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ABSTRACT

The United States is among the most individualistic societies in the world. However, unlike Western European individualism, which is imbued with moral universalism, America's "rugged individualism" is instead particularistic. We link this distinctive cultural configuration to the country's frontier history. The frontier favored self-reliance, but also rewarded cooperation, which could only be sustained through strong, local group identities. We show that counties with longer frontier history are more particularistic, displaying stronger opposition to federal taxes relative to state taxes, stronger communal values, less charitable giving to distant counties, and fewer online friendships with people in distant counties. At the same time, connections across counties display assortative matching on frontier history, highlighting the important role of culture in bridging disparate areas of the country. Overall, our results shed new light on moral values and the divergence of American and European individualism.

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1 Introduction

The United States is among the most individualistic countries in the world. Compared to societies with similar levels of individualism—especially those in Western Europe and Western offshoots—the U.S. has a distinctive strand of individualism. This paper develops the concept of particularistic individualism and shows that frontier history shaped its inception and evolution across America. Our findings offer new insights on the cultural foundations of anti-statist and populist politics.

The early history of the U.S. was marked by a process of westward expansion. Low density and isolation from urban centers characterized the frontier of settlement, which had limited government presence and social infrastructure. These conditions attracted individualistic settlers and then amplified their individualism (Bazzi et al., 2020). At the same time, cooperation had high returns, but could only be sustained through strong local identities. The frontier environment thus fostered a distinct cultural configuration that combined individualism with moral particularism. We provide a historical and conceptual framework for this argument, which we then explore empirically.

Individualism and moral universalism are two critical dimensions that distinguish cultures across the world. Individualism, often defined in opposition to collectivism, reflects how individuals see themselves (and their immediate family) relative to others. Individualism shapes other-regarding preferences, whether individuals conform to group-level norms, and whether they engage in costly collective actions (Hofstede, 1991; Triandis, 1995). Moral universalism, defined in opposition to moral particularism, describes how individuals perceive in- versus out-groups. Universalists see in-group and out-group members as equally socially proximate, whereas particularists place greater social weight on the in-group, which has important implications for the structure of ideology, political attitudes, the scope and sustainability of cooperation, and the organization of civil society (Bendor and Mookherjee, 2008; Enke, forthcoming, 2020; Enke et al., 2022; Gelfand, 2019; Graham et al., 2009, 2011, 2012; Haidt, 2012; Raz, 2024; Schulz et al., 2019; Schulz, 2022).

Individualism and moral universalism are defining traits of modern Western Europe’s cultural configuration, as distinct from the collectivism and moral particularism that characterizes kinship-based societies around the world (Henrich, 2020). As shown by Schulz et al. (2019), the universalistic individualism of WEIRD (Western, Educated, Industrialized, Rich, and Democratic) societies emerged out of the historical process by which the Christian Church dismantled kin-based institutions in favor of the nuclear family and impersonal institutions as pillars of social structure.

Against this background, American culture embodies a distinct character. Figure 1(a) illustrates this distinctiveness: most of the countries classified as WEIRD are highly individualistic *and* morally universalistic, but the U.S. is a clear outlier in being highly individualistic *and* morally particularistic, according to cross-country measures of individualism from Hofstede (1991) and moral universalism from Enke (2019). Figure 1(b) provides a complementary perspective on the distinct cultural configuration of the U.S.: across counties *within* the U.S., the association between individualism and moral particularism (proxied by measures developed in Bazzi et al., 2020 and Enke, 2020, respectively) is not negative as observed across countries, but rather positive. This paper argues that the legacy of frontier settlement shaped this pattern of subnational variation, making the U.S. an outlier

in cross-country comparisons.

The American frontier cultivated a unique fusion of individualism and moral particularism. Even though the European strand of universalistic individualism came to the U.S. through immigration, and it was nurtured by the country’s free-market democracy, the frontier experience configured a different culture. Frontier settlers, driven by self-reliance and a desire for independence, further honed these qualities through their frontier experiences (Turner, 1893; Bazzi et al., 2020). Cooperation may have also had high returns on the frontier amidst hardships and dangers (e.g., failed crops, conflicts with Native Americans) and a lack of social infrastructure (see Boatright, 1941). Yet, high rates of mobility made interactions more of a one-shot rather than a repeated game, thus limiting the ability to establish long-term cooperative relationships. Furthermore, the lack of government and social infrastructure made it difficult to enforce cooperation and punish defectors. In this setting, sustaining cooperation required groups forged around shared identities, thus fostering cohesion among individuals with similar cultural and moral values.

After laying out this historical and conceptual framework, we provide evidence linking the American frontier to moral particularism over the long run. We start by showing that individuals living in locations with a longer total frontier experience (TFE) historically exhibit stronger morally particularistic views relative to universalistic views. In these places, we also find greater opposition to big government, especially at the federal compared to the state level.

We then characterize the moral particularism of frontier culture using measures of charitable donations and of friendships on social media. Both measures allow us to capture the social distance between individuals across the U.S., which we proxy using geographic distance. Residents in high-TFE counties exhibit localist tendencies, allocating even less charitable giving towards geographically distant recipients.¹ Social connectedness on Facebook (a notion and measure advanced by Bailey et al., 2018) also declines with distance more sharply for high-TFE locations. Together, these results align with our findings of relatively stronger opposition to big government at higher levels of jurisdiction. In other words, rugged individualism in high-TFE areas fostered more localized social ties coupled with preferences for smaller scope of government.

Finally, we rely on the dyadic granularity in donations and online friendships to uncover assortative matching on frontier history—a finding with important implications for understanding persistence. Connections in charitable giving and online socialization are more pervasive among counties with similar TFE levels, holding geographic distance and other pairwise county-level features constant. Moreover, geographic and TFE distance compound each other in limiting connections across counties. Such frictions could, in turn, foster cultural persistence, insofar as differential contact among people with similar ideas may reinforce initial differences. These results also suggest that areas of particularistic individualism are not entirely isolated, as their residents form connections with culturally similar areas spanning the country. Such assortative matching helps explain the strong imprint of frontier culture in the country’s national identity.

¹We also find that charitable giving is lower overall in high-TFE counties. This is consistent with one view of individualism that emphasizes the primacy of the family towards which all resources should be allocated. It is, however, less consistent with other possible links between individualism and charity, discussed in Section 3.3.

This study offers a new perspective on the distinctive configuration of American culture and its historical roots. Our findings, along with [Schulz et al. \(2019\)](#), reconcile the puzzling contrast between the particularistic individualism in the U.S. and the universalistic individualism in Western Europe. The European church hastened the dissolution of kinship structures, which fostered moral universalism by increasing the need for cooperation among strangers. On the American frontier, individualism also emerged and flourished, but with a key difference: cooperation, despite having high returns, was only possible with strong local identities. Our framework and results resonate with [Acemoglu and Robinson's \(2021\)](#) view of cultural configurations as sets of interrelated traits that may be bundled together in different ways depending on the historical process.

Our paper offers empirical support for classic historical accounts of America's particularistic individualism embedded in its culture and institutions. Thomas Jefferson described the amalgamation of economic self-interest and communal loyalty as rooted in land ownership, in a vision that infused nation-building with mythical elements of an agrarian American west (see [Curtis, 2012](#); [Paul, 2014](#)). Alexis de Tocqueville pointed to both the individualism ingrained in U.S. democracy and the strong associationalist tendency of localistic culture as parts of the same social configuration (see, respectively, Chapters II and V in [De Tocqueville, 1840](#)), noting that civil society associations undertook many activities that the state would perform elsewhere.² We echo these ideas, provide an analytically precise definition of particularistic individualism building on [Enke \(forthcoming\)](#) and [Enke et al. \(2023a\)](#), and illuminate frontier experience as the historical process that bundled together individualism and particularism.

Our historical perspective on the configuration of frontier culture sheds light on the persistence of populism in the U.S. ([Han et al., 2023](#)), and how it draws support from economic individualism ([Bazzi et al., 2020](#)) as well as from moral particularism ([Enke, 2020](#)). Right-wing populism in the U.S. may activate deeply-rooted cores of American ideology by emphasizing individual freedoms and opposition to government intervention. Our findings explain why frontier culture fosters broad resistance to government intervention, especially at the federal level. While [Bazzi et al. \(2020\)](#) emphasize that frontier narratives of self-reliance can undermine government taxation efforts, this study suggests that the moral particularism of the frontier also erodes trust in government authority, extending beyond taxation to a wider array of regulatory domains in social and economic life.

Finally, the bundling of individualism and particularism helps explain the enduring legacy of frontier culture. [Putnam \(2020\)](#) notes the contrasting aspects of the frontier legacy and how they co-mingled throughout U.S. history.³ The country's varied local frontier histories, each with its

²de Tocqueville's comments reflect the particularistic and goal-specific aspects of this pervasive form of cooperation in the U.S.: "Americans of all ages, all conditions, and all dispositions, constantly form associations. They have not only commercial and manufacturing companies, in which all take part, but associations of a thousand other kinds—religious, moral, serious, futile, extensive, or restricted, enormous or diminutive. The Americans make associations to give entertainments, to found establishments for education, to build inns, to construct churches, to diffuse books, to send missionaries to the antipodes; and in this manner they found hospitals, prisons, and schools." His writings also underscore the contrast with state-level organization: "Wherever, at the head of some new undertaking, you see the government in France, . . . in the United States you will be sure to find an association."

³"[T]ake the American frontier, symbolized in countless westerns by a lone cowboy riding into the sunset, but also symbolized by a wagon train in which settlers sustain and protect one another. Individualist or communitarian? The evolving dialectic between the individual and the community is an important feature of American history" (p. 163).

attachment to specific places, created a patchwork of particularistic–individualistic cultures, and America’s vast geography created barriers to nation building historically. Many of these frictions persist today as the country sustains diverse, and often oppositional place-based cultures. Yet, as our finding of assortative matching on frontier history suggests, no matter how disparate such communities may be, their common centering of a local sense of place grounded in frontier history may hold them together. What makes America diverse may also be a unifying force.

2 Historical and Conceptual Background

This section provides background on frontier history and a framework for understanding how frontier conditions shaped a culture of moral particularism.

2.1 American Frontier History

From the colonial period to the late 19th century, the United States went through a process of rapid population growth and territorial expansion. Successive waves of settlers pushed the frontier to the West, displacing indigenous communities. Fast expansion continuously stretched populations westward, such that the frontier was sparsely settled and far away from eastern cities. The U.S. Census in the “Progress of the Nation” report [Porter et al. \(1890\)](#), along with [Turner \(1893\)](#), defined the frontier as the contour line of population densities above and below two people per square mile.

Historically, frontier counties exhibited dual forms of isolation: low population density and geographical remoteness. Low density implied limited interaction among residents, while proximity to the frontier line implied detachment from major population centers, markets, and the federal government. This isolation led to a dearth of social infrastructure and a challenging way of life, as elaborated by ([Overmeyer, 1944](#)). Yet, the frontier offered abundant land, creating economic prospects for those migrating from densely settled eastern regions, particularly in agriculture.

