_{ij} is an unobserved disturbance term. Following Cameron et al. (2011), I compute two-way clustered standard errors at the level of both countries within each pair.

Main results. Table 2 reports the estimates of Equation (2). As shown in Column (1), the OLS estimates indicate a positive and statistically significant association between bilateral genetic distance and the absolute difference in the 2015 state capacity index. The specification from Column (2) restricts the analysis to country pairs in the Old World to mitigate concerns about systematic population movements after 1500 CE. In Columns (3) and (4), I further use genetic distance in 1500 CE as an IV for long-term relatedness between populations. The estimated coefficient on genetic distance retains its sign and statistical significance in all cases.

Table 2: Bilateral genetic distance and the absolute difference in state capacity

	Dependent variable: The absolute difference in the 2015 state capacity index			
	OLS		2SLS	
	(1)	(2)	(3)	(4)
	Global	Old World	Global	Old World
Genetic distance	14.253***	17.144***	14.105***	18.069***
	(4.278)	(5.172)	(4.254)	(5.182)
Standardized β	0.169	0.189	0.167	0.199
Observations	12,246	6,903	12,246	6,903
Adjusted R^2	0.350	0.360		
Partial R^2 of genetic distance	0.021	0.034		
			First-stage estimates. Dependent variable: Genetic distance	
Genetic distance in 1500 CE			0.417***	0.874***
			(0.059)	(0.028)
First-stage F-statistic			49.57	946.33
Anderson-Rubin 95% CI			[11.775, 16.435]	[15.986, 20.152]
Country i fixed effects	Yes	Yes	Yes	Yes
Country j fixed effects	Yes	Yes	Yes	Yes

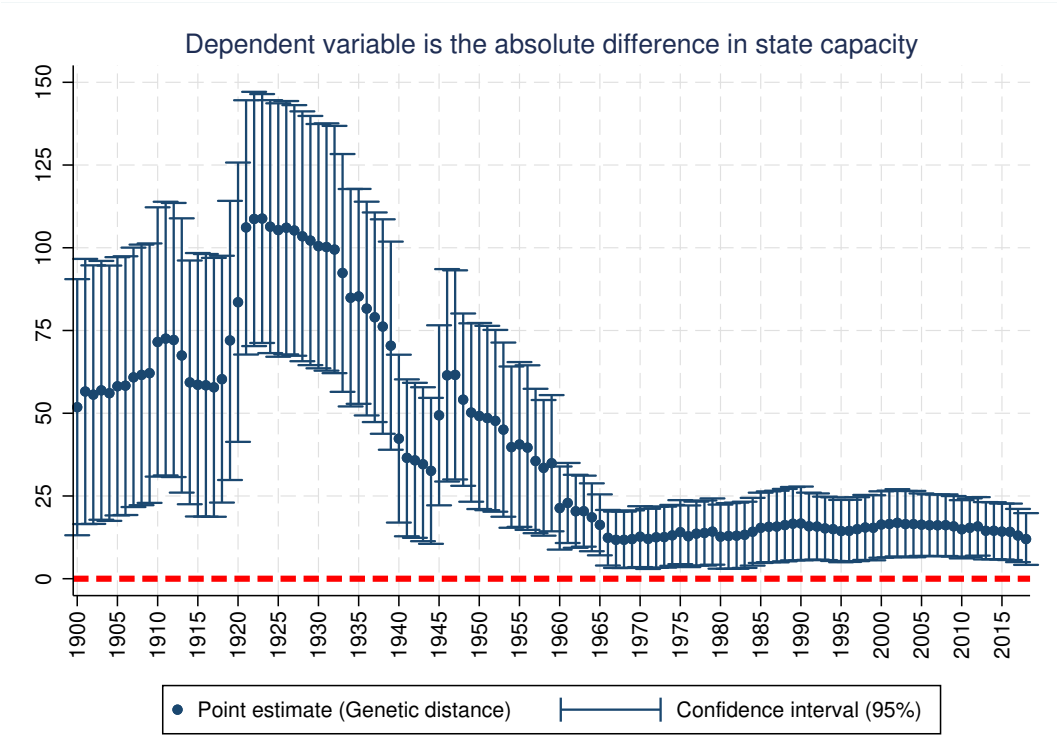
Notes: This table reports estimates of the relationship between bilateral genetic distance and the absolute difference in the 2015 state capacity index across countries. All specifications account for unobserved, time-invariant heterogeneity associated with each country within a pair. Heteroscedasticity-robust standard errors, two-way clustered at the level of both countries in each pair, are reported in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

The results provide empirical support for the central hypothesis that countries characterized by greater ancestral distance tend to exhibit larger differences in state capacity. Although these estimates do not establish a causal relationship, they are consistent with the proposition that longer periods of ancestral separation are associated with greater divergence in norms, values, and preferences. Such divergence may, in turn, impede communication, interaction, and the cross-border diffusion of effective state policies, knowledge, and institutions, thereby contributing to the wide and persistent differences in state capacity observed across countries. Taken together, the results suggest that ancestral distance is an important historical predictor of global variation in state capacity.

I further examine whether bilateral genetic distance between countries, measured *relative* to the world frontier of effective state institutions, is associated with the absolute difference in the 2015 state capacity index.[15] As illustrated in Figure A3, the estimated coefficient

[15]I calculate bilateral genetic distance *relative* to the world frontier as the absolute difference between the

Figure 4: Bilateral genetic distance and the absolute difference in state capacity (1900 – 2018)



Notes: This figure depicts OLS estimates of the relationship between bilateral genetic distance and the absolute difference in the state capacity index measured annually from 1900 to 2018. All specifications account for unobserved, time-invariant heterogeneity associated with each country within a pair. The confidence intervals are constructed using standard errors clustered at the level of both countries within each pair.

on bilateral genetic distance *relative* to Denmark is positive and statistically significant, highlighting the importance of ancestral distance in predicting the worldwide distribution of state capacity. This finding is also robust to using alternative frontier countries.

