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Roots of Inequality

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DISCUSSION PAPER SERIES

IZA DP No. 16210

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JUNE 2023

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ABSTRACT

Roots of Inequality

Why does inequality vary across societies? We advance the hypothesis that in a market economy, where earning differentials reflect variations in productive traits among individuals, a significant component of the differences in inequality across societies can be attributed to variation in societal interpersonal diversity, shaped by the prehistorical out-of-Africa migration. Exploring the roots of inequality within the US population, we find supporting evidence for our hypothesis: variation in the inequality across groups of individuals originating from different ancestral backgrounds can be traced to the degree of diversity of their ancestral populations. This effect is sizable: a move from the lowest to the highest level of diversity in the sample is associated with an increase in the Gini index from the median to the 75th percentile of the inequality distribution.

JEL Classification: D60, O10, Z10

Keywords: inequality, diversity, culture, out-of-Africa migration

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1 Introduction

Inequality has widened significantly in recent decades and the share of income held by the top 1% of the world population has reached an astounding 19%.¹ This staggering disparity overshadowed an equally striking pattern – a profound global variation in the degree of inequality (Figure 1).² Why does inequality differ across countries and regions? Why are some societies remarkably more unequal than others?

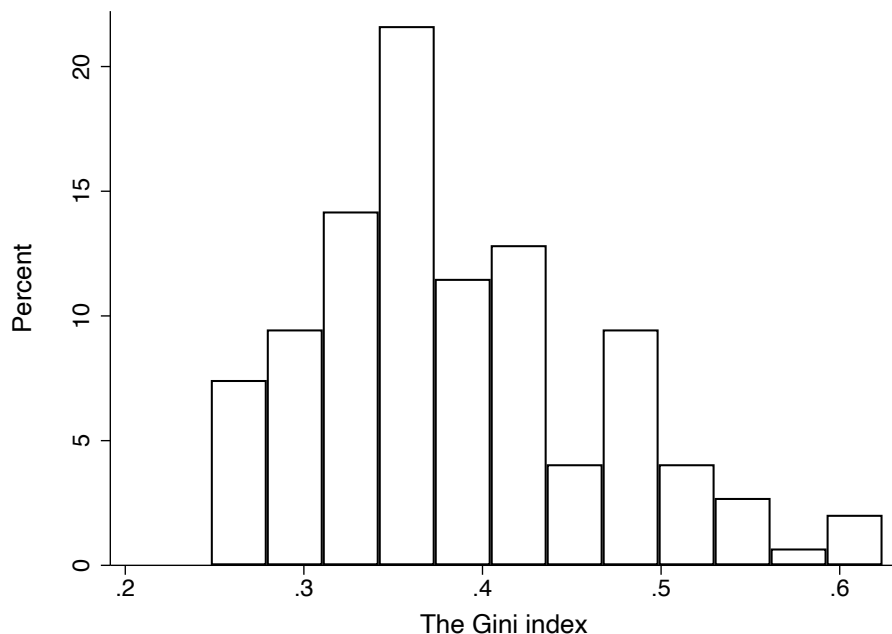


Figure 1. Differences in Income Inequality Across Countries

Notes: This figure depicts the histogram of the distribution of the Gini Index of income inequality across countries during the time period 2000-2020 (Data source: World Bank Development Indicators).

Conventional wisdom suggests that differences in the degree of income inequality across countries reflect variation in the prevalence of cultural predisposition towards an egalitarian society as well as in the pervasiveness of inequality-mitigating institutions.³ Moreover, in view of the role of technological change and globalization in the evolution of inequality, the intensity of these forces across nations have further contributed to the uneven global distribution of inequality.⁴

¹Chancel, Piketty, Saez, Zucman, et al. 2022.

²Similar patterns are observed in inequality across ethnic groups within nations (Alesina, Michalopoulos and Papaioannou 2016) and share of income held by the top 10% (Figure B.1).

³Galor and Zeira, 1993, Alesina and Giuliano 2011, and Piketty 2017.

⁴Rosen 1981, Galor and Moav 2000, Acemoglu and Autor 2011, and Acemoglu and Restrepo 2022.

This paper advances the hypothesis and establishes empirically that in a market economy, where earning differentials express variations in productive traits across individuals, a significant component of the degree of income inequality across societies reflects the disparity in societal interpersonal diversity as shaped during the prehistoric *Out-of-Africa Migration*.

The prehistoric migration of *Homo sapiens* out of Africa is one of the most important chapters in human history, forming the initial conditions for the evolution of human settlements across the world. Due to the serial nature of this human dispersal, this migratory process was inherently associated with a reduction in the diversity among populations that settled at greater migratory distances from Africa (*The Serial Founder Effect*). As humans migrated further from Africa, cultural, linguistic, behavioral, and phenotypic diversity in the societies that their descendants ultimately formed declined.⁵ Moreover, since modern national populations are typically composed of groups of individuals of different ancestries, the degree of diversity of these national populations is captured by the weighted average of the migratory distances of each of its ancestral populations from the cradle of humanity in Africa, accounting for the proportional representation in these ancestral populations in these modern nations.

We hypothesize that migratory distances from Africa of the ancestral populations of modern nations have impacted the degree in their productive traits and, therefore, their level of income inequality. As long as market institutions reward individuals according to their cognitive and non-cognitive skills, as well as their phenotypic and behavioral traits,⁶ then income inequality will be larger among populations whose ancestors resided (on average) closer to the cradle of humanity in Africa and have therefore greater dispersion in productive traits.

Considering the impact of the prehistoric *Out-of-Africa Migration* on institutional and cultural characteristics,⁷ a conclusive empirical examination of the proposed hypothesis would not be feasible in a cross-country setting. Instead, the desirable empirical framework requires the exploration of the origins of variation in inequality within groups of individuals, born and residing in the same country, but originating from different ancestral homelands. While these groups of individuals would be exposed to the same economic forces and political institutions, they would be characterized by different levels of ancestral population diversity. In such a single-country context, the proposed hypothesis would imply that greater income

⁵See Ramachandran et al. (2005), Manica et al. (2007), von Cramon-Taubadel and Lycett (2008), Hanihara (2008) Betti et al. (2009, 2013), Atkinson (2011), Betti and Manica (2018), Ashraf, Galor, and Klemp (2021), Galor, Klemp, and Wainstock (2023a).

⁶Cawley, Heckman, and Vytlačil 2001, Heckman, Stixrud, and Urzua 2006, Case and Paxson 2008, Butler, Giuliano and Guiso 2016, Sunde et al. 2022)

⁷Arbatli, Ashraf, Galor and Klemp 2020, Ashraf and Galor 2013a, and Galor and Klemp 2017

inequality would be prevalent among those individuals, who descended from ancestral populations that resided (on average) closer to the cradle of humanity in Africa, and who are therefore more diverse.

The US appears to be especially suitable for the examination of the hypothesis. First, being a market economy, earning differentials in the US are likely to reflect variations in productive traits. Second, the US population displays substantial variation in its ancestral origin, spanning more than a hundred ancestral national homelands. Third, reliable individual-level data on earned income and self-reported ancestry is available for millions of US inhabitants.

The empirical investigation of the proposed hypothesis leverages variations in the pre-historic migratory distance from East Africa of the ancestral population of US workers to explore the association between the degree of income inequality and ancestral population diversity (Figure 2).



Figure 2. Chain of Causality

The empirical analysis establishes that clusters of individuals from identical ancestral origins whose ancestors resided (on average) closer to the cradle of humanity in Africa, and are therefore more diverse, have indeed higher levels of inequality as measured by the Gini index of earned income as well as by the share of income held by the top 1%, top 5%, and top 10% of the income distribution. This result is highly significant, both statistically and economically. It holds across various samples and it is robust to the inclusion of potentially confounding geographical characteristics which could be correlated with migratory distance from Africa, and the potentially confounding impacts of ancestral ethnolinguistic fragmentation, inequality, and cultural and institutional factors, forces that could be associated with ancestral diversity. Moreover, the association between diversity and inequality remains qualitatively similar even within demographic bins that are further subdivided by broad categories of educational attainment.⁸ Importantly, the findings do not appear to be affected by selective migration into the US. The impact of ancestral population diversity on inequality is similar in a subsample consisting solely of Native Americans who have not have

⁸These educational categories are arguably endogenous to the level of inequality and are therefore not included in the baseline analysis.

been subjected to selective migration into the US in the post-1500 period.

The impact of ancestral population diversity on inequality is considerable: in the baseline specification, a move from the lowest to the highest level of diversity of the ancestral populations in the sample is associated with a 4.7 percentage-points increase in the Gini index (i.e., a 11% increase in the index relative to its mean). This represents an increase in the Gini index from the median to the 72nd percentile of the inequality distribution.