Using Census data and GIS methods, [Bazzi et al. \(2020\)](#) operationalize the frontier definition from classic texts to track the frontier’s movement from 1790 to 1890. Frontier counties are classified as those in close proximity to the frontier line (within 100 kilometers) and with a population density below six people per square mile, consistent with the threshold for post-frontier settlement adopted by ([Porter et al., 1890](#)) and [Turner \(1893\)](#). Non-frontier counties were more than 100 kilometers from the frontier line or with a population density exceeding six people per square mile. Population density was calculated annually, with interpolation for intercensal years. [Bazzi et al. \(2020\)](#) provide details on the underlying GIS procedures and validate the empirical content of the frontier definitional thresholds, highlighting structural breaks in demographics and social structure.

[Bazzi et al. \(2020\)](#) further develop a metric of “Total Frontier Experience” (TFE), reflecting the number of years a county met both criteria (proximity to the frontier line and low population density). [Figure A.1](#) illustrates the frontier’s historical progression during this period, and [Figure A.2](#) depicts TFE. While our baseline analysis focuses on 1790-1890—the frontier era stipulated by [Porter et al. \(1890\)](#) and [Turner \(1893\)](#)—we extend the analysis through 1950 for robustness.

2.2 Individualism and Moral Universalism

Individualism has attracted considerable attention in social and cultural psychology. This literature often portrays individualism as the most important dimension of cross-country variation in culture (e.g., Heine, 2010; Triandis, 1995). In influential work, Hofstede (1980) characterizes individualism as embodying a concern for oneself and immediate family, emphasizing personal autonomy and self-fulfillment, and founding one's identity on personal accomplishments. Individualism is most often defined by contrast with collectivism. Triandis (1988, 1995, 2001) makes the distinction in terms of four major attributes: in individualism, the self is independent rather than interdependent, personal goals trump group goals, behavior is regulated primarily by personal attitudes rather than social norms, and market exchange is more important than communal relationships.

Alongside the central role of individualism in understanding culture, recent scholarship advances the concept of moral values. Graham et al. (2009, 2011, 2012) develop this concept as part of their "Moral Foundations Theory" (MFT) in a series of studies mapping the moral contrast between liberals and conservatives. Liberal values are individualizing (e.g., fairness and justice) and display universalistic morals (directed toward socially distant and structurally looser targets). Conservative values are instead group-specific (e.g., loyalty and authority) and display particularistic morals (directed toward socially closer and structurally tighter targets).

In several studies on political and social attitudes, Enke (2020), Enke et al. (2022), Enke et al. (2023b), and Enke (forthcoming) propose defining moral universalism as a feature of utility functions with social preferences. Full universalism is the case where the utility of an individual has the same weights for social in-group and out-group members. In contrast, particularism means that the weight for others' utility decreases in social distance. More generally, particularism is captured by the elasticity of utility with respect to social distance.

We can combine this precise concept of moral universalism with the concept of individualism into a unified representation. In Figure 2, we capture the utility weights for people at different social distances following Enke (forthcoming) but adding one category to this representation: self and family.⁴ While this diagram emphasizes utility as a key aspect of social preferences, considering moral values across varying degrees of social distance can have broader significance in interpersonal socialization. In addition to its applicability to altruism and other-regarding utility functions, an analogous notion may characterize trust and cooperation with implications for social structure.

We use this representation to depict three stylized cultural configurations. Panel (a) depicts *particularistic collectivism*, in which individuals see themselves as part of a group, so there is no distinction between self, family, extended family, and other in-group members, whereas out-groups do not get any weight. This corresponds to kinship-based societies and the notion of "amoral famil-

⁴Enke (2020) remarks that universalism and individualism are related: "individualism, which captures whether people define themselves as I or we" captures two distinct elements: (i) "whether people care more about their in-group (which captures universalism)"; and (ii) "whether people are expected to primarily look after themselves rather than care about others" (p. 1945, footnote 6). They note that their concept of universalism holds (ii) constant. In our proposed representation, individualism is defined by (ii) holding (i) constant, thus offering a precise distinction between the two concepts. In practice, both dimensions may be linked: holding constant the utility weight for out-groups, varying weights for the two other categories changes both individualism and universalism.

ism” by Banfield (1967) (see also Putnam et al., 1993). Panel (b) depicts *universalistic individualism*, characterized by a strong emphasis on the self and the nuclear family, combined with full universalism beyond—with no social distinction of in-group and out-group. This corresponds to WEIRD societies where the Western Church historically promoted the nuclear family over kin-based structures, thus expanding the necessity of interpersonal cooperation and trust between strangers at larger social scales (Henrich, 2020; Schulz et al., 2019).

Finally, panel (c) depicts the cultural configuration that we formalize in this paper: *particularistic individualism*. In this case, there is a steep slope separating the nuclear family from others, and among the latter, a steep slope separating in-groups from out-groups. This configuration embodies the distinctive nature of America’s frontier culture of “rugged individualism,” as well as similar cultural adaptations in contexts where cooperation has high returns but is difficult to sustain (see, e.g., Le Rossignol and Lowes (2022) on transhumant pastoralists and Henrich (2020) on Matsigenka communities in the Peruvian Amazon for other examples of particularistic individualism).

2.3 The Frontier Roots of Particularistic Individualism

Historical narratives underscore the importance of self-reliance in frontier settings, where independence and resourcefulness were crucial for survival and progress. Individualistic settlers gravitated towards and flourished on the frontier (Bazzi et al., 2020). However, these conditions cultivated not only individualism but also moral particularism. Isolation limited intergroup contact, hindering some of the interactions that might have otherwise fostered tolerance and trust among distinct groups (Allport, 1954). Additionally, the transient nature of frontier life made sustaining cooperative relationships difficult, given the lack of repeated interactions and institutional support for enforcing prosocial behavior (see Munshi, 2014; Tabellini, 2008). Despite the benefits of cooperation in overcoming challenges on the frontier (e.g., failed crops, conflict with indigenous groups), the absence of social infrastructure necessitated the development of traits like moral particularism to facilitate cohesion. This environment favored the formation of groups based on common ancestry or religious identity, reinforcing the importance of moral particularism in sustaining prosociality.

Several studies point to the combination of individualism and particularistic community building on the frontier. In his book “Community on the American Frontier: Separate but Not Alone,” historian Robert Hine identifies three conditions for community formation: a sense of place, personal interactions in a small-scale environment, and common values. Common values was key to understanding the particularism imprint, since “without commonly assumed values, whether they be religious, psychological, economic or cultural, there can be no community” (Hine, 1980, p. 25). Each local environment’s unique characteristics fostered strong bonds among community members, promoting a sense of place and a localist inclination. Hine characterizes several types of communities (e.g., Puritan communities, nomadic communities on the overland trek, ranchos) and cooperation (e.g., barn raisings, cooperative threshing, collective defense). In this account, rugged individualism would have undermined the foundations of community building on the frontier.

In his comprehensive study of property rights to land on the frontier—a fundamental aspect

of frontier settlement—[Murtazashvili \(2013\)](#) argues that settlers were not just “rugged individualists that sowed the seeds of capitalist development,” but also, in contrast with classic narratives, “they were good at working together” (p.xi). In particular, they addressed the problems of coordination and cooperation around adjudication, defense, and trade by forming claim clubs, informal associations that had “all the features of the state – executives, deliberative bodies, a system of administration, judges, and juries” (p.ii).

Specific agroclimatic conditions also played a role in shaping close-knit communities historically. [Raz \(2024\)](#) shows that soil heterogeneity hindered social-learning-induced cooperation and thus pushed communities towards moral particularism. This force was not specific to frontier locations but may have been stronger there, given the prevalence of newly-incorporated land with novel growing conditions. [Shannon \(1945\)](#) saw this as a driver of individualism and localism on the frontier. [Spolverini \(2024\)](#) finds evidence consistent with the frontier duality of individualism and particularism: while historical frontier experience led to greater individualism, this relationship is weaker in locations where climatic risk incentivized cooperation. In such locations, religiosity became more entrenched, perhaps as a way to foster and sustain cooperation.

3 Empirical Analysis

This section presents our empirical findings linking frontier history to moral particularism.

3.1 Outcomes of Interest

We examine several outcome variables, beginning with measures of universalistic and communal values. Based on responses to the Moral Foundations Questionnaire, universalist values are those that emphasize fairness, reciprocity, and care for the weak, while communal values are those that emphasize loyalty to in-groups and respect for authority (see [Enke, 2020](#); [Graham et al., 2012](#)). We also consider opposition to government spending at different administrative levels, measured using data from the Cooperative Congressional Election Study (CCES).

We consider two granular measures capturing the geographic scope of social preferences and interactions: charitable giving data from *DonorsChoose* and social connectedness based on Facebook activity. Following [Enke et al. \(2023a\)](#), we interpret the elasticity of charitable donations with respect to geographic distance as capturing the degree of moral particularism: larger elasticities reflect greater moral particularism relative to universalism. As developed in Section 3.3, this approach focuses on how social preferences decay with distance, with direct applicability to patterns in charitable giving. But we also take a broader interpretation of this approach as relevant to social interactions more generally, and rely on online social friendships data to capture moral particularism in interpersonal socialization.

DonorsChoose is a web-based platform where schools from across the country can request donations for specific projects and initiatives. Donors can select projects they wish to support based on various criteria, including geographic filters. The platform provides location data for schools and

donors that we map to counties, the level at which we measure frontier history. We also use Bailey et al.’s (2018) “Social Connectedness Index” (SCI), which measures friendships between inhabitants of different counties i and j : $SCI_{ij} = \frac{\text{connections}_{ij}}{\text{users}_i \times \text{users}_j}$. Intuitively, this captures the relative probability that a Facebook user in county i is friends with a Facebook user in county j . The SCI is further re-scaled with respect to its maximum value, realized for links between residents of Los Angeles county, the most populous in the U.S. The index ranges from 0 to 1,000,000.

3.2 Frontier History and Moral Particularism: A First Look

We relate moral values to historical frontier experience using the following equation:

$$y_{cs} = \beta \cdot TFE_c + \mathbf{X}'_c \gamma + \alpha_s + \varepsilon_{cs}, \quad (1)$$

where y_{cs} is an outcome of interest in county c , located in state s , TFE_c is total frontier experience, $\alpha_{s(c)}$ is a state FE, \mathbf{X}_{cs} is a vector of control variables that comprises geographic factors including county area (in logs), latitude, and longitude, environmental factors like mean temperature, rainfall, elevation, distance to the coast, rivers, and lakes, and average agricultural suitability. For inference, we account for spatial autocorrelation following Bester et al. (2011) and cluster standard errors within 60×60 square-mile grid cells that cover all counties in our sample.⁵

We begin by examining the association between TFE and measures of moral universalism and particularism. Panel (a) of Table 1 shows a significant negative association between historical exposure to frontier conditions and the modern prevalence of moral particularism as opposed to moral universalism. In the core specification with state FE and geographic controls, each additional decade of frontier experience (mean of 18 years, standard deviation of 11) is associated with 0.06 standard deviations (s.d.) lower universalism relative to particularism (column 6). This differential is driven by the greater absolute importance of communal (i.e., particularistic) moral values in high-TFE counties (compare columns 1-2 to columns 3-4).