Long-term persistence. I further implement repeated cross-sectional regressions using the absolute difference in the state capacity index measured separately for each year over the 1900 – 2018 period. For ease of comparison, Figure 4 plots the point estimates and 95% confidence intervals of the coefficient on bilateral genetic distance.

The results indicate that the relationship between bilateral genetic distance and the absolute difference in state capacity is consistently positive and significant across years. The estimates are remarkably stable in both magnitude and statistical significance over the 1965 – 2018 period. By contrast, the estimates exhibit greater variation in magnitude and statistical precision when state capacity is measured before 1965, which may partly

two countries' genetic distances from the frontier country.

reflect the substantial reduction in sample size during the earlier period, as discussed above. Nevertheless, the stability of the estimates observed between 1965 and 2018, where the underlying samples are more comparable, provides suggestive evidence of the persistence of the cross-country relationship between ancestral distance and state capacity.

Sensitivity analysis. As demonstrated in Appendix A5, the findings are robust to the inclusion of a comprehensive set of pairwise controls. These include measures of countries' long-term relatedness based on geographic, linguistic, and religious proximity (Table A11), bilateral differences in fundamental geographic and agroclimatic characteristics (Table A12), and bilateral differences in deep-rooted institutional and human characteristics (Table A13).

6 Ancestral distance and self-reported civic attitudes within countries

The above findings support the view that ancestral distance is an important predictor of global variation in state capacity. To better understand this reduced-form relationship, I now examine whether ancestral distance is associated with persistent differences in self-reported civic attitudes, a central component of the collective action needed to establish well-functioning state institutions.

6.1 Model specification

The empirical analysis exploits variation in self-reported attitudes towards voluntary tax compliance among second-generation immigrants residing in the same country but originating from diverse cultural backgrounds, as reported in the IVS (2017 – 2022). The analysis relies on responses of individuals born and currently residing in the same country with one or both parents born abroad. For each country of residence, I construct the arithmetic mean of responses to the question on tax obligations among all second-generation immigrants descending from a given country of origin.[16] This approach allows me to relate differences in intergenerationally transmitted civic norms between countries of origin to their bilateral genetic distance.

For example, I compare the absolute difference in reported civic attitudes between children of Chinese and Vietnamese immigrants residing in the United States with the corre-

[16]To ensure sufficient observations for each country of origin, I follow Becker et al. (2020) and retain only pairs of countries of origin for which at least three second-generation immigrants from each origin are observed in each destination country.

sponding difference between those of Italian and Mexican immigrants residing in the same country. I then construct a dyadic dataset by matching each country of origin with one another and restrict the analysis to pairs of second-generation immigrant populations that share a common country of residence. This design allows me to exploit within-country variation while holding constant the contemporary institutional and economic environment in which second-generation immigrants reside.

I hypothesize that pairs of countries of origin characterized by greater genetic distance tend to exhibit larger differences in self-reported civic norms. I test this proposition by estimating the following dyadic regression model:

$$|PC_{i,z} - PC_{j,z}| = \alpha + \beta\, GDIST_{ij} + \lambda^i f_i + \lambda^j f_j + \lambda^z f_z + \varepsilon_{ij,z}, \tag{3}$$

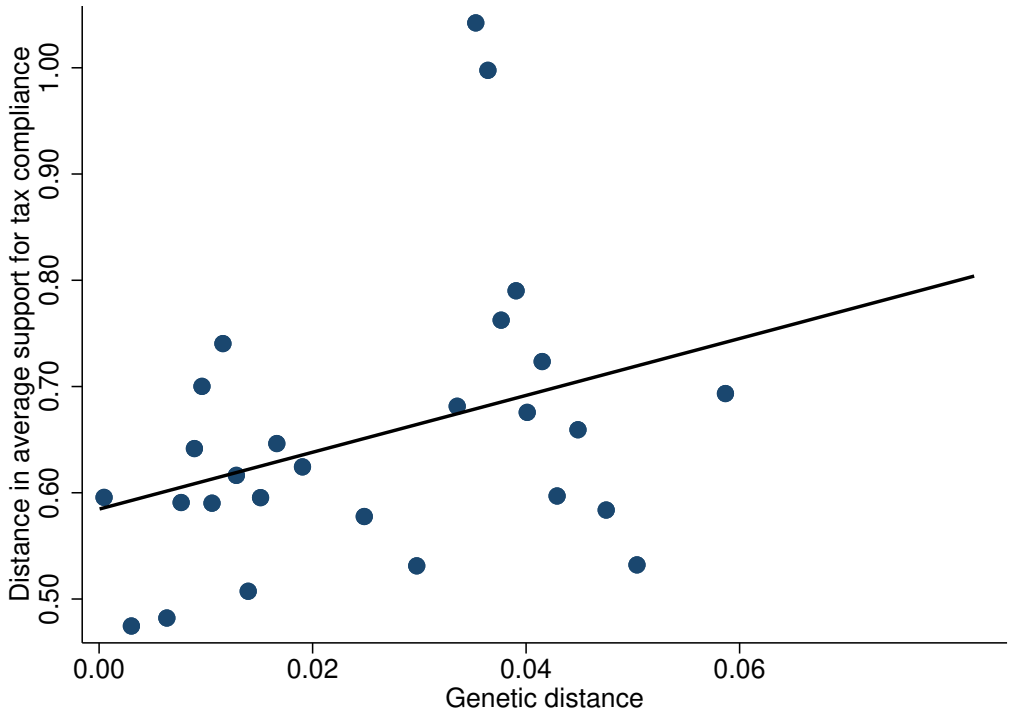
where $|PC_{i,z} - PC_{j,z}|$ is the absolute difference in average preferences for voluntary tax compliance among second-generation immigrants whose parents were born in countries of origin i and j and residing in country z; $GDIST_{ij}$ denotes bilateral genetic distance between countries of origin i and j; the terms f_i, f_j, and f_z represent vectors of country fixed effects that capture unobserved, time-invariant heterogeneity associated with the two countries of origin and the country of residence, respectively; and $\varepsilon_{ij,z}$ is an unobserved error term. Standard errors are clustered at the country-of-residence level to account for potential correlation between country-of-origin pairs within a destination country. I also examine the robustness of the results to alternative approaches to clustering standard errors.