The impact of ancestral population diversity on income inequality is indeed mediated through its effect on the diversity in productive traits, as implied by our hypothesis.⁹ In particular, the analysis suggests that US inhabitants whose ancestors resided (on average) closer to cradle of humanity in Africa have: (i) greater educational diversity and (ii) greater heterogeneity in the number of hours worked, reflecting plausibly a wider range of predisposition towards labor and leisure. Importantly, this dispersion in education and work effort, is indeed associated with greater income inequality, mediating the effect of migratory distance from cradle of humanity in Africa on inequality. Moreover, since diverse societies are more likely to have a denser upper tail of the distribution of skills necessary to become an entrepreneur, we also show that US inhabitants whose ancestors resided closer to cradle of humanity in Africa tend to be more entrepreneurial and unequal.

2 Data and Empirical Strategy

The proposed hypothesis implies that greater income inequality would be prevalent among groups of individuals within the US society, who were born in the US and whose ancestral populations resided (on average) closer to the cradle of humanity in Africa and are therefore more diverse.

The empirical analysis leverages variations in income inequality within groups of US-born individuals from various ancestral origins to validate the proposed hypothesis. It estimates the effect of ancestral population diversity on income inequality, using data on income, ancestry and demographic characteristics from the American Community Survey (ACS) 2010 and 2020 (5-year samples), as well as the Censuses for the years 1980, 1990, and 2000. Each of these data sets consists of millions of individuals from more than hundred ancestries.

⁹While the employed data does not provide direct measures of dispersion in cognitive and non-cognitive skills across individuals, it does enable us to explore closely related mediating channels.

2.1 Demographic Bins

The baseline demographic bins consist of clusters of US-born individuals from an identical ancestral origin,¹⁰ who are of the same sex and age group.¹¹ These clusters permits the examination of the impact of the Out-of-Africa Migration and its associated level of societal interpersonal diversity on inequality, accounting for sex and age group; factors which may affect observed income inequality. Yet, the qualitative results are independent of this subdivision and hold even if demographic bins are exclusively based on ancestral origins.¹²

2.2 Dependent Variable – Income Inequality

The dependent variable is inequality in each demographic bin consisting of working age US-born wage workers in the labor force. The findings are unaffected qualitatively if we consider instead: (i) employed individuals, (ii) individuals in the private sector, (iii) prime working age individuals (i.e., age 25-54), or (iv) full time workers (defined as those who are employed at least 40 hours per week).

For each demographic bin, we compute the Gini index of earned income as the primary measure of income inequality,¹³ as well as the share of income held by the top 1%, top 5%,

¹⁰Individuals are asked to self-report their primary ancestry (typically a country of origin). We leverage this information to match them to modern national homelands. While respondents are allowed to report a secondary ancestry, in our sample, 53% do not indicate a secondary ancestry. The most common dual ancestry in the sample are European ancestry pairs (e.g., German-Irish, English-German, English-Irish), representing locations that have relatively similar migratory distance from Africa. The exclusion of individuals who report a secondary ancestry has not qualitative impact.

¹¹The working age population is segmented into five age groups: 15-24, 25-34, 35-44, 45-54, and 55-64.

¹²As reported in Figure D.1, the estimated effect of ancestral population diversity on inequality is unstable when the sample includes demographic bins of significantly small size, reflecting the fact that a Gini index that is constructed based on very few observations is subjected to significant measurement errors. There are two alternatives to attenuate this issue: perform a weighted least-squares by weighting the bins by their size, or impose a restriction on the minimum size of a bin. The former is not a viable alternative in our case because given the severe skewness in the distribution of the US population across ancestries it would provide much larger weight to ancestral homelands with a huge group of descendants in the US (e.g, England, Ireland and Germany), causing the estimated relationship between ancestral diversity and inequality to be dominated by these few ancestral homelands, and masking the true impact of ancestral population diversity on inequality in the sample as a whole. Hence, we choose the latter alternative. In view of the trade-off between the number of ancestral homeland and the minimum size of a bin, the sample is restricted to demographic bins that include at least 10 individuals. This minimum bin size has an additional virtue, assuring that identical sample size is used in the analysis of the determinants of inequality measured by the Gini Index and the top 10%.

¹³At the top of the distribution there are some individuals with top-coded earned income. These individuals, which amounts to less than 2.3% of the sample, do not affect the qualitative results. In particular, as depicted in Figure C.1, the estimated effect remains intact as we progressively exclude demographic bins where the share of top-coded individuals varies from 1 to 0.2. Moreover, it is unaffected qualitatively as to share approaches 0, although the significance is compromised due to a sharp decline in the sample size.

and top 10% of the income distribution.¹⁴

2.3 Independent Variable - Distance from the Cradle of Humanity

The prehistoric migration of *Homo sapiens* out of Africa was largely characterized by a step-wise expansion, where in each step a subgroup of individuals left their ancestral settlement to establish a new colony farther away, carrying only a subset of the diversity of traits in their ancestral settlement.

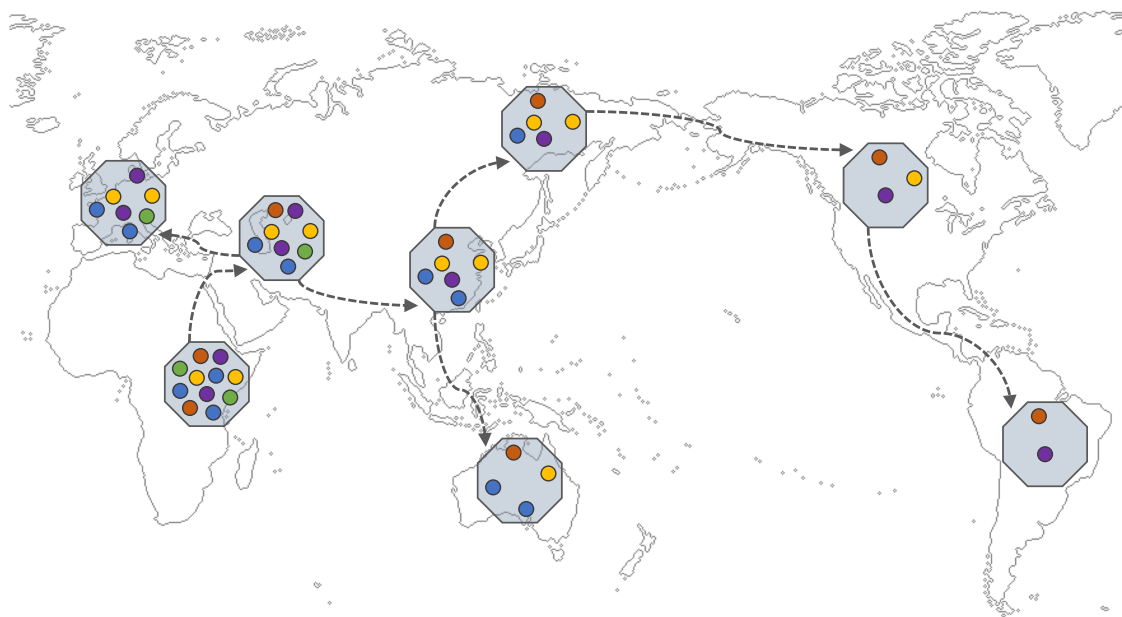
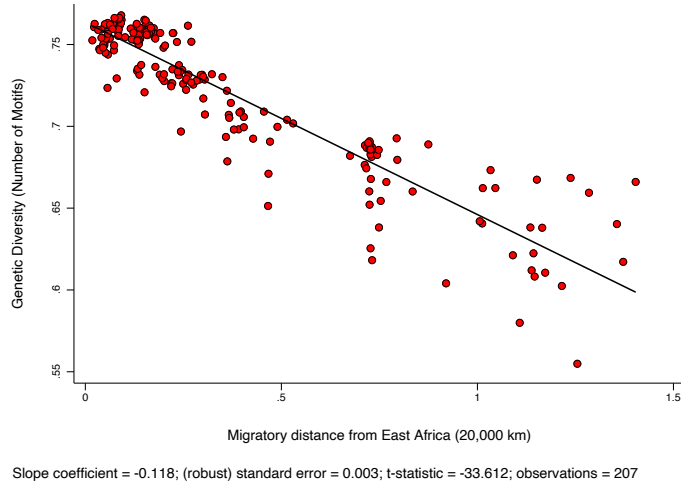


Figure 3. The Serial Founder Effect

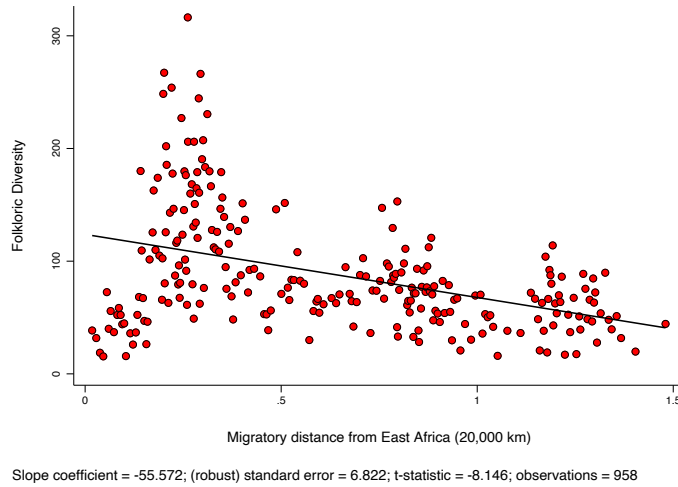
Notes: This figure depicts the decline in the level of diversity along the migratory routes out of Africa (Source: Ashraf, Galor and Klemp, 2021.)