Appendix Table A.1 shows that this strong association holds when accounting for differences in population dynamics across high- and low-TFE counties. In columns 2-4, we increasingly flexibly control for population density in 2010, a nearest-neighbor-matching-type specification that conditions on fixed effects for within-state pairs of counties that have the most similar density. In columns 5-6, we split the sample based on 2010 urban population shares, and in column 7, we control for the total number of years from 1790 to 1890 in which a county had population density less than 6 people per square mile. Across columns, we see a consistent pattern of stronger moral particularism in high-TFE counties, which points to a legacy of frontier settlement rather than an accumulated history of low density, which may have distinct effects on moral values.

Next, we revisit and extend a finding from Bazzi et al. (2020) on the link between frontier experience and opposition to tax redistribution. In that paper, we characterize frontier culture as “rugged individualism,” a distinctive combination of individualism and opposition to government

⁵In selecting controls and in conducting inference—in both baseline and robustness checks—we tie our hands by following the same specifications used in Bazzi et al. (2020).

intervention. We argue that the latter may be associated with the favorable prospects for upward mobility through effort in frontier locations. According to contemporary political economy theories, favorable prospects for upward mobility foster opposition to taxation, and when income generation requires effort, taxes can be unfair as well as inefficient. In the present study, we further argue that frontier culture entails a disproportionate opposition to *federal* taxes, as these infringe upon the particularistic dimension of “rugged individualism” much more than do local taxes.

The remaining columns of Table 1 show a pattern of opposition to redistribution that is magnified by distance. As in Bazzi et al. (2020), columns 1-2 show that frontier history is associated with opposition to *federal* spending through tax increases. Columns 3-4 show, novelly, that TFE is also linked to opposition to *state-level* spending, but with smaller effect sizes. Finally, columns 5-6 consider the gap in opposition to these two levels of spending, confirming that locations with a longer frontier history exhibit more localist preferences for redistribution.⁶ These results are also generally robust to heterogeneous population dynamics over the long run (see Appendix Table A.1).

Robustness Checks. Several results in the appendix bolster our interpretation. Appendix Table A.2 shows robustness to additional confounds of TFE and moral values, including ruggedness and rainfall risk, conflict with indigenous groups, historical demographics (e.g., enslaved, immigrants, and diversity) and historical economic factors (e.g., portage, mines, railroads, and manufacturing). Appendix Table A.3 explores regional heterogeneity, adds the west coast to our baseline sample of counties, and extends the frontier era through 1950. The broadly similar estimates across regions are consistent with a common legacy of frontier settlement rather than specific features of that process in different parts of the country. Finally, Appendix Table A.4 addresses remaining endogeneity concerns using an instrumental variables (IV) strategy that isolates exogenous variation in TFE due to historical shocks to the settlement process driven by inflows of immigrants to the United States. For each county, the IV captures total immigration flows—actual and predicted based on climate shocks in Europe (following Nunn et al., 2017)—starting just before the onset of local frontier settlement. As demonstrated in Bazzi et al. (2020), these time-varying flows hasten westward expansion, thus reducing TFE, but are unrelated to local conditions of any given frontier county. The IV estimates are statistically indistinguishable from the OLS.

3.3 Localism in Donations and Social Connections

We turn now to more granular evidence of how frontier culture shaped moral particularism and gave rise to a more insular, localized social fabric across the country. Before identifying a link between frontier history and the localization of charity, we first establish that giving is generally lower in areas with greater TFE. Appendix Table A.5 shows, using equation (1), that high-TFE counties have fewer donors, less donations, and smaller donations per donor. This may be surprising, as

⁶These results are consistent with validation checks in Appendix D.2 (Table 4) of Enke (2020), based on a small individual-level survey sample, showing that the relative importance of universalist values is strongly negatively correlated with preferences for redistribution at the federal as opposed to local level and with donating and volunteering broadly as opposed to locally. Those correlations clarify the content of the moral foundations index whereas our results here point to frontier history as an underlying driver of those correlated preferences and attitudes.

previous research has shown that (faith-based) charities substitute for government redistribution (Gruber and Hungerman, 2007; Hungerman, 2005), which tends to be more limited in high-TFE locations with prevailing anti-statism.⁷ Cai et al. (2022) also show that individualism is associated with increased charity. Our contrasting results reinforce the distinctiveness of frontier culture, which worked against the morally universalist tendencies of individualistic cultures elsewhere.

High-TFE counties not only exhibit lower overall donations but also a greater tendency to allocate donations locally. We identify this localism in Table 2 using the following equation:

$$y_{ij} = \beta_1 f(\text{distance}_{ij}) + \beta_2 f(\text{distance}_{ij}) \times TFE_i + \alpha_i + \alpha_j + \varepsilon_{ij}, \quad (2)$$

where y_{ij} measures donations from county i to county j , and $f(\text{distance}_{ij})$ captures the distance between i and j . In panel (a), we parametrize $f(\cdot)$ as two separate indicators for neighboring and non-neighboring counties (relative to own county), and in panel (b) as the inverse hyperbolic sine of the distance between the centroids of i and j . α_i and α_j are donor and recipient county FE, respectively, and standard errors are two-way clustered on donor grid-cell and recipient county. β_1 identifies the donations-distance elasticity and β_2 the heterogeneity in that elasticity with respect to frontier history. In a more flexible approach, we further allow β_1 to vary across states, leaving β_2 to identify the differential TFE heterogeneity within states. Following a now-standard approach from the trade literature, we estimate equation (2) using Poisson Pseudo Maximum Likelihood or PPML, which allows for consistent estimation of gravity-type coefficients in data with both an extensive and intensive margin like bilateral donations (Silva and Tenreyro, 2006).

Table 2 reveals a stronger localized giving in counties with a longer frontier history. Relative to donations allocated to own-county residents, nearly 90 percent fewer go towards neighboring counties and nearly 100 percent fewer going to non-neighboring counties (column 1, panel a).⁸ Moreover, each additional decade of frontier experience is associated with nearly 28 percent fewer donations going to non-neighboring counties (column 2, panel a). We see a similar albeit more muted differential reduction for donations to neighboring counties. Panel (b) provides a single, summary estimate of the distance elasticity of -0.9 (column 1) and significant heterogeneity across high- and low-TFE counties: counties at the 90th percentile of TFE (35 years) have an elasticity of -1.04 compared to -0.87 for those at the 10th percentile (6 years). The greater localization of giving in high-TFE counties is robust to differential distance elasticities across states (column 3).

The remaining columns of Table 2 show that online social connections also display greater localism in high-TFE areas. The distance elasticity in column 4 is similar if not slightly larger than that for donations in column 1. And the heterogeneity with respect to TFE exhibits a similar localizing tendency: each additional decade of TFE is associated with 10-13 percent fewer friendship connections with those in non-neighboring counties compared to those in one's own county (columns 5-6).

Together, the results in Table 2 further corroborate the role of frontier history in cultivating a par-

⁷It is also possible that some of this substitution of private for public redistribution through charitable giving falls along more particularistic group-based lines and hence would be consistent with the particularistic individualism that we characterize here. This possibility should be explored in future work.

⁸Given the PPML structure, we can interpret these semi-elasticities as $(e^\beta - 1) \times 100\%$.

ticularistic culture. To ensure the key heterogeneous distance elasticities are not driven by other features of high-TFE counties, we interact $f(\text{distance}_{ij})$ in equation (2) with additional origin county- i controls: all of the predetermined agroclimatic and geographic controls in our baseline county-level specification (1) (Appendix Table A.6); contemporaneous population density in 2010, as in column 2 of Appendix Table A.1 (Appendix Table A.7); and total years of low-density experience (LDE), as in column 7 of Appendix Table A.1 (Appendix Table A.8). Appendix Table A.9 restricts the dyadic panel to include only those origin *and* destination counties for which we observe TFE from 1790–1890. Appendix Table A.10 estimates an IV specification, based on a control function, in which we instrument for $\text{distance} \times \text{TFE}$ with distance times each of the two instruments, respectively, for TFE used in Appendix Table A.4. Finally, Appendix Table A.11 adopts the logarithmic rather than inverse hyperbolic sine specification for $f(\text{distance}_{ij})$, and panels (b)-(e) further introduce the robustness specifications from Appendix Tables A.6–A.9. Looking across tables, we see a robust and consistent pattern of TFE amplifying the localist tendencies of charitable giving and social connections across the United States. Importantly, these checks suggest that the localism of frontier culture is not merely an artifact of the digital divide across the urban–rural landscape.

3.4 Assortative Matching Across Particularistic America

Our findings thus far suggest that America’s frontier history gave rise to a patchwork of particularistic communities. In this final section, we show that despite the physical distance separating communities across the country’s vast geography, a shared frontier history can bring communities closer together. We uncover these connections by exploring assortative matching on frontier history. That is, we amend equation (2) to include a term TFE distance_{ij} , which equals the absolute value of the difference in TFE between county i and county j .

Table 3 shows that counties with more similar frontier histories are more socially integrated. Conditional on their geographic proximity, counties with a one decade greater difference in TFE exhibit 17 percent fewer donations (column 1) and 26 percent fewer friendship connections (column 4).⁹ Moreover, these frontier cultural barriers compound the physical ones: each additional decade of TFE difference across counties is associated with a 21 percent steeper distance elasticity for donations (columns 2-3) and a 65 percent steeper distance elasticity for friendships (columns 5-6). In other words, the cultural divide across high- and low-TFE counties exacerbates the separation of communities otherwise isolated from each other in physical space.

Appendix Table A.12 shows that these findings are robust to accounting for other pairwise differences between counties, besides TFE distance, in terms of their underlying geographic and agroclimatic fundamentals (panel a), their modern population density (panel b), and their history of low density in the frontier era (panel c). Additionally, the compounding effect of geographic and TFE distance on cultural divisions holds when also accounting for the fact that counties with greater TFE are less likely to donate and socially connect to more distant counties (see Appendix Table A.13, which effectively combines Tables 2 and 3).

⁹The mean county-pair has 12 years difference in their total frontier experience from 1790–1890.