6.2 Main results

Before examining differences in self-reported civic attitudes among second-generation immigrant populations living within the same country, I first document the broader cross-country relationship between bilateral genetic distance and the absolute difference in average preferences for voluntary tax compliance. Using all respondents in the IVS (2017 – 2022), I calculate the country-level mean response to the tax-evasion question. I then estimate a dyadic regression of the absolute difference in mean preferences between country pairs on bilateral genetic distance. Figure 5 presents a binscatter plot of this relationship.

The results show a positive association between bilateral genetic distance and the divergence in self-reported civic attitudes between countries. This finding provides suggestive evidence that countries characterized by longer periods of ancestral separation tend to exhibit larger differences in self-reported civic norms. However, this cross-country relationship does not by itself distinguish differences in intergenerationally transmitted preferences as-

Figure 5: Bilateral genetic distance and divergence in civic norms



Notes: This figure depicts a binscatter plot of the relationship between bilateral genetic distance and the absolute difference in mean preferences for voluntary tax compliance across countries, as reported in the IVS (2017 – 2022).

sociated with ancestral distance from historically persistent differences in institutional and economic development. I therefore next examine variation across second-generation immigrant populations within the same country of residence.

OLS estimates. Panel A of Table 3 reports the OLS estimates of the relationship between bilateral genetic distance and the divergence in self-reported civic norms between countries of origin within the same country of residence. These specifications are estimated using a global sample of country-of-origin pairs. In Columns (1) – (6), I use either the father's or mother's country of birth to identify second-generation immigrant populations associated with each country of origin. In Columns (7) – (9), I restrict the analysis to second-generation immigrants whose parents were both born in the same foreign country, thereby mitigating concerns about exposure to mixed cultural backgrounds.

The estimated coefficient on bilateral genetic distance is positive and statistically significant across specifications except for Column (7).[17] These results lend support to the

[17]Tables A14 and A15 show that the estimates are robust to alternative approaches to clustering standard errors, including two-way and multi-way clustering.

Table 3: Bilateral genetic distance and divergence in self-reported civic attitudes, OLS estimates

	Dependent variable: The absolute difference in mean preferences for voluntary tax compliance								
	Father's country of birth			Mother's country of birth			Parents' same country of birth		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Panel A. Global sample of country-of-origin pairs								
Genetic distance	6.231**	6.349***	5.351***	9.430***	6.816***	6.135***	3.420	9.746***	10.608***
	(2.992)	(1.435)	(1.359)	(2.875)	(1.841)	(1.762)	(2.358)	(1.561)	(1.424)
Standardized β	0.079	0.080	0.068	0.122	0.089	0.080	0.048	0.135	0.147
Adjusted R^2	0.006	0.226	0.314	0.015	0.214	0.317	0.002	0.179	0.229
Partial R^2 of genetic distance		0.002	0.002		0.003	0.003		0.008	0.010
Observations	4,686	4,686	4,686	4,127	4,127	4,127	1,521	1,521	1,521
Number of origin countries i	106	106	106	103	103	103	81	81	81
Number of origin countries j	110	110	110	106	106	106	78	78	78
Number of destination countries z	60	60	60	60	60	60	42	42	42
	Panel B. Old World sample of country-of-origin pairs								
Genetic distance	0.735	9.788***	8.220**	5.113*	7.464***	6.221**	-0.891	12.843***	13.334***
	(2.749)	(3.021)	(3.129)	(2.720)	(2.791)	(2.680)	(2.489)	(2.290)	(2.490)
Standardized β	0.008	0.102	0.086	0.058	0.084	0.070	-0.011	0.164	0.170
Adjusted R^2	-0.0003	0.189	0.323	0.003	0.085	0.234	-0.001	0.185	0.266
Partial R^2 of genetic distance		0.004	0.003		0.003	0.0021		0.012	0.014
Observations	2,806	2,806	2,806	2,411	2,411	2,411	907	907	907
Number of origin countries i	74	74	74	70	70	70	60	60	60
Number of origin countries j	78	78	78	74	74	74	61	61	61
Number of destination countries z	58	58	58	55	55	55	39	39	39
Country-of-origin i fixed effects	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Country-of-origin j fixed effects	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Country-of-residence z fixed effects	No	No	Yes	No	No	Yes	No	No	Yes

Notes: This table reports OLS estimates of the relationship between bilateral genetic distance and the absolute difference in mean preferences for voluntary tax compliance between second-generation immigrant populations residing within the same country. Heteroscedasticity-robust standard errors, clustered at the country-of-residence level, are reported in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. See also Tables A14 and A15 for results using alternative approaches to clustering the standard errors.

hypothesis that countries characterized by greater genetic distance tend to exhibit larger differences in self-reported civic norms. This finding is consistent with the proposition that higher genetic distance, reflecting longer periods of separation from a common ancestor, is associated with greater divergence in intergenerationally transmitted civic norms and thereby contributes to global variation in state capacity.

Importantly, by exploiting variation among second-generation immigrant populations exposed to a common institutional and economic environment, the analysis mitigates concerns that the observed relationship is driven by the co-evolution of formal institutions and cultural values. The immigrant-origin dyadic analysis analysis therefore provides evidence that deep-rooted genetic distance serves as an important predictor of persistent differences in civic attitudes, after accounting for institutional and economic factors.

The estimates reported in Table 3, Column (9) imply that a counterfactual increase in bilateral genetic distance from the 10th to the 90th percentile of its distribution across country-of-origin pairs is associated with an increase in the divergence in mean preferences for tax compliance by approximately 37% of a standard deviation. To illustrate the economic magnitude of this relationship, suppose that the Chinese-Vietnamese pair of second-generation immigrant populations residing in the United States had a level of genetic distance equivalent to that of the Korean-Mexican pair residing in the same country. This counterfactual change, equivalent to an increase by approximately 1.9 standard deviations in country-of-origin bilateral genetic distance, predicts an increase in the difference in mean preferences for voluntary tax compliance by approximately 28% of a standard deviation. These estimates highlight the economic significance of the relationship between bilateral genetic distance and persistent differences in self-reported civic norms.