Due to the serial nature of this human dispersal, the resulting *Serial Founder Effect* was inherently associated with a reduction in the diversity of populations that settled at greater migratory distances from Africa (Figure 3). As humans migrated further from Africa, cultural, linguistic, behavioral, and phenotypic diversity in the societies that their descendants formed diminished (Figure 4).

¹⁴Figure A.1(a) depicts the histogram of the level of inequality, as captured by the Gini index, across demographic bins.



(a) Genetic diversity



(b) Folkloric diversity

Figure 4. Declining Diversity along the Migratory Routes out of Africa

Notes: This figure presents the reduction in population diversity among indigenous populations at greater migratory distances from Africa. Panel (a) depicts the scatterplot of the association between the prehistoric migratory distance from East Africa and genetic diversity across 207 indigenous ethnic groups (Ashraf, Galor and Klemp (2021)), and Panel (b) depicts the binned scatterplot of the association between the prehistoric migratory distance from East Africa and folkloric diversity across 958 ethnic groups (Galor, Klemp and Wainstock, 2023).

Yet, since modern nations may consist of populations which are originated themselves from different ancestries, the migratory distance from the cradle of humanity in Africa to each nation is captured by the weighted average of the migratory distances from Africa of its ancestral populations, accounting for their proportional representation in the country.¹⁵ The

¹⁵This adjustment is based on the migration matrix of Putterman and Weil (2010) that maps contemporary

independent variable is therefore the predicted population diversity in each demographic bin in the US, as captured by the weighted migratory distance from East Africa of the ancestral homeland of the individuals each of these demographic bins.¹⁶

2.4 Empirical Strategy

Leveraging variations in the prehistoric migratory distance from East Africa to predict ancestral population diversity implies that our empirical strategy is immune from concerns about reverse causality; contemporary income inequality in the US could not affect predicted ancestral population diversity. However, to the extent that migratory distance out of Africa could be correlated with other ancestral determinants of income inequality in the US, our analysis could be plagued by omitted variable bias. Moreover, in light of the potential selective migration into the US, our analysis could also be biased by selection.

First, migratory distance out of Africa could be correlated with deep-rooted geographical determinants of societal diversity and thus, plausibly, inequality. To capture the impact of these potentially confounding geographical characteristics, we account for a range of ancestral geographical characteristics which could have arguably shaped diversity. In particular: (i) absolute distance from the equator and its well-documented adverse effect on biodiversity, (ii) ecological diversity and its influence on population diversity, and (iii) geographical isolation and its tendency to reduce biodiversity as well as cultural diversity.

Second, migratory distance from Africa brought about a decline in the number of ethnic groups (Galor and Klemp 2023) and in the degree of ethnolinguistic fragmentation (Ashraf and Galor 2013b). Hence, it is a-priori plausible that the impact of migratory distance from Africa on inequality operates through ethnic fragmentation rather than via interpersonal diversity in productive traits. In this case, the impact of migratory distance from Africa on inequality would operate via the reduction in social non-cohesion and conflict rather than the reduction in the diversity of productive traits. To explore this potential alternative channel, we account for the confounding effect of ancestral ethnic fragmentation, as captured by measures of ethnic fractionalization (Alesina et al. 2003) and ethnolinguistic fractionalization

populations to their ancestral homeland in the year 1500.

¹⁶It should be noted that, following the traditional view in the out-of-Africa literature, we associate the cradle of humanity with East Africa. While there is some uncertainty about the origin of humans within the African continent (e.g., Ragsdale et al. 2023), the precise location has no impact on predicted interpersonal diversity for populations outside of Africa. In particular, since it appears that humans dispersed to the rest of the world via East Africa, a different place of origin would amount to adding the same constant to the distances from East Africa to all ancestral homelands outside of Africa. Yet, the precise location would have an impact on predicted diversity within Africa. In fact, migratory distance from East Africa is a weak predictor of the decline in the level of diversity in phenotypic, genotypic or cultural traits within the African continent (e.g., Ramachandran et al. 2005, Galor et al. 2023a).

(Desmet, Ortuno-Ortin, and Weber 2009) in the ancestral homeland of each demographic bin in the US.¹⁷

Third, the observed relationship between ancestral population diversity and contemporary inequality may reflect instead the transmission of the intensity of inequality in the ancestral homeland, to their descendants in the US, rather than the transmission of the diversity in productive traits. To mitigate this potential threat to our identification, we account for the potentially persistent effects of ancestral inequality on the current level of inequality among the descendants of this homeland in the US. Moreover, we show that ancestral population diversity is indeed a determinant of diversity in productive traits of the contemporary US population.

Fourth, the degree of inequality in the ancestral homelands of the US population may reflect the institutional and the cultural characteristics that are prevalent in these homelands. The presence of inequality-mitigating institutions in an ancestral homeland may have reduced inequality in this ancestral environment. Yet, the descendants of this homeland in the US are subjected to the institutional characteristics of the US rather than those of their ancestral homeland. Thus, the institutional setup in the ancestral homeland could have mattered predominantly via its impact on ancestral inequality and its possible persistent effect on the current level of inequality among the descendants of this homeland in the US. Hence, in order to overcome the potential role of ancestral institutions, it would be instructive to account for ancestral inequality and explore whether ancestral population diversity is indeed a determinant of diversity in productive traits of the contemporary US population.

Furthermore, cultural characteristics in the ancestral homeland are portable and could be carried by migrants and their descendants. In particular, several cultural traits in ancestral homelands could have a significant impact on economic outcomes and inequality among the descendants of this homeland. *Uncertainty Avoidance* could diminish the degree of entrepreneurship and the variability in earned income. *Individualism* could lead to greater occupational dispersion and income disparity, and *Long-Term Orientation* could foster investment in physical and human capital, as well as technological adoption, increasing wage inequality. To diminish this threat to our identification, we account for the potentially confounding effects of these ancestral cultural factors on inequality across demographic bins in the US. Moreover, in view of the impact of European colonial settlements on the human capital, technology, institutions, and racism in the colonies, the societal and income inequality that these settlements have generated may have persisted to the descendants of these

¹⁷While some aspects of interpersonal diversity can be captured by indices of ethnolinguistic fractionalization and polarization, these measures predominantly reflect the proportional representation of ancestral groups in the population, disregarding the importance of the degree of interpersonal diversity *within* each ancestral group for the overall level of diversity at the national level.

colonies in the US. Thus we account for the potentially confounding effect of the share of the population of European descent in ancestral homelands.

Finally, although the analysis focuses on individuals that were born in the US, the composition of their productive traits could have been affected by selective migration of their ancestors upon their migration to the US. Since this selective migration may have been correlated with the diversity in their ancestral homelands, our estimates may partly capture selection of productive traits, rather than purely the impact of the diversity in this productive traits, as determined during the migration out of Africa. Restricting our analysis to US-born descendants of migrants who are at least second-generation in the US, diminishes some of the impact this selective migration. Nevertheless, to further mitigate this potential concern, we restrict our analysis to demographic bins that represent ancestral homelands which were not subjected to migration. In particular, we restrict our analysis to Native Americans and exploit variation in migratory distance from Africa to their ancestral tribes, establishing that the impact of diversity on inequality is qualitatively similar among Native Americans.

2.5 The Empirical Model

Following our hypothesis, we model inequality in each demographic bin as a function of population diversity in the bin, as captured by the weighted prehistoric migratory distance from Africa of the ancestral population of the individuals in the bin. The model accounts for sex fixed effects and age group fixed effects of the US population, as well as potentially confounding characteristics in the ancestral homeland: geographical characteristics such as ecological diversity, isolation and distance from the equator, and ancestral characteristics, such as ethnic fragmentation, inequality, and cultural and institutional factors.

In particular, we estimate the following OLS model:

$$G_{s,a,h} = \alpha + \beta D_h + \delta_s + \zeta_a + \theta X_h + \epsilon_h,$$

where the dependent variable $G_{s,a,h}$ is the measure of inequality in a demographic bin composed of individuals who are of the same sex, s , and age-group, a , and whose ancestral homeland is h . The independent variable, D_h , is the ancestry-adjusted migratory distance from Africa to ancestral homeland h . In addition, δ_s are sex fixed-effects, ζ_a are age-group fixed-effects, and X_h is a vector of confounding factors in the ancestral homeland h : geography, ethnic fragmentation, inequality, culture, and institutions in each demographic bin. The coefficient of interest, β , is hypothesized to be negative.

Since the main independent variable varies at the level of the ancestral origin of individuals across demographic bins, standard errors are clustered at each ancestral origin of the US population.