Together, these patterns suggest that moral particularism not only shapes but is also shaped by social interactions. By limiting interactions with outsiders, moral particularism may reinforce itself over time if individuals are less prone to out-group interactions across the frontier history divide. While the earlier results in Section 3.3 consider the out-group in physical space, the results here consider the out-group in cultural space. These physical and cultural gravity forces may interact in a way that ensures persistence over time, insofar as they further preclude the mixing of individuals with universalistic and particularistic values. [Bazzi et al. \(2020\)](#) show that a culture of rugged individualism pervades high-TFE communities that span America’s vast geography. The findings in this section show that these same communities may nevertheless be connected through a shared sense of history bound up in morally particularistic views about what it means to be American.

4 Conclusions

This paper sheds light on the historical roots of America’s unique cultural combination of individualism and moral particularism. Focusing on the frontier, our argument centers on the role of westward expansion in fostering self-reliance among settlers and creating large returns to cooperation. However, that cooperation was difficult to sustain given the high degree of geographic mobility and limited presence of government or social infrastructure. These conditions engendered norms of moral particularism, emphasizing strong local identities around which insular communities could be sustained over time.

We show empirically that areas with longer frontier exposure exhibit morally particularistic views, oppose government spending at higher levels of jurisdiction, and display localistic patterns in their charitable giving and social connections online. We also document assortative matching in charity and online friendships, which may be a potential channel for persistence, insofar as cultural traits are reinforced by biasing interactions towards individuals with common culture. These results together establish a link between frontier history and moral particularism, providing a novel perspective on the configuration of contemporary culture and political ideology in the United States.

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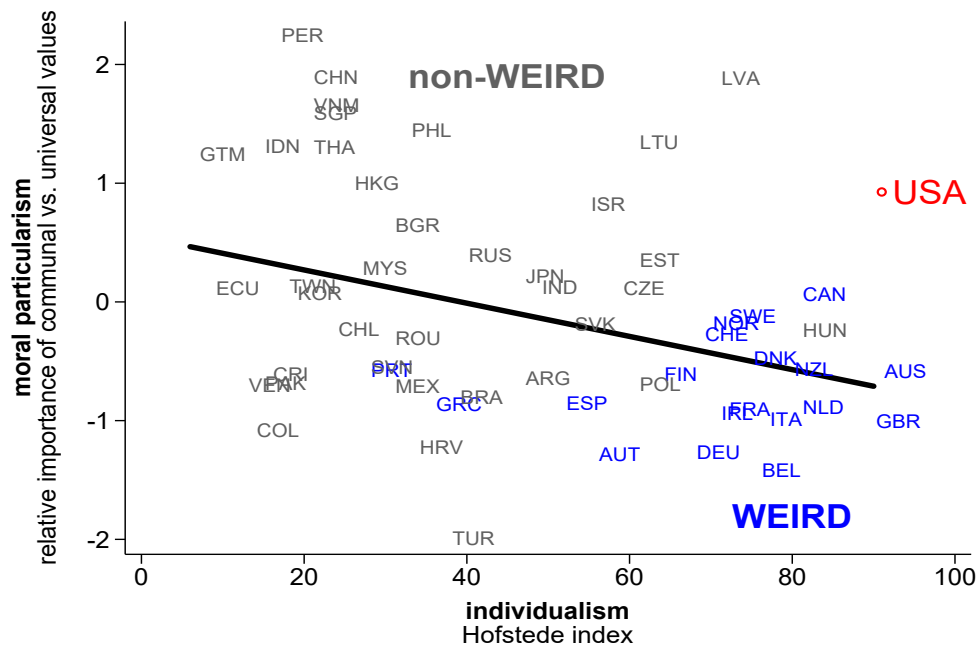
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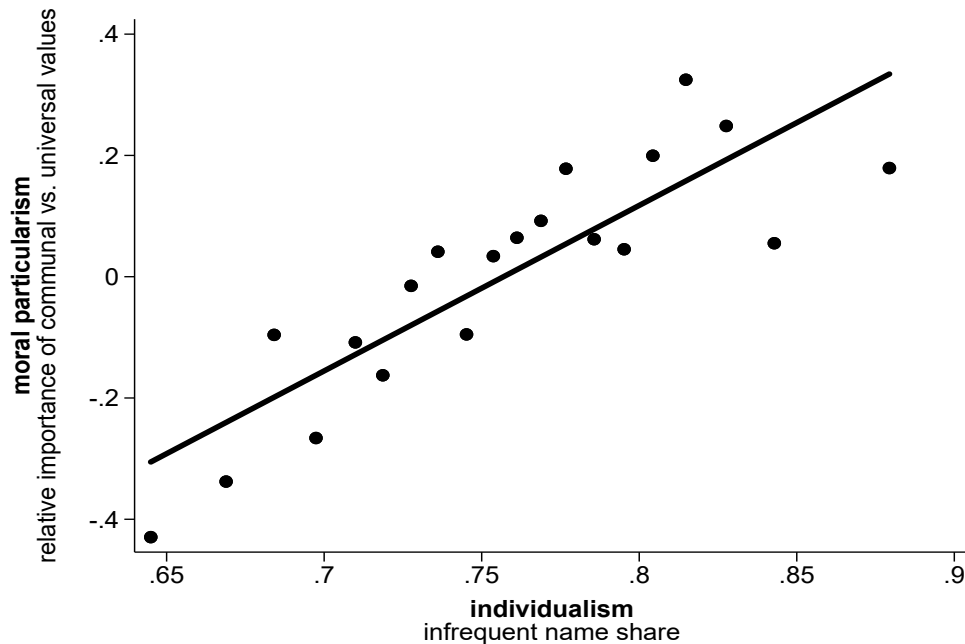
Figures

Figure 1: Individualism and Moral Particularism

(a) Across Countries



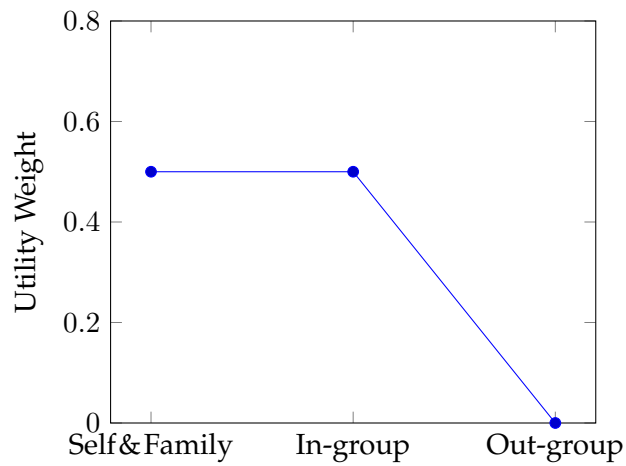
(b) Across Counties in the United States (binscatter)



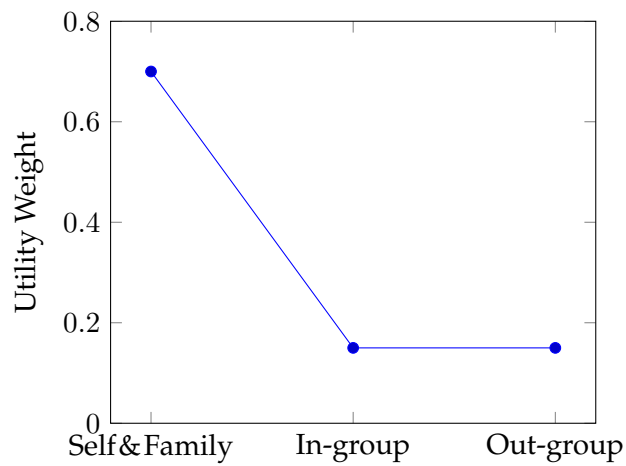
Notes: In **panel (a)**, each observation in the scatterplot is a country with the individualism score from [Hofstede \(1991\)](#) on the x-axis and an index measuring the relative importance of communal versus universalistic values from [Enke \(2019\)](#). The countries in blue are the “Western, Educated, Industrialized, Rich, and Democratic” or WEIRD countries identified by [Henrich \(2020\)](#), excluding the United States. The regression line and 95% confidence interval is based on all countries except the United States. In **panel (b)**, the figure reports a binscatter for 2,251 counties in the continental U.S. with the share of individualistic names (outside the top 10 nationally) among children aged 0-10 in 1940 (from [Bazzi et al., 2020](#)) on the x-axis and an index measuring the relative importance of communal versus universalistic values from [Enke \(2020\)](#).

Figure 2: Configurations of Individualism and Moral Values

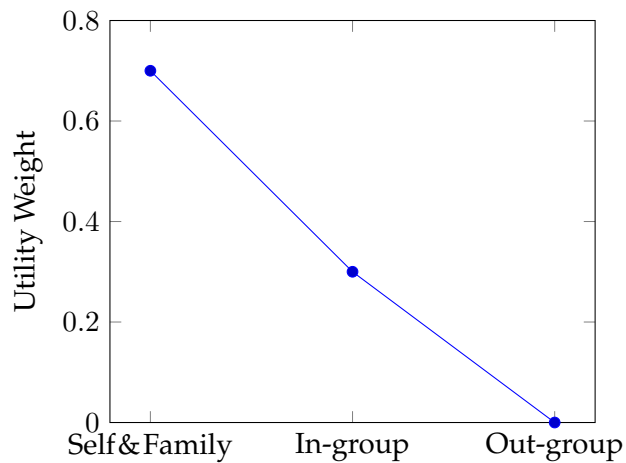
(a) Particularistic Collectivism (e.g., Kinship-based Societies)



(b) Universalistic Individualism (e.g., WEIRD)



(c) Particularistic Individualism (e.g., Frontier Culture)



Notes: This figure depicts three different configurations of utility weights in a utility function displaying other-regarding preferences three categories with increasing social distance: self and family; in-group; out-group.