The adjusted R-squared reported in Column (9) indicates that the benchmark model explains nearly 23% of the variation in the absolute difference in self-reported civic attitudes among second-generation immigrant populations residing within the same country. Moreover, the partial R-squared associated with genetic distance indicates that residual variation in genetic distance between countries of origin accounts for approximately 1% of the residual variation in the absolute difference in mean preferences for tax compliance.

While this partial R-squared value is relatively modest, it should be interpreted in light of the more demanding nature of the second-generation immigrant analysis. Unlike the cross-country regressions, which examine the association between ancestral distance and aggregate differences in state capacity, this exercise focuses on differences in a specific cultural attitude among second-generation immigrant populations residing within the same host country. Such attitudes are likely to be influenced by a wide range of individual- and group-specific factors, while ancestral distance may shape a much broader range of norms, values, and preferences.

Against this background, the finding that genetic distance alone accounts for approximately 1% of the residual variation in the absolute difference in tax-compliance preferences, a specific cultural trait closely related to state capacity, remains meaningful. Importantly, this association persists among children of immigrants exposed to the same contemporary institutional or economic environment, providing suggestive evidence consistent with the long-term persistence of the relationship between ancestral distance and differences in civic attitudes.

Additionally, the estimated relationship becomes substantially stronger in both magnitude and statistical significance when the fixed-effects specifications use second-generation immigrant populations whose parents were both born in the same foreign country. This finding is consistent with the idea that family socialization plays a central role in the vertical transmission of cultural values (Bisin and Verdier, 2000). My results also align with Dohmen et al. (2012), who establish a stronger association between parents' and children's preferences among families with similar cultural backgrounds.

Consistent with the cross-country analysis, I further examine whether bilateral genetic distance between countries of origin, measured *relative* to the global frontier of effective state institutions, helps explain the divergence in self-reported civic attitudes among second-generation immigrant populations residing within the same country. As illustrated in Figure 6, the estimates indicate a positive and significant relationship between bilateral genetic distance *relative* to the frontier and differences in mean preferences for tax compliance.[18]

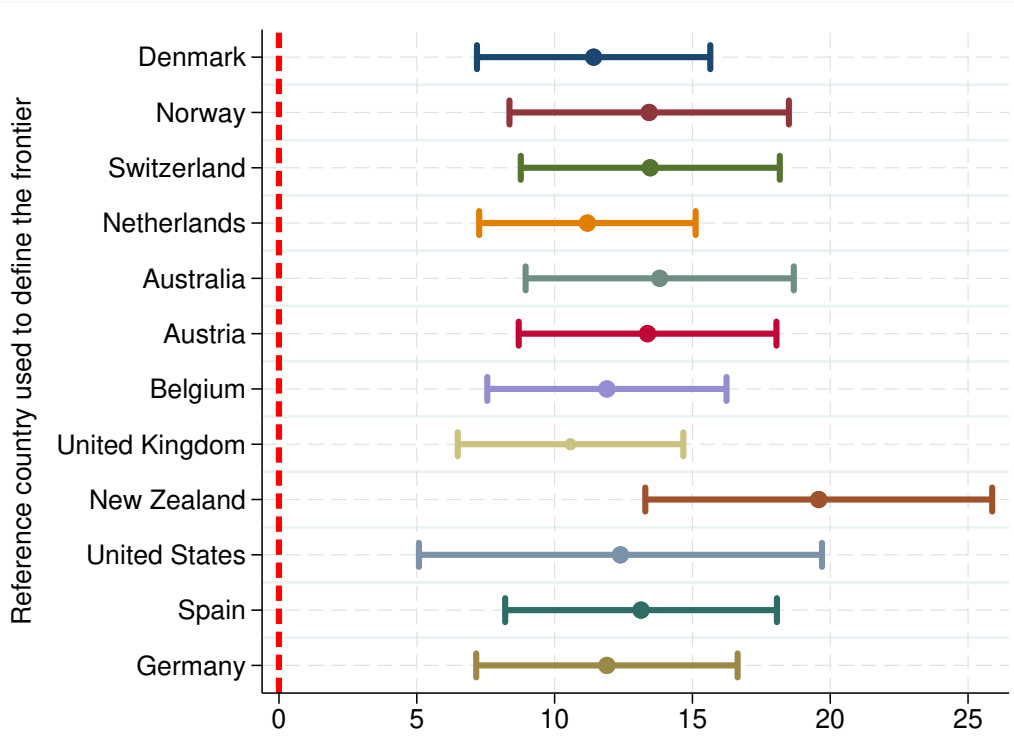
Selection on unobservables. Although the inclusion of origin- and residence-country fixed effects absorbs unobserved heterogeneity specific to individual countries, it does not account for unobserved characteristics that are specific to particular pairs of countries of origin. To the extent that such pairwise factors are correlated with genetic distance and independently affect differences in civic attitudes, failure to account for these unobserved confounders may yield biased and inconsistent estimates.

To mitigate this concern, I first rely on the coefficient stability test of Oster (2019) to assess the potential scale of omitted variable bias required to fully explain away the main results.[19] Specifically, I calculate the coefficient of proportionality (δ), which measures how much stronger selection on unobservables relative to observables would need to be to reduce the coefficient of interest to zero. Based on Table 3, Panel A, Column (9), I obtain an absolute δ of 71.024. This implies that selection on unobservables would need to be implausibly

[18]Each row corresponds to a separate specification in which the country indicated on the y-axis is used as the reference country for constructing relative bilateral genetic distance. Consistent with the baseline cross-country analysis, I first use Denmark as the benchmark frontier country, while the remaining countries represent alternative frontier countries.

[19]The implementation assumes that the R-squared of the hypothetical model with full controls is 30% larger than that of the benchmark specification.