3 Main Findings

3.1 Ancestral Population Diversity & Income Inequality

This section explores the effects of the prehistoric migratory distance from Africa, and its associated level of ancestral population diversity, on various measures of inequality – the Gini index, and the shares of income held by the top 1%, top 5%, and top 10% – using data on income, ancestry and demographic characteristics from the ACS 2010 5-year sample.¹⁸

Table 1 reports the baseline analysis, as depicted in Figure 5. The estimated effect in Column (1) indicates that the prehistoric migration out of Africa, and its impact on interpersonal diversity, is indeed a highly significant negative determinant of our preferred measure of income inequality (i.e., the Gini index). Moreover, this baseline estimated effect remains highly significant statistically if we account for the ancestral origin’s continent fixed effects and thereby estimate the effect of the prehistoric migratory distance from Africa on inequality based on variation in population diversity of ancestral homelands within each continent (Column (2) in Table 9). The estimates in Columns (2)-(4) suggest that a qualitatively similar pattern holds under alternative measures of income inequality – the shares of income held by the top 1%, top 5%, and top 10% of the income distribution.¹⁹

The impact of an increase in the prehistoric migratory distance from Africa, and its associated reduction in the level of interpersonal diversity on inequality, is sizable. In particular, a shift in the geographic origin of an ancestral population from the lowest ancestry adjusted migratory distance from Africa to the highest one (i.e., a 20,000 km increase in the adjusted migratory distance from Africa) would decrease the Gini index by 4.7 percentage points (i.e., a 11% reduction relative to the mean level of 0.43). This would represent an increase in the Gini index from the 50th to the 72nd percentile of the inequality distribution.

¹⁸Income reported in the ACS 5-year samples for 2020 is likely to be affected by Covid-19 and is therefore not used for the baseline analysis. It is included in the exploration of the impact of ancestral diversity on inequality in a repeated cross section over the period 1980-2020.

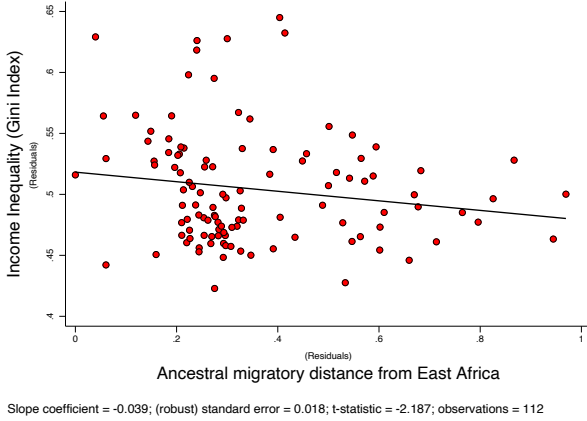
¹⁹Since the computation of the share of income held by the top 1% requires at least 100 individuals within a demographic bin, bins that include less than 100 individuals are dropped, and thus the number of ancestral homelands drops by a factor of nearly 1/3. The coefficient in Column (2) is therefore less representative of the sample as a whole. In particular, when the truncation in the sample is less severe, as in the case of the share of income held by the top 5% and top 10% (where only 20 or 10 individuals are required within each bin, respectively), the coefficient is more representative of the true effect.

Table 1. Ancestral Diversity & Income Inequality

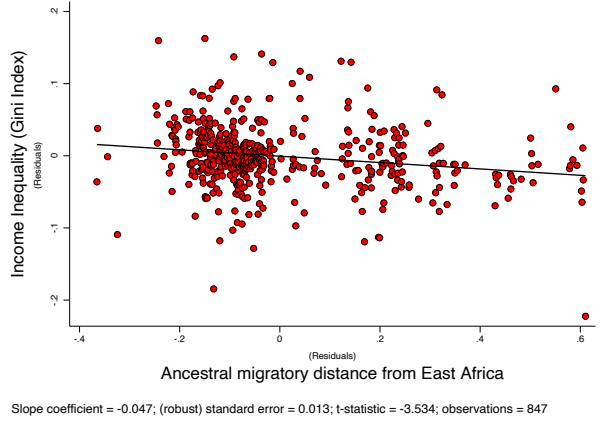
	GINI	TOP 1%	TOP 5%	TOP 10%
	(1)	(2)	(3)	(4)
Ancestral migratory distance from East Africa	−0.047*** (0.013)	−0.012*** (0.0040)	−0.039*** (0.0091)	−0.046*** (0.014)
Dep. var. mean	0.43	0.061	0.19	0.30
Individuals	3564261	3550387	3563182	3564261
Demographic bins	847	526	769	847
Ancestral homelands	102	71	93	102
Adjusted R^2	0.53	0.14	0.21	0.25

Notes: This table reports the impact of ancestral population diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on various measures of inequality in the US (based on ACS 2010 5-year sample). Migratory distances are measured in units of 20,000 km. All specifications accounts for sex and age-group fixed-effects. The unit of observation is a demographic bin. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

These baseline findings are unaffected qualitatively by: (a) grouping individuals in the US based only on their ancestral origin, excluding sex and age, and the inclusion of continental fixed-effect (Table C.1), (b) alternative employment classifications: (i) employed individuals, (ii) individuals in the private sector, (iii) prime working age individuals (i.e., age 25-54), or (iv) full time workers (i.e., those employed at least 40 hours per week) (Table C.2), (c) alternative classifications of age groups (Table C.3), (d) samples that consists exclusively of male or female (Table C.4), (e) exclusion of individuals who report a second ancestry (Table C.5), (f) accounting for mean income (Table C.6), (g) restricting attention to self-employed workers and their business income (Table C.7), (h) inclusion of total earned income of both wage-workers and self-employed (Table C.7), (i) accounting for the impact of descendants of populations that arrived prior to 1850 (Table C.8), (j) removal of individuals whose ancestral homelands are in Africa (Table C.9), (k) accounting for spatial dependence, using Conley (1999)’s method (Table C.10).



(a) Raw Ancestry Bin



(b) Baseline Demographic Bins

Figure 5. Income Inequality & Ancestral Migratory Distance from East Africa

Notes: This figure depicts the association between ancestral population diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa & measured in units of 20,000 km) and income inequality among the descendants of these populations in the US. Panel (a) depicts the scatterplot of the association between income inequality and migratory distance from East Africa, irrespective of the inclusion of sex, and age fixed-effects (Table C.1, Column (1)). Panel (b) depicts a (binned) scatterplot of the association between income inequality and migratory distance from East Africa in the baseline specification (Table 1, Column (1)).

3.2 Ancestral Diversity and Inequality across Time

In the absence of changes in the rewards to productive traits (e.g., changes in labor market institutions such as the decline in unionization rates), or in the composition of migrants, the quantitative impact of the prehistoric migratory distance from Africa, and thus predicted ancestral diversity, on inequality would be expected to remain stable over time.

Table 2 shows that the patterns established in Table 1, based on data from the ACS 2010 5-year sample, are unaffected qualitatively in repeated cross section over the period 1980-2020, using the Censuses of 1980, 1990, and 2000, and the ACS 2010 and 2020 5-year samples. Moreover, as depicted in Figure C.2, the effect is larger in absolute value over time, reflecting plausibly the decline in unionization rates from over 20% in 1980 to about 10% in 2020.²⁰ Moreover, as established in Table C.11, this pattern is not driven by anomalies in

²⁰Censuses prior to 1980 are not included in the repeated cross-section analysis for three reasons: (i) they do not include the critical information about ancestry. While they do include information on parental birthplace, this limits the sample to only second-generation migrants, distorting the sample consistency. In addition, these individuals are less likely to be integrated into the US labor market and may result in diminished inequality in comparison to the composition of the population as a whole as reflected in the samples from 1980 to 2020, (ii) since a sample of second-generation migrants is significantly smaller, an analysis based solely

any particular decade and it remains stable and significant if any of the decades is removed from the analysis.

Table 2. Ancestral Diversity & Inequality: Repeated Cross-Section, 1980-2020

	GINI	TOP 1%	TOP 5%	TOP 10%
	(1)	(2)	(3)	(4)
Ancestral migratory distance from East Africa	-0.029*** (0.0092)	-0.0100** (0.0038)	-0.026*** (0.0051)	-0.030*** (0.0072)
Dep. var. mean	0.42	0.057	0.18	0.29
Individuals	16453879	16392084	16448060	16453879
Demographic bins	3919	2353	3503	3919
Ancestral homelands	123	77	107	123
Adjusted R^2	0.55	0.30	0.29	0.31

Notes: This table reports the impact of ancestral population diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on various measures of inequality in the US over the period 1980-2020. Migratory distances are measured in units of 20,000 km. All specifications accounts for sex, age-group, and sample fixed-effects. The unit of observation is a demographic bin. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level.* Significant at the 10 percent level.

3.3 Ancestral Diversity & Inequality within Education Categories

Interpersonal diversity may induce individuals within each demographic bin to sort into different educational categories. In fact, a-priori, some of the impact of diversity on inequality may reflect this sorting, reducing the impact of diversity on inequality. Nevertheless, as established in Tables 3, the impact of interpersonal diversity on inequality still holds if demographic bins are further refined, accounting for four aggregate educational categories generated based on the IPUMS classification (i.e. high school or below, some college, college, and more than college). The estimated effect remain largely highly significant statistically within educational categories, although the point estimate is smaller, due to the impact of migratory distance from Africa on the decline in educational dispersion, as established in Table 12.

on second-generation migrants would be plagued by significantly larger measurement errors associated with smaller bin sizes (footnote 12), and (iii) the distortionary effects of unions is significantly more pronounced in the three decades prior to 1980, as unionization rates ranged from 25% to 35%.