Tables

Table 1: Moral Particularism and Localist Preferences for Redistribution

Dep. Var:	Panel (a): Moral Universalism					
	Universalist Moral Values		Communal Moral Values		Universalist vs. Communal Values	
	(1)	(2)	(3)	(4)	(5)	(6)
total frontier experience (TFE)	-0.009 (0.026)	-0.0004 (0.026)	0.065** (0.026)	0.074*** (0.026)	-0.059** (0.026)	-0.061** (0.026)
Number of Counties	1,483	1,482	1,483	1,482	1,483	1,482
R ²	0.022	0.034	0.089	0.104	0.076	0.090
Dep. Var. Mean	-0.01	-0.01	0.05	0.05	-0.05	-0.05
Dep. Var. S.D.	0.96	0.96	0.95	0.95	0.95	0.95

Dep. Var:	Panel (b): Localist Preferences for Redistribution					
	Oppose Federal Spending		Oppose State Spending		Opposition to Federal vs. State Spending	
	(1)	(2)	(3)	(4)	(5)	(6)
total frontier experience	1.745*** (0.294)	1.485*** (0.285)	0.674*** (0.204)	0.773*** (0.193)	1.071*** (0.272)	0.712*** (0.248)
Number of Individuals	152,480	152,407	152,480	152,407	152,480	152,407
Number of Counties	1,992	1,989	1,992	1,989	1,992	1,989
R ²	0.004	0.005	0.004	0.004	0.002	0.003
Dep. Var. Mean	41.49	41.49	78.74	78.73	-37.25	-37.24
Dep. Var. S.D.	49.27	49.27	40.92	40.92	54.02	54.02
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Geographic/Agroclimatic Controls	No	Yes	No	Yes	No	Yes

Notes: This table reports estimates of equation (1). In panel (a), the dependent variables are from [Enke \(2020\)](#) and measure an index of universalist moral values (column 1), communal moral values (column 2), and the difference between universal and communal moral values indices (column 3). In panel (b), the dependent variables are from the CCES in the 2007–16 waves and measure, as binary indicators, whether respondents support spending cuts at the federal level (column 1), the state level (column 2), and the difference between the two (column 3). The precise question in (1) asks whether, in order to balance the budget, respondents would prefer that the federal government cut domestic spending, cut defense spending, or raise taxes. Our outcome equals one if the respondent prefers to cut spending in either category and zero otherwise. The precise question in (2) asks whether, in order to balance the budget, respondents would prefer that the state government cut spending or raise taxes with a continuous response allowing for allocating 0-100% across the two categories. Our outcome equals one if the respondent prefers to cut spending with a value > 50% and zero otherwise. Total Frontier Experience (TFE) is scaled in decades. State fixed effects and predetermined or fixed county-level covariates (latitude, longitude, mean temperature, mean rainfall, mean elevation, distance to coast, river and lake and average agricultural productivity) are included. Standard errors are clustered based on [Bester et al. \(2011\)](#) grid-cell clustering with 60 × 60 square-mile cells. Significance levels: * : 10% ** : 5% *** : 1%.

Table 2: Localism in Charitable Giving and Social Connections

Dep.Var.:	Number of Donations			Normalized Connections		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel (a): Localism in Donations and Social Connections						
Neighboring County	-2.276*** (0.077)	-2.195*** (0.124)		-2.443*** (0.018)	-2.442*** (0.035)	
Non-neighboring County	-6.768*** (0.152)	-6.325*** (0.220)		-8.206*** (0.036)	-7.964*** (0.114)	
Neighboring County \times TFE _{<i>i</i>}		-0.072 (0.066)	-0.140 (0.099)		-0.0003 (0.016)	-0.042** (0.018)
Non-neighboring County \times TFE _{<i>i</i>}		-0.323*** (0.109)	-0.392*** (0.089)		-0.132** (0.054)	-0.104*** (0.028)
Number of Observations	6,597,360	6,597,360	6,597,360	6,397,440	6,397,440	6,397,440
Dep. Var. Mean	0.277	0.277	0.277	2272.4	2272.4	2272.4
Dep. Var S.D.	43.2	43.2	43.2	94618.1	94618.1	94618.1
Panel (b): Geographic Elasticity of Donations and Social Connections						
Geographic Distance _{<i>ij</i>}	-0.917*** (0.024)	-0.839*** (0.036)		-1.130*** (0.005)	-1.101*** (0.015)	
Geographic Distance _{<i>ij</i>} \times TFE _{<i>i</i>}		-0.058*** (0.020)	-0.062*** (0.014)		-0.016** (0.007)	-0.009** (0.004)
Number of Observations	6,342,360	6,342,360	6,342,360	6,328,080	6,328,080	6,328,080
Dep. Var. Mean	0.288	0.288	0.288	2295.5	2295.5	2295.5
Dep. Var. S.D.	44.0	44.0	44.0	95135.0	95135.0	95135.0
County <i>i</i> FE	Yes	Yes	Yes	Yes	Yes	Yes
County <i>j</i> FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE \times $f(distance_{ij})$	No	No	Yes	No	No	Yes

Notes: This table reports estimates of equation (2) based on Poisson Pseudo Maximum Likelihood (PPML) for two alternative specifications of $f(distance)$: binary indicators for neighboring counties and non-neighboring counties relative to own county as the omitted reference group (panel a), and the inverse hyperbolic sine of distance between county *i* and county *j* (panel b). The dependent variable in columns 1–3 is the total number of donations sent from county *i* to county *j* in the DonorsChoose data. The dependent variable in columns 4–6 is the total number of normalized social connections between county *i* and *j* as reported in the Social Connections Index from Bailey et al. (2018). Total Frontier Experience (TFE) is scaled in decades. In panel (a), columns 3 and 6 include state fixed effects interacted with the neighboring and non-neighboring county dummies. In panel (b), columns 3 and 6 include state fixed effects interacted with the inverse hyperbolic sine of distance between counties *i* and *j*. Standard errors are two-way clustered on county *i*'s 60 \times 60 square-mile grid cell (following Bester et al., 2011) and county *j*. Significance levels: * : 10% ** : 5% *** : 1%.

Table 3: Assortative Matching in Charitable Giving and Social Connections

Dep.Var.:	Number of Donations			Normalized Connections		
	(1)	(2)	(3)	(4)	(5)	(6)
Geographic Distance _{ij}	-0.902*** (0.026)	-0.885*** (0.024)		-1.081*** (0.007)	-1.010*** (0.007)	
TFE Distance _{ij}	-0.181*** (0.034)	1.446*** (0.197)	1.503*** (0.193)	-0.300*** (0.024)	5.835*** (0.249)	5.876*** (0.260)
Geographic Distance _{ij} × TFE Distance _{ij}		-0.242*** (0.032)	-0.252*** (0.030)		-1.043*** (0.042)	-1.047*** (0.043)
Number of Observations	4,161,600	4,161,600	4,161,600	4,161,600	4,161,600	4,161,600
Dep. Var. Mean	0.367	0.367	0.367	3279.3	3279.3	3279.3
Dep. Var. S.D.	54.3	54.3	54.3	117003.3	117003.3	117003.3
County <i>i</i> FE	Yes	Yes	Yes	Yes	Yes	Yes
County <i>j</i> FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE × Geographic Distance	No	No	Yes	No	No	Yes

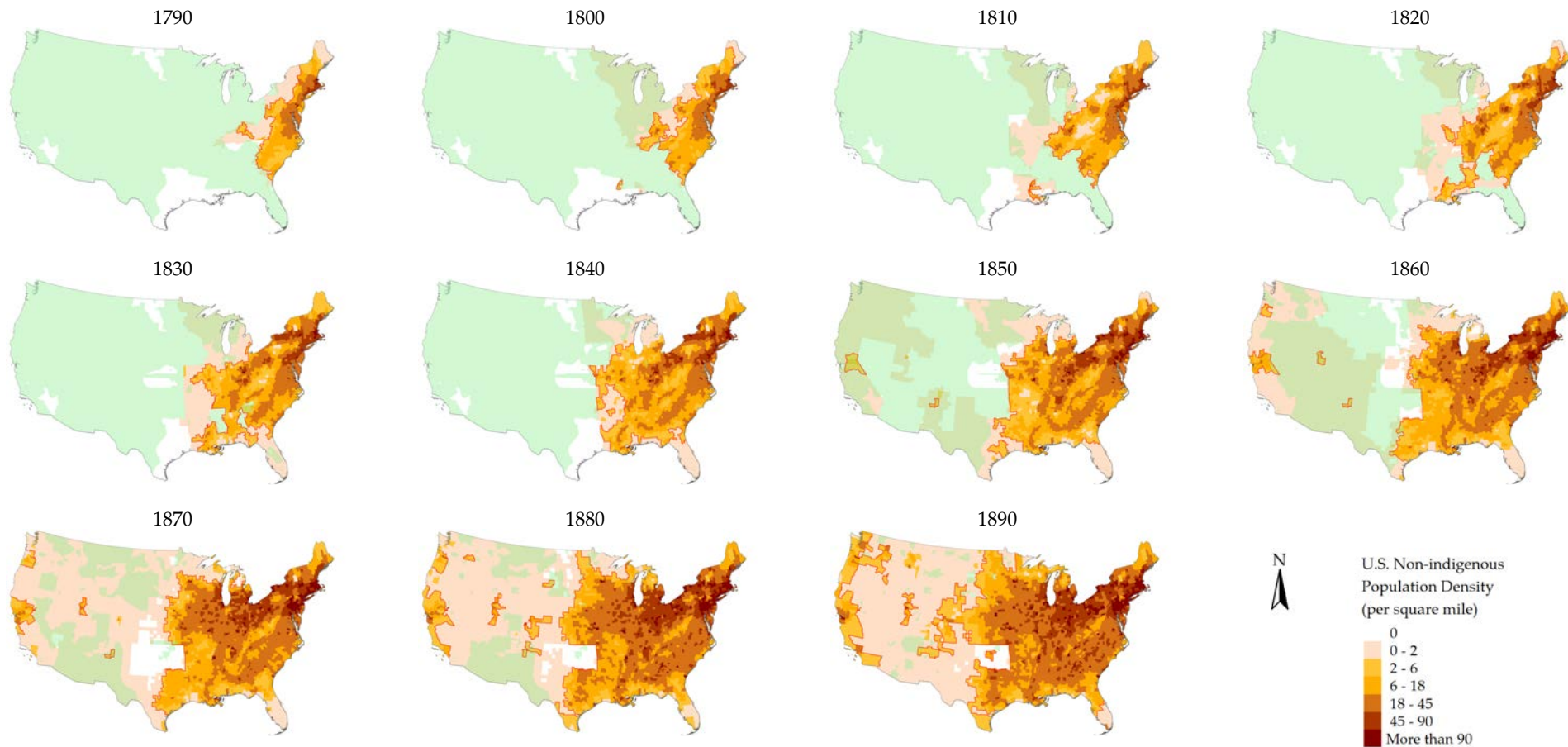
Notes: This table reports estimates of equation (2) based on Poisson Pseudo Maximum Likelihood (PPML) replacing TFE for county *i* with the absolute value of the difference in TFE between county *i* and county *j*. The dependent variable in columns 1–3 is the total number of donations sent from county *i* to county *j* in the DonorsChoose data. The dependent variable in columns 4–6 is the total number of normalized social connections between county *i* and *j* as reported in the Social Connections Index from Bailey et al. (2018). We specify geographic distance between *i* and *j* as the inverse hyperbolic sine. Columns 3 and 6 include state fixed effects interacted with the distance between counties *i* and *j*. Standard errors are two-way clustered on county *i*'s 60 × 60 square-mile grid cell (following Bester et al., 2011) and county *j*.

Significance levels: * : 10% ** : 5% *** : 1%.