Figure 6: Bilateral genetic distance relative to the frontier and divergence in self-reported civic attitudes



Notes: This figure depicts point estimates and 95% confidence intervals for the relationship between bilateral genetic distance, measured *relative* to the indicated frontier (reference) country, and the absolute difference in mean preferences for voluntary tax compliance between second-generation immigrant populations residing within the same country. Each row uses the country indicated on the y-axis as the reference country for defining the frontier. The analysis exploits information on second-generation immigrants whose parents were both born in the same foreign country. All specifications account for unobserved, time-invariant heterogeneity associated with the two countries of origin and the country of residence. The confidence intervals are constructed using heteroscedasticity-robust standard errors clustered at the country-of-residence level. Consistent with the cross-country analysis, Denmark is used as the benchmark frontier country in the baseline specification, while the remaining countries are used as alternative frontier countries.

stronger than selection on observables to fully explain away the estimated relationship. This value substantially exceeds Oster's (2019) rule-of-thumb value of 1.

I further compute Oster's bias-adjusted coefficient (β^*). The adjusted estimate remains positive, indicating that, even after accounting for all potential unobserved confounders, greater ancestral distance is associated with larger differences in self-reported civic norms among second-generation immigrant populations residing within the same country. Taken together, these results suggest that the main findings are unlikely to be easily explained away by omitted variables.

Old World restriction and 2SLS estimates. To reduce concerns about large-scale population movements after 1500 CE, I restrict the analysis to pairs of countries of origin located exclusively in the Old World. As reported in Panel B of Table 3, the results suggest a positive and significant association between genetic distance and the divergence in civic norms among second-generation immigrants within the same country of residence in most specifications.

I further use genetic distance in 1500 CE as an IV for long-term relatedness between populations. As reported in Table 4, the 2SLS estimates indicate a positive association between bilateral genetic distance and differences in self-reported civic attitudes between countries of origin within the same country of residence. The estimated relationship is statistically significant at conventionally accepted levels in all the full specifications. Consistent with the OLS results, the 2SLS regressions yield substantially stronger estimates after accounting for exposure to mixed cultural backgrounds.

The first-stage estimates show that genetic distance in 1500 CE is strongly correlated with contemporary genetic distance. Moreover, the first-stage F-statistic for the excluded instrument is well above the conventional rule-of-thumb threshold of 10, as well as the more stringent critical values proposed by Olea and Pflueger (2013), in all specifications. These results alleviate concerns about weak instrument bias.[20]

The magnitude of the estimated relationship is slightly larger than that implied by the baseline OLS estimates. This difference is consistent with the possibility that the OLS estimates are attenuated towards zero. One potential source of such bias is the historical process of European colonization that had persistent effects on comparative development. Specifically, European settlers established institutions that differed systematically in their degree of inclusiveness (Acemoglu et al., 2001) and contributed to differences in human capital accumulation across former colonies (Glaeser et al., 2004). These historical factors continue to influence contemporary economic and institutional development. Persistent institutional differences may therefore be positively associated with civic attitudes that support the development of effective state institutions, particularly among populations in the New World.

At the same time, large-scale population movements after 1500 CE may have reduced genetic and, potentially, cultural differences between populations. As such, failing to account for these population movements could generate a downward bias in the estimated positive relationship between ancestral distance and persistent differences in self-reported civic attitudes. Moreover, measurement errors in the index of genetic distance may also attenuate the OLS coefficient on genetic distance towards zero. These considerations provide additional motivation for using genetic distance in 1500 CE as an IV for long-term relatedness between

[20]Following Andrews et al. (2019), I also report Anderson-Rubin 95% confidence intervals, which exclude zero in most specifications. These results further mitigate concerns about weak instrument bias.

Table 4: Bilateral genetic distance and divergence in self-reported civic attitudes, 2SLS estimates

	Father's country of birth			Mother's country of birth			Parents' same country of birth		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Panel A. Second-stage estimates. Dependent variable: The absolute difference in mean preferences for voluntary tax compliance								
Genetic distance	1.444	7.217	7.292*	6.947***	8.979***	7.002**	2.727	11.804***	12.416***
	(3.980)	(5.163)	(4.366)	(2.497)	(2.785)	(3.102)	(3.570)	(3.383)	(3.369)
Standardized β	0.018	0.091	0.092	0.089	0.115	0.090	0.038	0.164	0.172
	Panel B. First-stage estimates. Dependent variable: Genetic distance								
Genetic distance in 1500 CE	0.164***	0.100***	0.095***	0.174***	0.114***	0.106***	0.193***	0.135***	0.128***
	(0.009)	(0.007)	(0.007)	(0.006)	(0.008)	(0.008)	(0.009)	(0.008)	(0.005)
First-stage F-statistic	337.24	206.39	206.92	959.17	202.52	157.86	471.01	286.22	570.89
Anderson-Rubin 95% CI	[-2.141, 5.029]	[-1.360, 15.794]	[-1.079, 15.664]	[3.283, 10.612]	[2.377, 15.582]	[0.166, 13.837]	[-2.564, 8.018]	[1.948, 21.661]	[2.035, 22.797]
Observations	4,486	4,486	4,486	3,974	3,974	3,974	1,441	1,441	1,441
Number of origin countries i	103	103	103	100	100	100	78	78	78
Number of origin countries j	108	108	108	104	104	104	76	76	76
Number of destination countries z	57	57	57	59	59	59	41	41	41
Country-of-origin i fixed effects	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Country-of-origin j fixed effects	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Country-of-residence z fixed effects	No	No	Yes	No	No	Yes	No	No	Yes

Notes: This table reports 2SLS estimates of the relationship between bilateral genetic distance and the absolute difference in mean preferences for voluntary tax compliance between second-generation immigrant populations residing within the same country. These specifications are estimated using bilateral genetic distance in 1500 CE as an IV for long-term relatedness between populations. Heteroscedasticity-robust standard errors, clustered at the country-of-residence level, are reported in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

populations, as discussed previously.