Table 3. Ancestral Diversity and Inequality within Educational Categories

	GINI	TOP 1%	TOP 5%	TOP 10%
	(1)	(2)	(3)	(4)
Ancestral migratory distance from East Africa	-0.039*** (0.013)	-0.0059* (0.0031)	-0.024*** (0.0078)	-0.035*** (0.0099)
Dep. var. mean	0.39	0.053	0.17	0.27
Individuals	3560767	3520508	3554668	3560767
Demographic bins	2575	1387	2136	2575
Ancestral homelands	93	54	85	93
Adjusted R^2	0.42	0.053	0.15	0.20

Notes: This table reports the impact of ancestral population diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on various measures of inequality in the US (based on the ACS 2010 5-year sample), accounting for educational attainment of the individuals. Migratory distances are measured in units of 20,000 km. All specifications accounts for sex, age-group, and educational categories fixed-effects. The unit of observation is a demographic bin. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level.* Significant at the 10 percent level.

3.4 The Importance of Within vs. Between Group Inequality

The testing of our hypothesis is inherently associated with the exploration of the impact of ancestral population diversity on *within-group* inequality among the decedents of these ancestral populations in the US. Importantly, this dimension of income inequality is the dominating one in the overall level of income inequality. Inequality within groups of individuals that are originated from the same ancestral homelands is an order of magnitude larger than inequality between these groups. In particular, in ACS 2010 5-year sample, within-group inequality accounts for 95% of the variations in the overall income inequality in the US, whereas between-group inequality for only 5% of these variations (Figure 6).

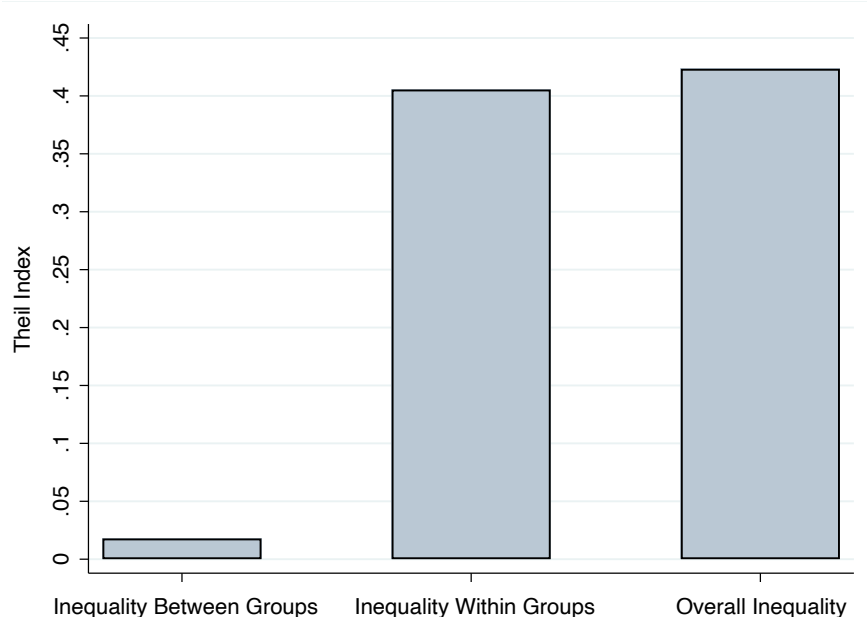


Figure 6. Decomposition of US Income Inequality

Notes: This figure depicts the Theil decomposition of income inequality (based on the ACS 2010 5-year samples) to the within-group and between-group components among individuals that are originated from the same ancestry. Source: Galor, Klemp and Wainstock, 2023b

The decomposition of the overall level of income inequality into the within-group and the between-group components suggests therefore that inequality *within* groups of individuals that descended for instance from Europe or Africa is an order of magnitude larger than the inequality *between* the descendants of the European and the African populations; inequality which have been plausibly impacted by the persistence effect of slavery and the discrimination against the African American population.

4 Ancestral Diversity & Inequality: Confounders

4.1 Geographical Characteristics in the Ancestral Homeland

Migratory distance out of Africa could be correlated with exogenous deep-rooted geographical determinants of societal interpersonal diversity and the estimated impact of diversity on inequality may partly capture the impact of these deep-rooted geographical factors.

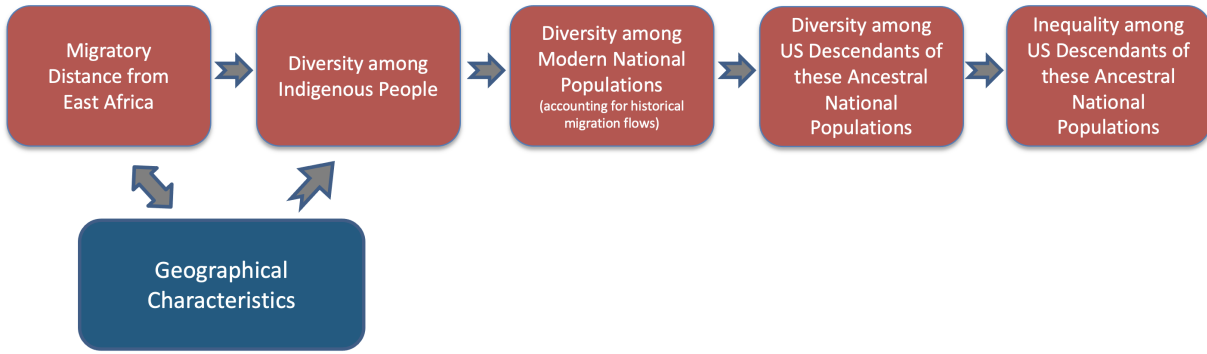


Figure 7. Geographical Factors as Omitted Variables in the Baseline Model

Hence, in order to mitigate this concern, we account for a range of potentially confounding ancestral geographic characteristics which could have arguably also shaped diversity: (a) absolute distance from the equator and its well documented adverse effect on biodiversity, (b) ecological diversity and its influence on population diversity, and (c) geographical isolation and its impact on the reduction in biodiversity.²¹

Reassuringly, Table 5 establishes that the baseline results are unaffected qualitatively by the inclusion of these potential deep-rooted geographic determinants of societal interpersonal diversity. Columns (2)-(3) account for the potentially confounding effect of absolute latitude, Columns (4)-(5) account for ecological diversity, as captured by the mean and standard deviation of elevation, as well as the mean and the standard deviation of the *Caloric Suitability Index*²², and Columns (6)-(7) consider the potential influence of the degree of isolation of an ancestral homeland on the compression of traits, accounting for this potential impact by including a dummy variable for whether the ancestral origin of a group is located on an island.

²¹These ancestral geographic characteristics are ancestry-adjusted, reflecting the ancestral composition of the population in each ancestral homeland, and thus the geographical heritage of each of these segments of the population.

²²Potential calories per hectare per year of the most productive crop (Galor and Ozak, 2016)

Table 5. Ancestral Diversity and Income Inequality: Accounting for Geographical Determinants of Diversity in the Ancestral Homeland

	GINI						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ancestral migratory distance from East Africa	-0.047*** (0.013)		-0.051*** (0.015)		-0.058*** (0.016)		-0.047*** (0.014)
Ancestral absolute latitude		0.00086 (0.0029)	-0.0027 (0.0031)				
Ancestral caloric suitability (s.d.)				0.0014 (0.0043)	0.0025 (0.0036)		
Ancestral elevation (s.d.)				-0.0020 (0.0068)	0.0072 (0.0065)		
Ancestral caloric suitability (mean)				-0.0076* (0.0045)	-0.0037 (0.0039)		
Ancestral elevation (mean)				0.0037 (0.0072)	-0.0032 (0.0071)		
Ancestral island						-0.0019 (0.0031)	-0.00042 (0.0029)
Dep. var. mean	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Individuals	3564261	3564261	3564261	3564261	3564261	3564261	3564261
Demographic bins	847	847	847	847	847	847	847
Ancestral homelands	102	102	102	102	102	102	102
Adjusted R^2	0.53	0.51	0.53	0.52	0.54	0.51	0.53

Notes: This table establishes that the impact of ancestral population diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on inequality is unaffected by geographical determinants of diversity in the ancestral homeland. Migratory distances are measured in units of 20,000 km. All specifications accounts for sex and age-group fixed-effects. The unit of observation is a demographic bin. The coefficients for all geographical controls are standardized. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level.* Significant at the 10 percent level.

4.2 Ancestral Ethnic Fragmentation

Migratory distance from Africa has been shown to be correlated with the decline in the number of ethnic groups (Galor and Klemp 2023) and with the decrease in the degree of ethnolinguistic fragmentation (Ashraf and Galor 2013b). Hence, it is a-priori plausible that the baseline results may reflect the impact of migratory distance from Africa on inequality through ethnic fragmentation rather than via the diversity in productive traits. In this case, the impact of migratory distance from Africa on inequality could operate via the reduction social non-cohesion and conflict rather than the reduction in the diversity in productive

traits.