Appendix Results

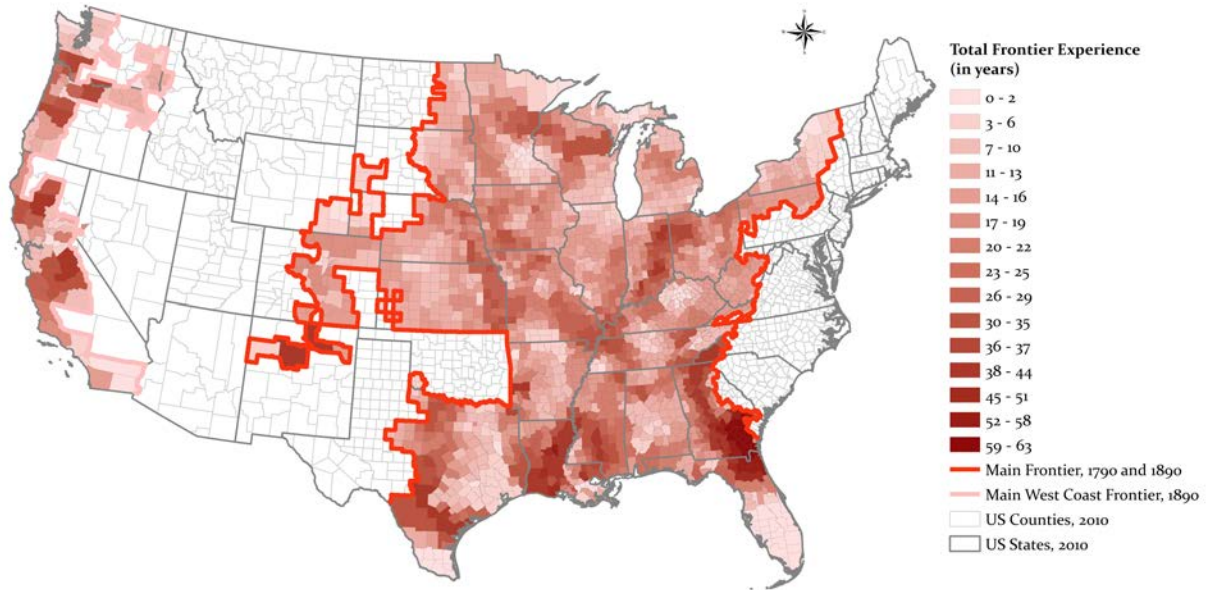
Figures

Figure A.1: The Evolution of the Frontier, 1790 to 1890



Notes: The frontier lines demarcate the contour of counties with U.S. population density below and above 2 people per square mile. We exclude smaller "island frontiers" in the interior and contour line segments less than 500 km. Native land demarcation is based on shapefiles of land transfers digitized by Claudio Saunt from an 1899 publication of the Bureau of American Ethnology supervised by Charles C. Royce (see the "Invasion of America" project at <https://usg.maps.arcgis.com/apps/webappviewer/index.html?id=eb6ca76e008543a89349ff2517db47e6>).

Figure A.2: Total Frontier Experience, 1790 to 1890



Notes: Total frontier experience is the total number of years the county was within 100 km of the frontier line and its population density was below 6 people per square mile, between 1790–1890. The white areas to the east of the 1790 main frontier line are counties for which we do not know frontier history given the lack of data before 1790. The white areas to the west are beyond the 1890 frontier line. This figure is reproduced from Figure 3 in [Bazzi et al. \(2020\)](#).

Tables

Table A.1: Disentangling Population Density

Population Density, 2010	✓						
Population Density Decile Within-State, 2010	✓						
Population Density-Neighbor Matching Within-State, 2010	✓						
Sample Restriction	None	None	None	None	≥ 90th percentile urban pop. share, 2010	< 90th percentile urban pop. share, 2010	None
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel (a): Universalist vs. Communal Moral Values							
total frontier experience	-0.061** (0.026)	-0.045 (0.027)	-0.043 (0.028)	-0.070* (0.038)	-0.023 (0.054)	-0.053* (0.031)	-0.060** (0.028)
total low density experience							-0.025 (0.239)
Number of Counties	1,483	1,483	1,462	1,482	149	1,334	1,483
Dep. Var. Mean	-0.05	-0.05	-0.05	-0.05	0.12	-0.07	-0.05
Dep. Var. S.D.	0.95	0.95	0.95	0.95	0.51	0.98	0.95
Panel (b): Opposition to Federal vs. State Spending (OLS)							
total frontier experience	0.712*** (0.248)	0.268 (0.252)	0.532** (0.259)	0.144 (0.389)	0.799* (0.411)	0.100 (0.349)	0.760*** (0.249)
total low density experience							-1.269 (2.137)
Number of Individuals	152,407	152,407	150,956	152,407	93,634	58,773	152,407
Number of Counties	1,989	1,989	1,975	1,989	199	1,790	1,989
Dep. Var. Mean	-37.24	-37.24	-37.29	-37.24	-38.12	-35.85	-37.24
Dep. Var. S.D.	54.02	54.02	54.02	54.02	53.87	54.22	54.02
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Geographic/Agroclimatic Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table estimates alternative specifications of the regressions in column 6 of Table 1. Column 1 reproduces those baseline estimates. Column 2 controls for population density in 2010. Column 3 controls for indicators of the decile of population density in 2010 within each state. Column 4 includes fixed effects for the pairs of counties within each state with the most similar population density in 2010. Column 5 restricts to counties in the top 10th percentile of population density distribution in 2010, and column 6 restricts to the remaining counties in the bottom 90th percentiles. Column 7 adds an additional regressor measuring the total number of years from 1790–1890 in which the county had population density below 6 people per square mile. The specifications are otherwise identical to those in Table 1. Standard errors are clustered based on [Bester et al. \(2011\)](#) grid-cell clustering with 60 × 60 square-mile cells.

Significance levels: * : 10% ** : 5% *** : 1%.

Table A.2: Additional Controls

Dep. Var:	Universalist vs Communal Moral Values (1)	Opposition to Federal vs. State Spending (2)
total frontier experience	-0.061** (0.028)	0.506* (0.261)
Number of Observations	1,482	152,407
Dep. Var. Mean	-0.05	-37.24
Dep. Var. S.D.	0.95	54.02
State FE	Yes	Yes
Geographic/Agroclimatic Controls	Yes	Yes
Additional Controls	Yes	Yes

Notes: This table estimates alternative specifications of the regressions in column 6 of Table 1 including the following additional controls: ruggedness, rainfall risk, distance to nearest portage site, distance to nearest mine, distance to nearest historical Indian battle, slave population share in 1860, immigrant share in 1890, Scottish and Irish immigrant share in 1890, birthplace diversity in 1890, years connected to the railroad by 1890, and manufacturing employment share in 1890 (see [Bazzi et al., 2020](#), for detailed descriptions). The specifications are otherwise identical to those in Table 1. Standard errors are clustered based on [Bester et al. \(2011\)](#) grid-cell clustering with 60×60 square-mile cells. Significance levels: * : 10% ** : 5% *** : 1%.

Table A.3: Regional Heterogeneity

Frontier Time Frame:	Baseline (1790–1890)				Extended (1790–1950)			
Regional Sample Restriction:	Baseline + West Coast (1)	Only Midwest (2)	Only South (3)	Only West (4)	Extended Sample (5)	Only Midwest (6)	Only South (7)	Only West (8)
Panel (a): Universalist vs. Communal Moral Values								
total frontier experience	-0.069*** (0.024)	-0.112** (0.050)	-0.047 (0.031)	-0.129** (0.047)	-0.053*** (0.016)	-0.095** (0.045)	-0.042 (0.029)	-0.047** (0.019)
Number of Counties	1,582	713	669	137	1,780	722	726	269
Dep. Var. Mean	-0.018	-0.004	-0.145	0.346	-0.021	-0.001	-0.145	0.169
Dep. Var. S.D.	0.94	0.94	0.96	0.65	0.94	0.94	0.98	0.81
Panel (b): Opposition to Federal vs. State Spending								
total frontier experience	0.859*** (0.231)	0.399 (0.471)	0.602** (0.294)	1.017* (0.554)	0.759*** (0.174)	0.476 (0.437)	0.514* (0.266)	0.821*** (0.231)
Number of Individuals	189,659	66,314	70,822	43,231	213,514	66,680	75,124	62,418
Dep. Var. Mean	-37.43	-37.60	-36.97	-37.40	-36.94	-37.56	-36.65	-36.19
Dep. Var. S.D.	53.79	53.90	54.14	52.80	53.78	53.89	54.16	53.04
Geographic/Agroclimatic Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table extends our baseline sample of counties and examines the outcomes in Table 1 with region-by-region sample splits. Column 1 adds 105 counties along the secondary West Coast frontier (see Figure A.2). Column 2 restricts to counties in the Midwest Census region, column 3 restricts to the South region, and column 4 restricts to the West, which includes the 105 counties added in column 1 plus 47 others in states in the West region but falling inside the 1890 main east-to-west frontier line. Columns 5–8 repeat the same sequence of specifications on an extended sample that includes counties beyond the (main and secondary) 1890 frontier lines but inside the eventual frontier line realized by 1950, using a new measure of TFE computed over that longer time horizon. Standard errors are clustered based on [Bester et al. \(2011\)](#) grid-cell clustering with 60×60 square-mile cells. Significance levels: * : 10% ** : 5% *** : 1%.

Table A.4: Instrumental Variables Strategy

Dep.Var.:	Universalist vs. Communal Moral Values (1)	Opposition to Federal vs. State Spending (2)
Panel (a): IV = Log Average Actual National Migration Inflows Over 30 Years		
total frontier experience	-0.033 (0.038)	1.086** (0.461)
Number of Observations	1,483	152,407
Dep. Var. Mean	-0.05	-37.24
First Stage F Statistic	146.4	45.6
Panel (b): IV = Log Average Predicted National Migration Inflows Over 30 Years		
total frontier experience	-0.039 (0.037)	1.293*** (0.490)
Number of Observations	1,483	152,407
Dep. Var. Mean	-0.05	-37.24
First Stage F Statistic	148.0	42.0
State Fixed Effects	Yes	Yes
Geographic/Agroclimatic Controls	Yes	Yes

Notes: This table reports instrumental variable (IV) estimates of equation (1) with two alternative IVs. Panel (A) reports the IV estimates for the baseline sample and specification using the log of the average national annual actual migration inflows over the 30 years subsequent to the frontier line arriving within 110 km from the given county centroid. Panel (B) reports the estimates using the IV constructed based on annual migration inflows to the United States predicted by weather shocks in Europe. Further details on the construction of both IVs can be found in [Bazzi et al. \(2020\)](#). Standard errors are clustered based on [Bester et al. \(2011\)](#) grid-cell clustering with 60×60 square-mile cells. Significance levels: * : 10% ** : 5% *** : 1%.