Cultural persistence. Giuliano and Nunn (2021) show that individuals whose ancestors were exposed to more stable environments are more likely to maintain norms and traditions. One explanation is that cultural traits developed under relatively stable ancestral conditions are more likely to remain appropriate for subsequent generations because of greater similarity between ancestral and contemporary environments. Building on this insight, I hypothesize that greater differences in ancestral climatic stability between countries of origin weaken the relationship between ancestral distance and divergence in self-reported civic attitudes.

To examine this proposition, I augment Equation (3) with the absolute difference in ancestral climatic variability between each pair of countries of origin and its interaction with bilateral genetic distance. Following Giuliano and Nunn (2021), I use a measure of climatic variability over the period 500 – 1900 CE to capture the stability of ancestral environments across 20-year generations. As reported in Table 5, the estimated coefficient on the interaction term is negative across all specifications, consistent with the hypothesis that greater differences in ancestral climatic stability attenuate the relationship between ancestral distance and differences in civic norms. The interaction term is statistically significant in Columns (1), (3), (4), and (6). Overall, these results provide partial evidence that differences in ancestral climatic environments may have reduced the persistence of ancestral norms, values, and preferences across generations and, consequently, attenuated the association between ancestral distance and persistent differences in self-reported civic culture.

6.3 Alternative explanations

Migrant selectivity. An important concern in the immigrant-origin dyadic analysis relates to potential selection bias arising from non-random migration. Individuals' migration decisions may be driven by long-term relatedness between their countries of origin and destination. Such selective migration may also influence the cultural values that parents transmit to their children, potentially confounding the estimated relationship between ancestral distance and self-reported civic norms. To address this concern, I adopt three complementary approaches, as described below.

First, following Hanushek et al. (2022) and Vu (2026), I control for genetic distance between each country of origin and the country of residence. This approach accounts for long-term relatedness between origin and destination countries, which may capture barriers to cross-border migration and, therefore, potential selection into migration. As reported in Table A16, the coefficient on bilateral genetic distance remains positive and statistically significant in Columns (1) – (3) and (7) – (9). By contrast, the estimated relationship becomes

Table 5: Bilateral genetic distance, ancestral climatic instability and divergence in self-reported civic attitudes, OLS estimates

	Dependent variable: The absolute difference in mean preferences for voluntary tax compliance								
	Father's country of birth			Mother's country of birth			Parents' same country of birth		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Genetic distance	9.836**	6.296***	6.248***	13.891***	8.090***	7.796***	4.607	9.363**	11.456***
	(3.699)	(1.945)	(1.746)	(3.452)	(2.513)	(2.712)	(3.141)	(4.200)	(3.563)
Abs. diff. in instability	1.644**	1.462**	1.534***	0.886*	0.170	0.715	1.566**	1.082	1.550**
	(0.642)	(0.605)	(0.558)	(0.486)	(0.595)	(0.478)	(0.655)	(0.773)	(0.764)
Genetic distance × Abs. diff. in instability	-36.090*	-24.164	-30.391**	-40.934***	-12.816	-24.576*	-11.563	-11.555	-23.637
	(18.629)	(15.518)	(12.080)	(13.988)	(14.002)	(12.372)	(25.939)	(35.081)	(31.036)
Adjusted R^2	0.0094	0.231	0.326	0.016	0.210	0.315	0.008	0.008	0.220
Observations	4,567	4,567	4,567	4,013	4,013	4,013	1,458	1,458	1,458
Number of origin countries i	105	105	105	102	102	102	80	80	80
Number of origin countries j	109	109	109	105	105	105	77	77	77
Number of destination countries z	60	60	60	60	60	60	42	42	42
Country-of-origin i fixed effects	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Country-of-origin j fixed effects	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Country-of-residence z fixed effects	No	No	Yes	No	No	Yes	No	No	Yes

Notes: This table reports OLS estimates relating differences in civic attitudes between second-generation immigrant populations residing within the same country to bilateral genetic distance, absolute differences in ancestral climatic variability, and their interaction. Heteroscedasticity-robust standard errors, clustered at the country-of-residence level, are reported in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

substantially smaller in magnitude and less precisely estimated when second-generation immigrant populations are identified based on the mother's country of birth.

Second, I augment the analysis with alternative measures of economic, institutional, and human-capital differences between countries of origin and destination. Specifically, I compute the absolute differences between each country of origin and the country of residence in log of GDP per capita, the state capacity index, and average years of schooling.[21] These pairwise covariates further account for non-random migration decisions that influence cultural transmission. Across all specifications, however, the estimated coefficient on bilateral genetic distance remains positive and statistically significant at the 1% level (Table A17).

Finally, I exploit variation across pairs of second-generation immigrant populations whose countries of origin are located within the same broad world region. To this end, I incorporate indicators capturing the continental composition of each country-of-origin pair, including Asia, Africa, Europe, North America, South America, and Oceania. For each continent, I include indicators capturing whether both countries of origin belong to that continent and whether only one of the two countries is located there. This approach accounts for unobserved, region-specific characteristics, including shared histories, cultures, geographic conditions, and other fundamental factors, that may shape both migration patterns and cultural transmission. The estimated relationship between bilateral genetic distance and civic culture remains largely intact (Table A18).

As a more stringent test, I further restrict the analysis to pairs of countries of origin located exclusively in Europe (Table A18). This within-Europe specification substantially reduces the scope for the results to be driven by unobserved heterogeneity in migration patterns and historical characteristics across broad world regions. Despite the substantial reduction in sample size, the estimated relationship between genetic distance and civic attitudes remains positive and statistically significant at the 10% level.

Taken together, these findings suggest that the positive relationship between ancestral distance and persistent differences in self-reported civic norms among second-generation immigrant populations within the same country of residence is unlikely to be confounded by migrant selectivity.

Destination-country adaptation. Another concern is that second-generation immigrant populations characterized by diverse cultural backgrounds may differ substantially in their adaptation to the institutional and social environment of the country of residence, leading to differences in self-reported civic attitudes.