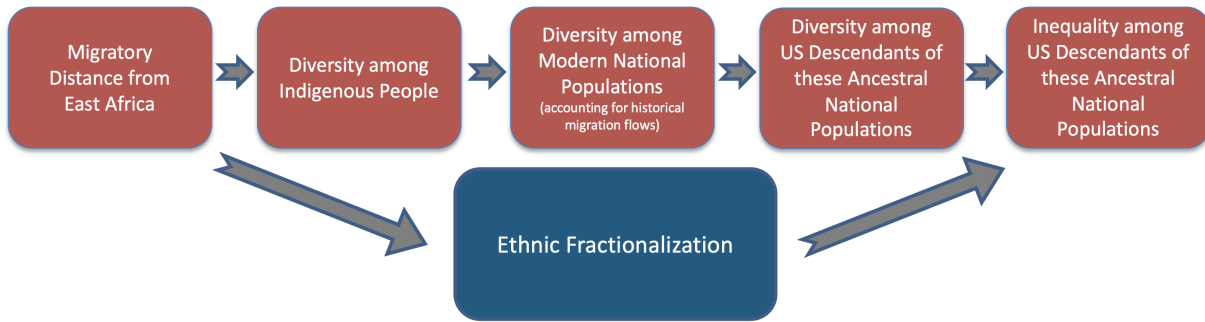


Figure 8. Ethnic Fractionalization as Omitted Variable in the Baseline Model

Table 6. Ancestral Diversity and Income Inequality: Accounting for the Impact of Ancestral Ethnic Fragmentation

	GINI					
	(1)	(2)	(3)	(4)	(5)	(6)
Ancestral migratory distance from East Africa	-0.056*** (0.014)		-0.055*** (0.014)	-0.053*** (0.014)		-0.052*** (0.014)
Ancestral ethnic fractionalization		-0.0036 (0.0031)	-0.0019 (0.0030)			
Ancestral ethnolinguistic fractionalization					-0.0036 (0.0043)	-0.0012 (0.0039)
Dep. var. mean	0.43	0.43	0.43	0.43	0.43	0.43
Individuals	3375184	3375184	3375184	3333107	3333107	3333107
Demographic bins	800	800	800	817	817	817
Ancestral homelands	96	96	96	99	99	99
Adjusted R^2	0.53	0.52	0.53	0.52	0.51	0.52

Notes: This table establishes that the impact of ancestral diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on inequality is unaffected by ancestral ethnic fragmentation. Migratory distances are measured in units of 20,000 km. All specifications accounts for sex and age-group fixed-effects. Despite the net gain of 2 ancestral homelands in Column (4)-(6), the number of individuals declines since a sizable ancestral homeland is lost relative to Columns (1)-(3). The unit of observation is a demographic bin. The coefficients for all ethnic controls are standardized. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

To explore this potential alternative channel, we account for the confounding effect of ancestral ethnic fragmentation, as captured by measures of ethnic fractionalization (Alesina et al. 2003) and ethnolinguistic fractionalization (Desmet, Ortuno-Ortin, and Weber 2009) in the ancestral homeland of each demographic bin in the US.²³

Table 6 suggests that these measures of ancestral ethnic fragmentation are largely orthogonal to the level of inequality in the US (Columns (2) and (5)). Moreover, as reported in Columns (3) and (6), in regressions that include both interpersonal diversity, as captured by migratory distance from Africa, and the different measures of ancestral ethnic fragmentation, the coefficient on interpersonal diversity and its statistical significance remains largely unaltered. The evidence suggests therefore that the baseline results are unlikely to be driven by the impact of the migration from Africa on ethnic fragmentation in the ancestral homelands.

4.3 Ancestral Inequality

The observed relationship between migratory distance from Africa and contemporary inequality may reflect the persistence of inequality that was prevalent in the ancestral homeland rather than the deep determinants of diversity in productive traits.

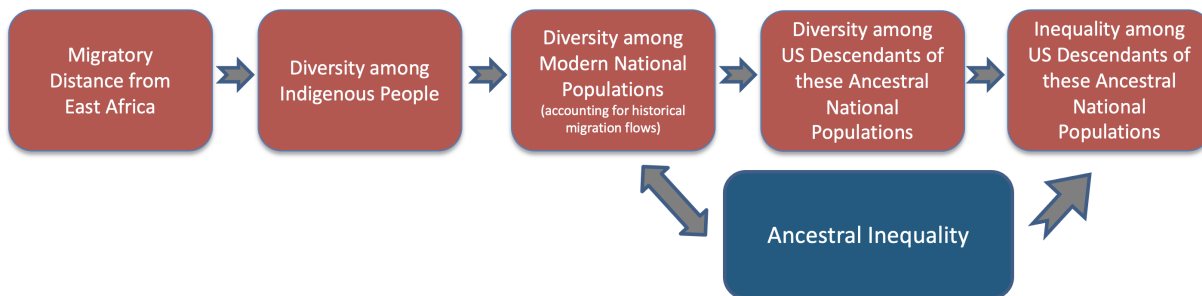


Figure 9. Ancestral Inequality as Omitted Variable in the Baseline Model

To mitigate this potential threats to our identification, we account for the potentially confounding effects of ancestral inequality. Moreover, in Section 5, we establish that ancestral population diversity is indeed a determinant of diversity in productive traits of the contemporary US population.

²³While some aspects of interpersonal diversity can be captured by indices of ethnolinguistic fractionalization, these measures predominantly reflect the proportional representation of ancestral groups in the population, abstracting by construction from the importance of the degree of interpersonal diversity within each ancestral group for the overall level of diversity at the national level. These measures of population diversity may thus obfuscate the true impact of population diversity on inequality within nations.

Table 7. Ancestral Diversity & Inequality: Accounting for Ancestral Inequality

	GINI								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ancestral migratory distance from East Africa	-0.047*** (0.014)		-0.047*** (0.013)	-0.047*** (0.014)		-0.046*** (0.014)	-0.094*** (0.025)		-0.092*** (0.025)
Ancestral class stratification		0.029*** (0.011)	0.030*** (0.0093)						
Ancestral slavery					0.0050 (0.0086)	0.0031 (0.0087)			
Ancestral share of income held by the top 10% (1900)								0.074 (0.087)	0.048 (0.071)
Dep. var. mean	0.43	0.43	0.43	0.43	0.43	0.43	0.44	0.44	0.44
Individuals	3559648	3559648	3559648	3559052	3559052	3559052	2300793	2300793	2300793
Demographic bins	829	829	829	819	819	819	202	202	202
Ancestral homelands	100	100	100	99	99	99	22	22	22
Adjusted R^2	0.53	0.52	0.53	0.53	0.52	0.53	0.60	0.55	0.59

Notes: This table establishes that the impact of ancestral diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on inequality is unaffected by ancestral inequality. Migratory distances are measured in units of 20,000 km. All specifications accounts for sex and age-group fixed-effects. The unit of observation is a demographic bin. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level.* Significant at the 10 percent level.

Table 7 explores the effect of ancestral inequality on the Gini index in each demographic bin in the US, accounting for the ancestral inequality, as proxied by (i) ancestral class stratification (Columns (1)-(3)), (ii) ancestral slavery (Columns (4)-(6)), and (iii) the share of the top 10% of the income distribution in the ancestral homeland in the year 1900 (Columns (7)-(9)).²⁴ The results indicate that the estimated impact of the migration from Africa on inequality remains intact if ancestral inequality is captured, and thus the finding are unlikely to capture the impact of the persistence of ancestral inequality (Column (3), (6), and (9)).²⁵

²⁴Data on Gini for historical periods is not widely available.

²⁵The estimates in Tables E.1 further suggest that a qualitatively similar pattern holds under alternative measures of ancestral inequality: (i) ancestral Gini in the period 1980-1999, as reported by the World Development Indicators, and (ii) ancestral ethnic inequality (Alesina, Michalopoulos, and Papaioannou, 2016).

4.4 Ancestral Cultural and Institutional Factors

The degree of inequality in the ancestral homelands of the US population may reflect the institutional and cultural characteristics that have been prevalent in these homelands.

The presence of inequality-mitigating institutions in ancestral homelands may have reduced inequality in the ancestral environment. Yet, the descendants of these homelands in the US are subjected to the institutional characteristics of the US rather than those of their ancestral homeland. The institutional setup in the ancestral homeland could have mattered, however, via its impact on ancestral inequality and its possible persistent effect on the current level of inequality among the descendants of these homelands in the US. However, as was shown in Table 7, ancestral inequality does not appear to have a persistent effect on income inequality today.

More directly, as implied by the analysis in Table E.2, ancestral institutions (i.e, the degree of jurisdictional hierarchy among the ethnic groups that compose national homelands, and the historical level of democracy in these nations as captured by the Polity V index in 1900) are not associated with the degree of inequality among the descendants of these populations in the US, and they do not have an impact on the baseline findings.

However, cultural characteristics in the ancestral homeland are entirely portable and could be carried by migrants and their descendants. In particular, some cultural traits that are present in some ancestral homelands could have a significant impact on inequality among the descendants of this homeland and could have mediated the effect of migratory distance from Africa on inequality.