Table A.5: Frontier Experience and Total Charitable Giving

Dep. Var:	Number of Donations		Amount Donated			
	(1)	(2)	total (3)	total (4)	per 1000 hab. (5)	per 1000 hab. (6)
total frontier experience	-0.543*** (0.131)	-0.526*** (0.125)	-0.595*** (0.153)	-0.578*** (0.142)	-0.108*** (0.024)	-0.111*** (0.023)
Number of Counties	2,040	2,036	2,040	2,036	2,040	2,036
Dep. Var. Mean	915.709	916.705	52212.239	52271.462	398.108	397.141
Dep. Var. S.D.	4087.06	4090.97	261102.72	261353.69	389.09	388.62
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Geographic/Agroclimatic Controls	No	Yes	No	Yes	No	Yes

Notes: This table reports estimates of equation (1) based on Poisson Pseudo Maximum Likelihood (PPML) for an outcome measuring, from DonorsChoose, the total number of donations from residents of county i (columns 1-2), the total value of donations in USD from i (columns 3-4), and the total value of donations in USD per 1,000 residents of i (columns 5-6). Total Frontier Experience (TFE) is scaled in decades. State fixed effects and predetermined or fixed county-level covariates (latitude, longitude, mean temperature, mean rainfall, mean elevation, distance to coast, river and lake and average agricultural productivity) are included. Standard errors are clustered based on [Bester et al. \(2011\)](#) grid-cell clustering with 60×60 square-mile cells.

Significance levels: * : 10% ** : 5% *** : 1%.

Table A.6: Localism in Charitable Giving and Social Connections
Augmenting Table 2 with Additional Interactive Controls

Dep.Var.:	Number of Donations			Normalized Connections		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel (a): Localism in Donations and Social Connections						
Neighboring County	2.410*** (0.199)	2.545*** (0.240)		7.469*** (0.075)	7.560*** (0.083)	
Non-neighboring County	0.910*** (0.217)	1.448*** (0.256)		6.943*** (0.095)	7.175*** (0.108)	
Neighboring County \times TFE _{<i>i</i>}		-0.077 (0.063)	-0.049 (0.079)		-0.044** (0.018)	-0.057*** (0.016)
Non-neighboring County \times TFE _{<i>i</i>}		-0.347*** (0.093)	-0.347*** (0.092)		-0.119*** (0.027)	-0.147*** (0.020)
Number of Observations	6,329,924	6,329,924	6,329,924	6,315,672	6,315,672	6,315,672
Dep. Var. Mean	0.288	0.288	0.288	2286.5	2286.5	2286.5
Dep. Var. S.D.	44.1	44.1	44.1	94055.8	94055.8	94055.8
Panel (b): Geographic Elasticity of Donations and Social Connections						
Geographic Distance _{<i>ij</i>}	-4.869*** (1.808)	-4.277** (1.788)		-3.676*** (0.412)	-3.662*** (0.412)	
Geographic Distance _{<i>ij</i>} \times TFE _{<i>i</i>}		-0.042*** (0.016)	-0.053*** (0.014)		-0.001 (0.006)	-0.009** (0.004)
Number of Observations	6,329,924	6,329,924	6,329,924	6,315,672	6,315,672	6,315,672
Dep. Var. Mean	0.288	0.288	0.288	2286.5	2286.5	2286.5
Dep. Var. S.D.	44.1	44.1	44.1	94055.8	94055.8	94055.8
County <i>i</i> FE	Yes	Yes	Yes	Yes	Yes	Yes
County <i>j</i> FE	Yes	Yes	Yes	Yes	Yes	Yes
Geographic/Agroclimatic Controls _{<i>i</i>} \times $f(distance_{ij})$	Yes	Yes	Yes	Yes	Yes	Yes
State FE \times $f(distance_{ij})$	No	No	Yes	No	No	Yes

Notes: This table re-estimates Table 2 adding interactions of the given function of distance between county *i* and *j* with the entire baseline vector, **x**, of predetermined geographic and agroclimatic controls in county *i* used in Table 1. The specification is otherwise identical to Table 2. Standard errors are two-way clustered on county *i*'s 60 \times 60 square-mile grid cell (following [Bester et al., 2011](#)) and county *j*.

Significance levels: * : 10% ** : 5% *** : 1%.

Table A.7: Localism in Charitable Giving and Social Connections
Augmenting Table 2 with Population Density Interaction

Dep.Var.:	Number of Donations			Normalized Connections		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel (a): Localism in Donations and Social Connections						
Neighboring County	-2.276*** (0.077)	-2.867*** (0.113)		-2.443*** (0.018)	-2.496*** (0.039)	
Non-neighboring County	-6.768*** (0.152)	-7.380*** (0.163)		-8.206*** (0.036)	-8.069*** (0.131)	
Neighboring County \times TFE _{<i>i</i>}		0.040 (0.038)	0.032 (0.061)		-0.003 (0.016)	-0.0230 (0.020)
Non-neighboring County \times TFE _{<i>i</i>}		-0.099 (0.072)	-0.133** (0.053)		-0.128** (0.055)	-0.062** (0.029)
Number of Observations	6,597,360	6,597,360	6,597,360	6,397,440	6,397,440	6,397,440
Dep. Var. Mean	0.277	0.277	0.277	2272.4	2272.4	2272.4
Dep. Var. S.D.	43.2	43.2	43.2	94618.1	94618.1	94618.1
Panel (b): Geographic Elasticity of Donations and Social Connections						
Geographic Distance _{<i>ij</i>}	-0.917*** (0.024)	-0.995*** (0.029)		-1.130*** (0.005)	-1.105*** (0.016)	
Geographic Distance _{<i>ij</i>} \times TFE _{<i>i</i>}		-0.023 (0.014)	-0.023*** (0.009)		-0.016** (0.007)	-0.006 (0.005)
Number of Observations	6,342,360	6,342,360	6,342,360	6,328,080	6,328,080	6,328,080
Dep. Var. Mean	0.288	0.288	0.288	2295.5	2295.5	2295.5
Dep. Var. S.D.	44.0	44.0	44.0	95135.0	95135.0	95135.0
County <i>i</i> FE	Yes	Yes	Yes	Yes	Yes	Yes
County <i>j</i> FE	Yes	Yes	Yes	Yes	Yes	Yes
Population Density _{<i>i</i>} \times $f(\text{distance}_{ij})$	Yes	Yes	Yes	Yes	Yes	Yes
State FE \times $f(\text{distance}_{ij})$	No	No	Yes	No	No	Yes

Notes: This table re-estimates Table 2 adding interactions of the given function of distance between county *i* and *j* with population density of county *i* in 2010. The specification is otherwise identical to Table 2. Standard errors are two-way clustered on county *i*'s 60 \times 60 square-mile grid cell (following [Bester et al., 2011](#)) and county *j*. Significance levels: * : 10% ** : 5% *** : 1%.

Table A.8: Localism in Charitable Giving and Social Connections
Augmenting Table 2 with Low Density Experience Interaction

Dep.Var.:	Number of Donations			Normalized Connections		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel (a): Localism in Donations and Social Connections						
Neighboring County	-2.276*** (0.077)	-1.790*** (0.169)		-2.443*** (0.018)	-2.330*** (0.047)	
Non-neighboring County	-6.768*** (0.152)	-6.206*** (0.278)		-8.206*** (0.036)	-8.621*** (0.152)	
Neighboring County \times TFE _i		-0.096 (0.060)	-0.067 (0.067)		0.001 (0.016)	-0.018 (0.019)
Non-neighboring County \times TFE _i		-0.334*** (0.109)	-0.306*** (0.073)		-0.145*** (0.052)	-0.084*** (0.032)
Number of Observations	6,597,360	6,597,360	6,597,360	6,397,440	6,397,440	6,397,440
Dep. Var. Mean	0.277	0.277	0.277	2272.4	2272.4	2272.44
Dep. Var. S.D.	43.2	43.2	43.2	94618.1	94618.1	94618.1
Panel (b): Geographic Elasticity of Donations and Social Connections						
Geographic Distance _{ij}	-0.917*** (0.024)	-0.905*** (0.041)		-1.130*** (0.005)	-1.228*** (0.015)	
Geographic Distance _{ij} \times TFE _i		-0.057*** (0.019)	-0.052*** (0.013)		-0.015*** (0.006)	-0.014*** (0.005)
Number of Observations	6,342,360	6,342,360	6,342,360	6,328,080	6,328,080	6,328,080
Dep. Var. Mean	0.288	0.288	0.288	2295.5	2295.5	2295.5
Dep. Var. S.D.	44.0	44.0	44.0	95135.0	95135.0	95135.0
County <i>i</i> FE	Yes	Yes	Yes	Yes	Yes	Yes
County <i>j</i> FE	Yes	Yes	Yes	Yes	Yes	Yes
Low Density Experience _i \times $f(\text{distance}_{ij})$	Yes	Yes	Yes	Yes	Yes	Yes
State FE \times $f(\text{distance}_{ij})$	No	No	Yes	No	No	Yes

Notes: This table re-estimates Table 2 adding interactions of the given function of distance between county *i* and *j* with the total years of low density experience from 1790–1890 in county *i* (as in column 7 of Table A.1). The specification is otherwise identical to Table 2. Standard errors are two-way clustered on county *i*'s 60 \times 60 square-mile grid cell (following Bester et al., 2011) and county *j*.

Significance levels: * : 10% ** : 5% *** : 1%.

Table A.9: Localism in Charitable Giving and Social Connections
Sample Restriction to County j Observations with TFE 1790–1890

Dep.Var.:	Number of Donations			Normalized Connections		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel (a): Localism in Donations and Social Connections						
Neighboring County	-2.335*** (0.072)	-2.265*** (0.115)		-2.438*** (0.019)	-2.435*** (0.037)	
Non-neighboring County	-6.832*** (0.143)	-6.392*** (0.211)		-8.201*** (0.035)	-8.003*** (0.113)	
Neighboring County \times TFE $_i$		-0.0614 (0.062)	-0.134 (0.091)		-0.002 (0.017)	-0.040** (0.018)
Non-neighboring County \times TFE $_i$		-0.317*** (0.107)	-0.391*** (0.083)		-0.108** (0.053)	-0.098*** (0.029)
Number of Observations	4,161,600	4,161,600	4,161,600	4,161,600	4,161,600	4,161,600
Dep. Var. Mean	0.367	0.367	0.367	3279.3	3279.3	3279.3
Dep. Var. S.D.	54.3	54.3	54.3	117003.3	117003.3	117003.3
Panel (b): Geographic Elasticity of Donations and Social Connections						
Geographic Distance $_{ij}$	-0.931*** (0.023)	-0.850*** (0.036)		-1.124*** (0.005)	-1.093*** (0.016)	
Geographic Distance $_{ij} \times$ TFE $_i$		-0.060*** (0.021)	-0.064*** (0.015)		-0.016** (0.007)	-0.009** (0.005)
Number of Observations	4,161,600	4,161,600	4,161,600	4,161,600	4,161,600	4,161,600
Dep. Var. Mean	0.367	0.367	0.367	3279.3	3279.3	3279.3
Dep. Var. S.D.	54.3	54.3	54.3	117003.3	117003.3	117003.34
County i FE	Yes	Yes	Yes	Yes	Yes	Yes
County j FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE $\times f(\text{distance}_{ij})$	No	No	Yes	No	No	Yes

Notes: This table re-estimates Table 2 restricted to include only counties j for which we also observe total frontier experience from 1790–1890. This sample thus mimics the one used in the assortative matching Table 3. The specification is otherwise identical to Table 2. Standard errors are two-way clustered on county i 's 60 \times 60 square-mile grid cell (following [Bester et al., 2011](#)) and county j .