For example, government policies may disproportionately benefit ethnic groups with

[21] GDP per capita and state capacity are averaged over the period 1960 – 2018, while average years of schooling are calculated between 1960 and 2015.

greater cultural affinity to dominant groups represented in the political system. In addition, cultural similarity between second-generation immigrants and the dominant population of the country of residence may facilitate social integration and thereby shape attitudes towards policy compliance. Consequently, the estimated relationship between genetic distance and persistent differences in self-reported civic norms may partly reflect adaptation to the country-of-residence environment rather than differences in intergenerationally transmitted cultural attitudes associated with longer periods of ancestral separation.

To reduce this concern, I adopt an alternative approach that exploits variation in the attitudes of second-generation immigrant populations across different countries of residence. Specifically, I first estimate mean preferences for tax compliance associated with each country of origin using second-generation immigrants residing outside their parents' countries of origin. By incorporating country-of-residence fixed effects, this approach allows me to estimate origin-specific mean civic attitudes while absorbing unobserved heterogeneity across destination-country environments. I then construct the absolute difference between the estimated preferences of each pair of country-of-origin populations and examine its relationship with bilateral genetic distance. This exercise provides an intuitive way to assess the relationship between ancestral distance and persistent differences in civic attitudes after accounting for unobserved host-country-specific factors that may influence immigrant attitudes.

Table 6 reports the estimated relationship between bilateral genetic distance and differences in mean preferences for tax compliance across second-generation immigrant populations. Panel A presents the results when origin-specific attitudes are estimated while accounting for unobserved destination-country-specific factors. In most specifications, I find a positive and significant association between ancestral distance and differences in self-reported civic norms. For ease of comparison, Panel B reports the corresponding results when country-of-residence fixed effects are excluded from the estimation of origin-specific attitudes. The estimated relationship is generally weaker.

Overall, these additional estimates indicate that the relationship between ancestral distance and civic attitudes extends beyond a particular host-country environment. Although it is inherently difficult to rule out completely all forms of cultural adaptation, the stronger estimates obtained after accounting for host-country fixed effects in the estimation of origin-specific civic attitudes provide suggestive evidence that the main findings are unlikely to be driven exclusively by differential social integration, experiences with host-country institutions, or other destination-country-specific factors.

Formal state institutions. Another concern is that the relationship between ancestral distance and civic attitudes may operate through the development of formal institutions.

Table 6: Bilateral genetic distance and divergence in self-reported civic attitudes across second-generation immigrant populations

	Dependent variable: The absolute difference in mean preferences for voluntary tax compliance					
	Father's country of birth		Mother's country of birth		Parents' same country of birth	
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: Accounting for destination-specific factors					
Genetic distance	10.377***	2.440*	7.565**	2.444**	0.356	3.108*
	(2.840)	(1.314)	(3.066)	(0.940)	(2.680)	(1.604)
Observations	5,104	5,100	4,910	4,908	2,834	2,831
Adjusted R^2	0.065	0.573	0.028	0.654	-0.0003	0.497
Number of origin countries i	101	100	99	98	75	74
Number of origin countries j	101	98	98	97	75	73
	Panel B: Ignoring destination-specific factors					
Genetic distance	10.871***	1.634	4.912**	1.826	7.022**	1.792
	(3.350)	(1.465)	(2.109)	(1.463)	(2.991)	(2.252)
Observations	5,411	5,407	4,910	4,908	2,984	2,982
Adjusted R^2	0.059	0.609	0.015	0.548	0.018	0.422
Number of origin countries i	104	103	99	98	77	76
Number of origin countries j	104	101	98	97	76	75
Country-of-origin i fixed effects	No	Yes	No	Yes	No	Yes
Country-of-origin j fixed effects	No	Yes	No	Yes	No	Yes

Notes: This table reports OLS estimates of the relationship between bilateral genetic distance between countries of origin and the absolute difference in estimated mean preferences for voluntary tax compliance among second-generation immigrant populations. Each observation represents a pair of countries of origin. These specifications exploit individual-level data on second-generation immigrants residing across different countries of residence to estimate origin-specific mean preferences for tax compliance. Panels A and B report the results when origin-specific mean preferences are estimated with and without country-of-residence fixed effects, respectively. Heteroscedasticity-robust standard errors, two-way clustered at the level of both countries of origin in each pair, are reported in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Countries characterized by longer periods of ancestral separation are more likely to differ in historically persistent institutional development, which may in turn co-evolve with individuals' attitudes towards taxation and other state policies. These attitudes could persist over time, generating the observed relationship between genetic distance and policy compliance even in the absence of a direct role for the intergenerational transmission of civic culture.

To reduce this concern, I re-estimate the baseline model but control for the absolute difference in state capacity between each pair of countries of origin. As reported in Table A19, the estimated coefficient on genetic distance remains positive and statistically significant at the 1% or 5% level, while the absolute difference in state capacity is statistically insignificant in most specifications. Thus, the main results are not fully driven by differences in the effectiveness of formal state institutions across countries of origin. However, it is important

to note that this exercise cannot completely rule out the formal institutional channel, since institutional development may co-evolve with cultural values and may itself be partly shaped by them (Guiso et al., 2006).

Colonial history. Estimating Equation (3) also requires attention to the potential relationship between ancestral distance and colonial ties among countries of origin.[22] The main results could otherwise capture the persistent influence of colonial institutions rather than differences in intergenerationally transmitted attitudes associated with ancestral separation.

For example, countries characterized by historically weak state capacity and limited support for government policies may be disproportionately represented among former colonies in which European powers established extractive institutions. Conversely, former colonial powers and their colonies with more inclusive institutional arrangements may have developed more effective state institutions and stronger civic norms. I explore this possibility through several complementary heterogeneity and sample-restriction exercises.