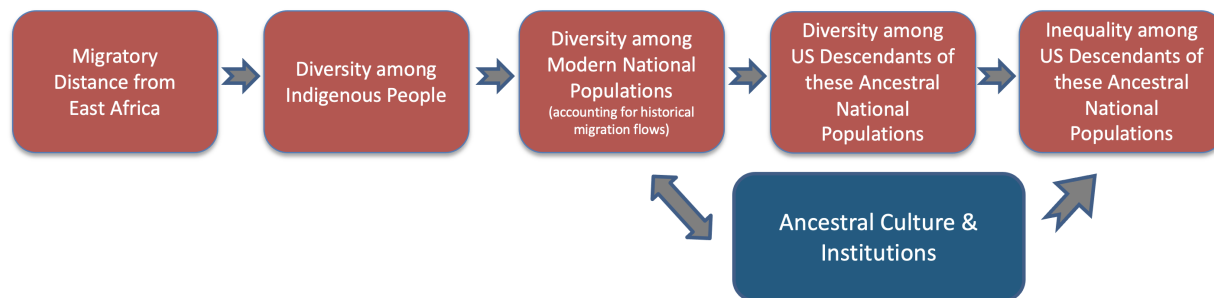


Figure 10. Ancestral Culture as Omitted Variable in the Baseline Model

In particular, (i) *Uncertainty Avoidance* could diminish the degree of entrepreneurship and the variability in earned income, (ii) *Long-Term Orientation* could foster investment in physical and human capital, as well as technological adoption, increasing wage variability, and (iii) *Individualism* could have fostered inequality by sorting individuals into diverse occupations.

Table 8. Ancestral Diversity & Inequality: Accounting for Ancestral Culture

	GINI								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ancestral migratory distance from East Africa	-0.050*** (0.015)		-0.050*** (0.015)	-0.040** (0.019)		-0.040** (0.019)	-0.050*** (0.015)		-0.065*** (0.018)
Ancestral Uncertainty Avoidance		-0.00049 (0.0025)	0.00039 (0.0023)						
Ancestral Long-term Orientation					0.0014 (0.0032)	0.0011 (0.0033)			
Ancestral Individualism								-0.00073 (0.0025)	-0.0057** (0.0027)
Dep. var. mean	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Individuals	3353779	3353779	3353779	3349085	3349085	3349085	3353799	3353799	3353799
Demographic bins	704	704	704	672	672	672	706	706	706
Ancestral homelands	79	79	79	76	76	76	80	80	80
Adjusted R^2	0.53	0.52	0.53	0.53	0.52	0.53	0.54	0.52	0.54

Notes: This table establishes that the impact of ancestral diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on inequality is unaffected and is not mediated by cultural characteristics in the ancestral homelands that could be conducive for inequality: (i) *Uncertainty Avoidance* (Columns (2)-(3)), (ii) *Long-Term Orientation* (Columns (5)-(6)), and *Individualism* (Columns (8)-(9)). Migratory distances are measured in units of 20,000 km. All specifications accounts for sex and age-group fixed-effects. The unit of observation is a demographic bin. The coefficients for all controls are standardized. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

Table 8 establishes that *Uncertainty Avoidance*, *Long-Term Orientation* and *Individualism* do not mediate the effect of migratory distance from Africa on inequality. The estimated effects of these cultural forces on inequality are statistically insignificantly different from zero (Columns (2), (5), and (8)). Moreover, in regressions that include both interpersonal diversity and each of these cultural factors (Columns (3), (6), and (9)), the coefficient on interpersonal diversity remains largely unaltered. These results suggest that our estimates are unlikely to capture the impact of the persistence of the intergenerational transmission of these cultural forces from the ancestral homeland to the US.

Moreover, culture and institutions in some ancestral homelands may have been affected by European colonial settlements and diffusion of human capital, technology, institutions, and sometimes racism, that were introduced by Europeans to their colonial settlements. The impact of these settlements on societal and income inequality may have persisted and affected inequality among the descendants of these ancestral homelands in the US. Nevertheless, as established in Table C.8, although the share of the population in ancestral homelands that is of European descent has a negative impact on inequality among their descendants in the US,

they have no qualitative impact on the estimated effect of ancestral diversity on inequality. In addition, as established earlier in Table 7, ancestral inequality does not persist.

4.5 Accounting for Selective Migration to the US

Although the analysis focuses on individuals that were born in the US, the composition of their productive traits could have been affected by selective migration of their ancestors upon their migration to the US. Since this selective migration may have been correlated with the diversity in their ancestral homelands, our estimates may partly capture selection of productive traits, rather than purely the impact of the diversity in productive traits.

Restricting our analysis to US-born descendants of migrants who are least two generations in the US, diminishes some of the impact this selective migration. Nevertheless, to further mitigate this potential concern, we restrict our analysis to demographic bins that represent ancestral homelands that could not have been subjected to migration in the post-1500 period. In particular, we restrict our analysis to Native Americans, exploiting variation in migratory distance from Africa to their ancestral tribes (Figure F.1).²⁶

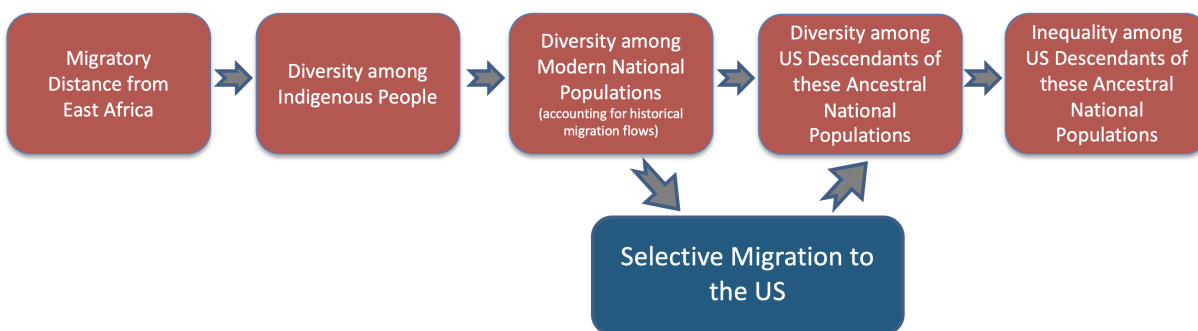


Figure 11. Selection in the Baseline Model

As established in Table 9 and depicted in Figure 12, the impact of population diversity on contemporary inequality among Native Americans in the US remains sizable, although the statistical significance is unavoidably smaller due to the drastically smaller number of ancestral homelands (i.e. tribes). Native Americans who are originated in ancestral tribes at greater migratory distance, and are therefore predicted to be less diverse, are indeed less unequal. Moreover, the size of the estimated effect is even larger than the ones observed in the baseline analysis.

²⁶Figure F.2 presents the reduction in population diversity among indigenous populations in North America (as measured by their folkloric diversity) at greater migratory distances from Africa.

Table 9. Ancestral Diversity & Inequality: Native Americans

	GINI			
	BASELINE		WITHIN-EDUCATION	
	REPEATED		REPEATED	
	ACS 5YR 2010	CROSS-SECTION	ACS 5YR 2010	CROSS-SECTION
	(1)	(2)	(3)	(4)
Ancestral migratory distance from East Africa	-0.12* (0.070)	-0.16*** (0.055)	-0.11* (0.062)	-0.13** (0.055)
Dep. var. mean	0.42	0.42	0.38	0.38
Individuals	31366	125623	29308	104853
Demographic bins	311	1035	600	2009
Ancestral homelands	32	36	32	36
Adjusted R^2	0.35	0.30	0.38	0.35

Notes: This table establishes that the impact of ancestral population diversity (as predicted by the prehistoric migratory distance from the cradle of humanity in Africa) on inequality holds among Native Americans. Migratory distances are measured in units of 20,000 km. All specifications accounts for sex and age-group fixed-effects. The unit of observation is a demographic bin. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

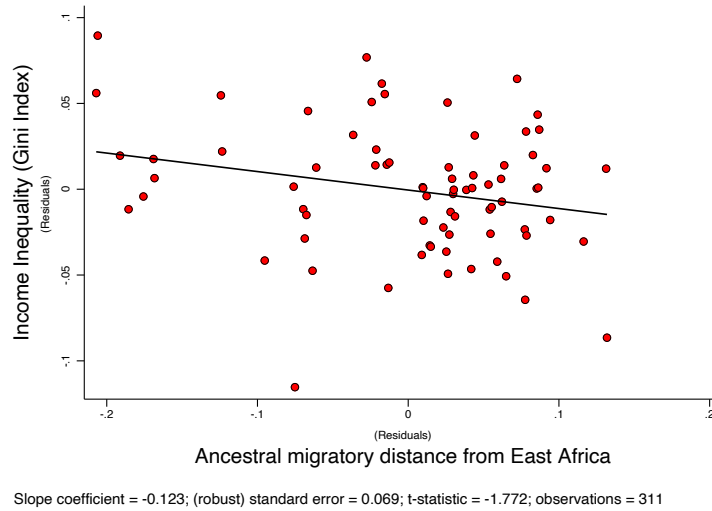


Figure 12. Migratory Distance from Africa & Inequality: Native Americans

Notes: This figure depicts a (binned) scatterplot of the association between income inequality among groups of individuals in the United States originated from the same Native-American tribe and the migratory distance from East Africa of this ancestral tribe.