Significance levels: * : 10% ** : 5% *** : 1%.

Table A.10: Localism in Charitable Giving and Social Connections
Instrumental Variables Estimation

Dep.Var.:	Number of Donations		Normalized Connections	
	(1)	(2)	(3)	(4)
Geographic Distance _{ij}	-0.649*** (0.072)	-0.642*** (0.063)	-0.876*** (0.028)	-0.883*** (0.027)
Geographic Distance _{ij} × TFE _i	-0.161*** (0.040)	-0.165*** (0.036)	-0.145*** (0.015)	-0.142*** (0.015)
Instrument for TFE _i :				
Log Average [...] Nat'l Immigration	Actual	Predicted	Actual	Predicted
Number of Observations	6,342,360	6,342,360	6,328,080	6,328,080
Dep. Var. Mean	0.288	0.288	2295.5	2295.5
Dep. Var. S.D.	44.0	44.0	95135.0	95135.0
County <i>i</i> FE	Yes	Yes	Yes	Yes
County <i>j</i> FE	Yes	Yes	Yes	Yes

Notes: This table re-estimates columns 2 and 5 of Table 2 using a control function approach (Lin and Wooldridge, 2019; Wooldridge, 2015) to instrument for the interaction of distance and TFE. We first regress distance×TFE on the full set of fixed effects, the distance own term, and distance×instrument where “instrument” is the log average *actual* national immigration flows (columns 1 and 3) or the log average *predicted* national immigration flows (columns 2 and 4) in the 30 years subsequent to a given frontier county first falling within 110 km of the frontier line. These are the same instruments used in Table A.4 and developed at length in Bazzi et al. (2020). We then take the residuals from this first step and include the residual term as an additional regressor in the second step. Standard errors are based on 100 bootstrap draws and two-way clustered on county *i*’s 60 × 60 square-mile grid cell (following Bester et al., 2011) and county *j*.

Significance levels: * : 10% ** : 5% *** : 1%.

Table A.11: Alternative Specification with Log Distance

Dep.Var.:	Number of Donations			Normalized Connections		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel (a): Baseline, Table 2						
Geographic Distance _{ij}	-1.401*** (0.048)	-1.332*** (0.062)		-2.465*** (0.015)	-2.400*** (0.023)	
Geographic Distance _{ij} × TFE _i		-0.051* (0.027)	-0.073*** (0.018)		-0.036*** (0.010)	-0.041*** (0.009)
Number of Observations	6,340,320	6,340,320	6,340,320	6,326,040	6,326,040	6,326,040
Panel (b): Geographic Controls × Distance, Table A.6						
Geographic Distance _{ij}	-0.781 (2.572)	-0.189 (2.538)		-3.034** (1.266)	-2.527** (1.268)	
Geographic Distance _{ij} × TFE _i		-0.037* (0.020)	-0.053*** (0.018)		-0.042*** (0.010)	-0.043*** (0.009)
Number of Observations	6,327,888	6,327,888	6,327,888	6,313,636	6,313,636	6,313,636
Panel (c): Population Density × Distance, Table A.7						
Geographic Distance _{ij}	-1.401*** (0.048)	-1.498*** (0.067)		-2.465*** (0.015)	-2.454*** (0.023)	
Geographic Distance _{ij} × TFE _i		-0.018 (0.022)	-0.041** (0.020)		-0.029*** (0.009)	-0.026*** (0.008)
Number of Observations	6,340,320	6,340,320	6,340,320	6,326,040	6,326,040	6,326,040
Panel (d): Low Density Experience × Distance, Table A.8						
Geographic Distance _{ij}	-1.401*** (0.048)	-1.503*** (0.063)		-2.465*** (0.015)	-2.521*** (0.033)	
Geographic Distance _{ij} × TFE _i		-0.050* (0.027)	-0.069*** (0.019)		-0.038*** (0.010)	-0.034*** (0.010)
Number of Observations	6,340,320	6,340,320	6,340,320	6,326,040	6,326,040	6,326,040
Panel (e): Restricted Sample, Table A.9						
Geographic Distance _{ij}	-1.464*** (0.054)	-1.360*** (0.075)		-2.481*** (0.014)	-2.385*** (0.026)	
Geographic Distance _{ij} × TFE _i		-0.077** (0.036)	-0.093*** (0.022)		-0.053*** (0.012)	-0.056*** (0.011)
Number of Observations	4,159,560	4,159,560	4,159,560	4,159,560	4,159,560	4,159,560
County <i>i</i> FE	Yes	Yes	Yes	Yes	Yes	Yes
County <i>j</i> FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE × Geographic Distance	No	No	Yes	No	No	Yes

Notes: This table re-estimates the corresponding table listed at the top of each panel (a)–(e) using log distance instead of the baseline inverse hyperbolic sine of distance. This drops all the own-county to own-county donations and connections from the analysis, focusing on the extensive margin of distances to other counties. Standard errors are two-way clustered on county *i*'s 60 × 60 square-mile grid cell (following [Bester et al., 2011](#)) and county *j*. Significance levels: * : 10% ** : 5% *** : 1%.

Table A.12: Assortative Matching in Charitable Giving and Social Connections
Including Origin-County TFE Alongside TFE Distance

Dep.Var.:	Number of Donations			Normalized Connections		
	(1)	(2)	(3)	(4)	(5)	(6)
Geographic Distance _{ij}	-0.845*** (0.035)	-0.833*** (0.035)		-1.085*** (0.016)	-1.002*** (0.016)	
TFE Distance _{ij}	-0.0899*** (0.034)	1.466*** (0.200)	1.524*** (0.193)	-0.305*** (0.027)	5.846*** (0.259)	5.868*** (0.260)
Geographic Distance _{ij} × TFE _i	-0.0530** (0.022)	-0.0483** (0.021)	-0.0488*** (0.015)	0.00278 (0.008)	-0.00426 (0.007)	0.0102* (0.005)
Geographic Distance _{ij} × TFE Distance _{ij}		-0.234*** (0.031)	-0.247*** (0.029)		-1.044*** (0.042)	-1.047*** (0.043)
Number of Observations	4,161,600	4,161,600	4,161,600	4,161,600	4,161,600	4,161,600
Dep. Var. Mean	0.367	0.367	0.367	3279.3	3279.3	3279.3
Dep. Var. S.D.	54.3	54.3	54.3	117003.3	117003.3	117003.3
County <i>i</i> FE	Yes	Yes	Yes	Yes	Yes	Yes
County <i>j</i> FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE × Geographic Distance _{ij}	No	No	Yes	No	No	Yes

Notes: This table re-estimates Table 3 including origin-county *i* TFE along with its interaction with geographic distance. Standard errors are two-way clustered on county *i*'s 60 × 60 square-mile grid cell (following [Bester et al., 2011](#)) and county *j*.

Significance levels: * : 10% ** : 5% *** : 1%.

Table A.13: Assortative Matching in Charitable Giving and Social Connections
Accounting for Other Confounding Dimensions of Assortative Matching

Dep.Var:	Number of Donations			Normalized Connections		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel (a): Pairwise County Differences in Agroclimatic/Geographic Controls						
Geographic Distance _{ij}	-0.817*** (0.025)	-0.790*** (0.020)		-0.697*** (0.010)	-0.795*** (0.008)	
TFE Distance _{ij}	-0.197*** (0.030)	0.216 (0.179)	0.295* (0.157)	-0.274*** (0.018)	1.271*** (0.095)	1.272*** (0.097)
Geographic Distance _{ij} × TFE Distance _{ij}		-0.055** (0.028)	-0.065*** (0.024)		-0.251*** (0.016)	-0.247*** (0.017)
$ \mathbf{x}_i - \mathbf{x}_j $	Yes	Yes	Yes	Yes	Yes	Yes
Geographic Distance _{ij} × $ \mathbf{x}_i - \mathbf{x}_j $	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	4,145,296	4,145,296	4,145,296	4,145,296	4,145,296	4,145,296
Panel (b): Pairwise County Differences in Population Density						
Geographic Distance _{ij}	-0.954*** (0.022)	-0.930*** (0.021)		-1.086*** (0.007)	-1.011*** (0.007)	
TFE Distance _{ij}	-0.187*** (0.031)	0.770*** (0.205)	0.850*** (0.188)	-0.305*** (0.024)	5.600*** (0.252)	5.643*** (0.263)
Geographic Distance _{ij} × TFE Distance _{ij}		-0.139*** (0.032)	-0.154*** (0.029)		-1.005*** (0.042)	-1.009*** (0.043)
$ \text{density}_i - \text{density}_j $	Yes	Yes	Yes	Yes	Yes	Yes
Geographic Distance _{ij} × $ \text{density}_i - \text{density}_j $	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	4,161,600	4,161,600	4,161,600	4,161,600	4,161,600	4,161,600
Panel (c): Pairwise County Differences in Low Density Experience (LDE)						
Geographic Distance _{ij}	-0.861*** (0.027)	-0.854*** (0.026)		-0.980*** (0.008)	-0.925*** (0.006)	
TFE Distance _{ij}	-0.168*** (0.034)	1.427*** (0.253)	1.172*** (0.231)	-0.248*** (0.023)	4.232*** (0.222)	4.196*** (0.235)
Geographic Distance _{ij} × TFE Distance _{ij}		-0.237*** (0.038)	-0.203*** (0.034)		-0.772*** (0.037)	-0.768*** (0.039)
$ \text{LDE}_i - \text{LDE}_j $	Yes	Yes	Yes	Yes	Yes	Yes
Geographic Distance _{ij} × $ \text{LDE}_i - \text{LDE}_j $	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	4,161,600	4,161,600	4,161,600	4,161,600	4,161,600	4,161,600
County <i>i</i> FE	Yes	Yes	Yes	Yes	Yes	Yes
County <i>j</i> FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE × Geographic Distance _{ij}	No	No	Yes	No	No	Yes

Notes: This table re-estimates Table 3 including in Panel (a): the absolute value of the difference between each element of vector, \mathbf{x} , of agroclimatic and geographic controls (see the notes to Table 1) in county *i* and county *j* as well as the interaction of those differences with geographic distance; in Panel (b): the absolute value of the difference between population density in county *i* and county *j* as well as the interaction of that difference with geographic distance; and in Panel (c): the absolute value of the difference between low density experience (as in column 7 of Table A.1) in county *i* and county *j* as well as the interaction of that difference with geographic distance. Standard errors are two-way clustered on county *i*'s 60 × 60 square-mile grid cell (following Bester et al., 2011) and county *j*. Significance levels: * : 10% ** : 5% *** : 1%.