First, I examine whether the main results are driven by country-of-origin pairs with a direct colonial relationship or the inclusion of major European colonial powers. In Table A20, I exclude, respectively, all pairs of countries that were in a direct colonial relationship and all pairs involving major European colonial powers. The estimated coefficient on bilateral genetic distance remains positive and statistically significant at the 1% level in both restricted samples. Moreover, its magnitude remains relatively stable across specifications. These results suggest that the estimated relationship is not driven primarily by direct colonial ties or the inclusion of former European colonial powers.[23]

Second, I examine the possibility that the results capture persistent differences associated with the institutional environments established under colonial rule. For this purpose, I restrict the analysis to pairs of former colonies with either a high or low share of European settlers in 1900 CE, where a high-settler country is defined as one in which European settlers accounted for more than 90% of the population, following Acemoglu et al. (2001). However, the coefficient on genetic distance is positive and statistically significant in both sub-samples (Table A21). Thus, the estimated relationship is not limited to former colonies characterized by relatively low levels of European settlement, where concerns about persistent institutional underdevelopment might otherwise be particularly salient. However, the coefficient is larger in the sample of pairs of former colonies in which European settlers accounted for more than

[22] Across the estimation sample, the correlation between bilateral genetic distance and an indicator for whether a pair of countries of origin has ever been in a direct colonial relationship is -0.171. This indicates a moderate negative association between genetic distance and colonial ties, consistent with the interpretation that colonial history may be related to ancestral distance.

[23] This finding is consistent with the robustness of the main results to controlling for colonial ties between countries of origin, as discussed in the following sub-section.

90% of the population in 1900 CE.

Finally, I test whether the estimates vary with the extent of historical European settlement. Using the full sample of former colonies, I interact bilateral genetic distance with a binary indicator for country pairs in which both countries had more than 90% European settlers in their populations in 1900 CE (Table A21). The coefficient on bilateral genetic distance remains positive and statistically significant at the 1% level, whereas the interaction term is statistically insignificant. Thus, although the point estimate is larger in the high-settler sub-sample, the difference between the coefficients estimated for the high- and low-settler sub-samples is not statistically significant.

Overall, the results provide no evidence that the estimated relationship differs across former colonies with different historical patterns of European settlement. This further reduces concerns that the baseline estimates primarily capture persistent differences in institutional development associated with the historical process of European colonization.

6.4 Sensitivity analysis

I first replicate the main analysis using an alternative measure of civic culture based on self-reported attitudes towards state intervention and redistribution in the IVS (2017 – 2022). Previous studies suggest that attitudes towards state intervention have deep historical and cultural roots and exhibit substantial persistence over time (Bazzi et al., 2020), potentially creating long-term constraints on the development of effective state institutions. I measure these preferences using responses to the statement that "Income should be made more equal," which are recorded on a 10-point categorical scale, with higher values indicating lower support for state redistribution.[24] Consistent with the main results, I find a positive and significant association between bilateral genetic distance and differences in average preferences for state intervention (Table A22).

As detailed in Appendix A6, I control for other dimensions of long-term relatedness between countries of origin, including colonial ties and geographic, linguistic, and religious proximity (Table A23). Given the importance of geography for long-run development and intergenerationally transmitted cultural behaviour (Galor and Özak, 2016; Spolaore and Wacziarg, 2013), Table A24 re-estimates the baseline model controlling for absolute differences in fundamental geographic factors. In Table A25, I further account for absolute differences in deep-rooted institutional and human characteristics, including the timing of the Neolithic Revolution (Putterman and Weil, 2010), accumulated statehood experience (Bor-

[24]For each country of origin, I calculate the arithmetic mean of responses among second-generation immigrants originating from that country.

can et al., 2018; Owen and Vu, 2022; Vu, 2021), duration of uninterrupted human settlement (Ahlerup and Olsson, 2012), distance to the regional frontier in 1500 CE, and predicted genetic diversity (Ashraf and Galor, 2013). Across specifications, the estimated coefficient on genetic distance remains positive and statistically significant.

Table A26 further controls for absolute differences in contemporary socioeconomic and political development between countries of origin. Table A27 accounts for bilateral differences in economic preferences, including time preference, risk preference, positive and negative reciprocity, altruism, and trust (Falk et al., 2018). Finally, Table A28 examines robustness to excluding or down-weighting outlier observations. However, the coefficient on genetic distance retains its sign and statistical significance in all cases, indicating that the main results are robust to a broad range of potential confounders and outlier observations.[25]

7 Concluding remarks

This study contributes to a better understanding of the deep historical origins of the large and persistent differences in state capacity observed across countries. It advances the hypothesis that longer periods of separation from a common ancestor are associated with greater divergence in civic norms transmitted across generations. Given the importance of civic culture for the development of effective state institutions, greater ancestral distance is consequently associated with larger differences in state capacity across countries. Moreover, the divergence in civic norms associated with ancestral distance may create persistent barriers to the international diffusion of effective state institutions, thereby further contributing to cross-country differences in state capacity.

The empirical analysis exploits an index of genetic distance as a molecular clock that captures the time elapsed since two populations diverged from a common ancestor. The cross-country evidence shows that countries with greater genetic distance from the world frontier of effective state institutions tend to exhibit lower levels of state capacity. Consistent with this finding, the dyadic analysis indicates that pairs of countries with greater genetic distance tend to exhibit larger differences in state capacity. These results are consistent with the proposition that ancestral distance may constrain the cross-border diffusion of well-functioning state institutions, thereby contributing to persistent differences in state capacity. Taken together, these findings highlight the importance of long-term population relatedness as a historical predictor of global variation in state capacity.

[25] To facilitate comparison across the sensitivity analyses, Table A29 reproduces the baseline estimate and summarizes the point estimates and 95% confidence intervals from alternative specifications that are directly comparable to the baseline.

The analysis further exploits diverse cultural backgrounds among second-generation immigrants residing within the same country to examine the relationship between ancestral distance and divergence in self-reported civic culture, a key dimension of the collective action needed to develop effective state institutions. The immigrant-origin dyadic analysis indicates that pairs of second-generation immigrant populations with greater genetic distance tend to exhibit larger differences in self-reported civic attitudes. This pattern is consistent with the hypothesis that longer periods of ancestral separation are associated with persistent differences in intergenerationally transmitted civic norms, thereby contributing to the global distribution of state capacity. The estimated relationship persists among children of immigrants exposed to a shared institutional and economic environment, underscoring the role of long-term population relatedness in shaping persistent differences in civic attitudes and, ultimately, contributing to global variation in state capacity.

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