5 Mediating Channels

This section explores the mechanism through which shorter prehistoric migratory distance from Africa, and thus greater ancestral diversity, resulted in a higher level of inequality.

5.1 Dispersion in Education & Work Effort

As implied by the proposed hypothesis, the impact of interpersonal diversity on inequality is plausibly operating via the impact of greater population diversity on a wider dispersion of productive traits.

While our data does not provide us with direct measures of the dispersion in cognitive and non-cognitive skills across demographic bins, it does enable us to explore closely related mediating channels. Namely, the impact of migratory distance from Africa and interpersonal diversity on the dispersion in: (a) work effort, as captured by hours worked per week, and (b) educational attainment.²⁷

In line with the proposed hypothesis, as depicted in Figure 13 (based on Columns (2) and (4) of Table 10), demographic bins of US inhabitants whose ancestors resided closer to the cradle of humanity in Africa, and are therefore more diverse, have: (i) greater education dispersion, and (ii) greater dispersion in the number of hours worked, reflecting plausibly a wider range of predisposition towards labor and leisure.²⁸

Table 10 presents the mediating regressions. Column (1) reports as a benchmark the reduced-form association between prehistoric migratory distance from Africa and inequality. Columns (2) and (4) report a negative and statistically significant association between migratory distance from Africa and the dispersion in hours worked and educational attainment. This finding further validates the argument that the *Out-of-Africa Migration* and the associated *Serial Founder Effect* have generated a compression in traits which has persisted to the present day.

Furthermore, as expected, Columns (3) and (5) suggests that dispersions in hours worked and education have indeed a positive and statistically significant association with income inequality. Moreover, consistent with the view that these are indeed mediating channels, the point estimates of the effect of migratory distance from Africa on inequality drop as compared to the reduced-form estimates.

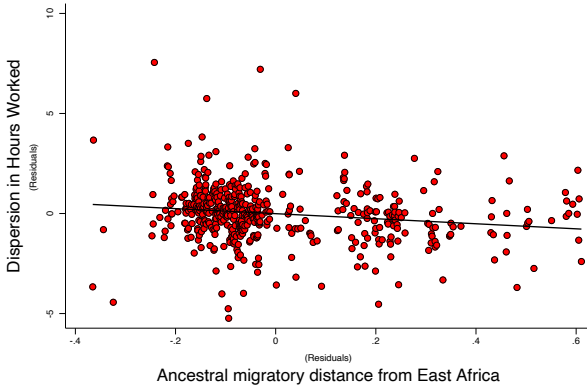
²⁷As established in Table C.12, migratory distance from Africa has no impact on the dispersion in occupation and the dispersion in occupations has not impact on inequality. Thus occupation dispersion does not appear to be a mediating channel.

²⁸Dispersion in these variables within a demographic bin is captured by: (i) the standard deviation of hours worked, and (ii) $1 - [\text{The Herfindahl Index of the intensity of education aggregated to 4 categories based on the IPUMS classification (i.e. high school or below, some college, college, and more than college)}]$.

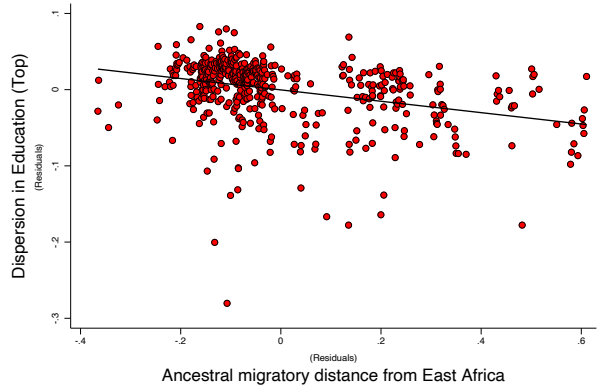
Table 10. Mediating Channels: Dispersion in Education & Work Effort

	DISPERSION IN		DISPERSION IN		
	GINI	HOURS WORKED	GINI	EDUCATION	GINI
	(1)	(2)	(3)	(4)	(5)
Ancestral migratory distance from East Africa	-0.047*** (0.013)	-1.32*** (0.38)	-0.035*** (0.012)	-0.073*** (0.015)	-0.034** (0.014)
Dispersion in Hours Worked			0.0089*** (0.0013)		
Dispersion in Education					0.18*** (0.048)
Dep. var. mean	0.43	11.1	0.43	0.67	0.43
Individuals	3564261	3564261	3564261	3564261	3564261
Demographic bins	847	847	847	847	847
Ancestral homelands	102	102	102	102	102
Adjusted R^2	0.53	0.31	0.57	0.52	0.54

Notes: This table explores potential mediating channels that may govern the impact of the prehistoric migratory distance from Africa migratory distance from Africa, and thus predicted ancestral diversity, on inequality, as captured by the Gini Index. All specifications accounts for sex and age-group fixed-effects. The unit of observation is a demographic bin. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.



(a) Work Effort Dispersion



(b) Education Dispersion

Figure 13. Migratory Distance from East Africa to Ancestral Homelands and Dispersion in Education & Work Effort among their US Descendants

Notes: This figure depicts the association between migratory distance from East Africa to the ancestral homeland of US inhabitants and dispersion in traits among individuals in the US originated from this ancestral background.

5.2 Entrepreneurial Spirit

Since diverse societies are more likely to have a denser upper tail of the distribution of skills necessary to become an entrepreneur, we enlarge our sample by including self-employed workers to investigate the likelihood that individuals whose ancestrals came from more diverse homelands become entrepreneurs.

The analysis establishes that demographic bins of US inhabitants whose ancestors resided (on average) closer to cradle of humanity in Africa, and are therefore more diverse, are more entrepreneurial.

Table 11. Mediating Channels: Entrepreneurial Spirit

	SELF-EMPLOYED & WAGE WORKERS		
	GINI	% ENTREPRENEURS	GINI
	(1)	(2)	(3)
Ancestral migratory distance from East Africa	-0.047*** (0.012)	-0.029*** (0.0081)	-0.038*** (0.011)
Share of Entrepreneurs			0.31*** (0.083)
Dep. var. mean	0.45	0.038	0.45
Individuals	3978742	3978742	3978742
Demographic bins	869	869	869
Ancestral homelands	105	105	105
Adjusted R^2	0.48	0.38	0.50

Notes: This table explores the role of entrepreneurial spirit as potential mediating channels that govern the impact of the prehistoric migratory distance from Africa, and thus predicted ancestral diversity, on inequality. All specifications accounts for sex and age-group fixed-effects. The coefficients of the control variable is standardized. The unit of observation is a demographic bin. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level.* Significant at the 10 percent level.

As established in Table 11, *entrepreneurial spirit* is indeed positively associated with inequality (Column (2)) and appear to be an additional mediating force in the impact of migratory distance from the cradle of humanity in Africa on inequality.²⁹ The point estimates

²⁹Incorporated businesses have been shown to engage relatively more in activities which demand strong

of the effect of interpersonal diversity on inequality drop as compared to the reduced-form estimates (Column (3)).³⁰

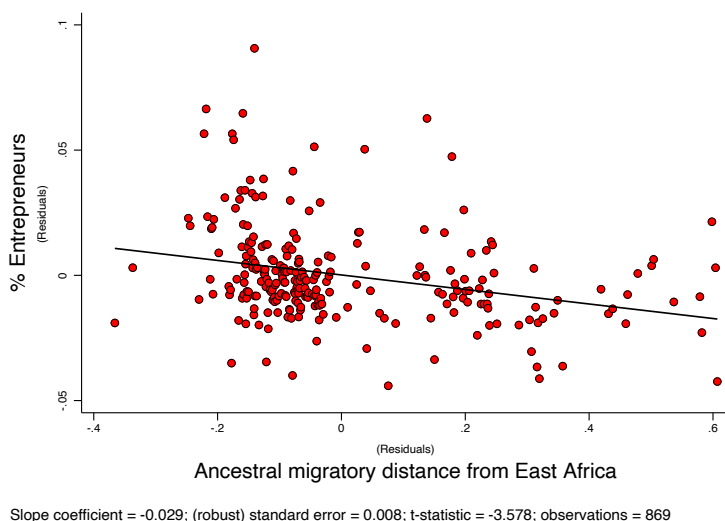


Figure 14. Migratory Distance from Africa & Entrepreneurial Spirit

Notes: The figure depicts the association between the ancestral migratory distance from East Africa and the entrepreneurial spirit of individuals in the US originated from this ancestral background (Column (2) in Table 12).

6 Concluding Remarks

This research sheds new light on the roots of the variation in the intensity of inequality across societies. We advance a novel hypothesis that in a market economy, where earning differentials reflect variations in productive traits across individuals, a significant component of the differences in inequality across societies can be attributed to variation in ancestral population diversity, shaped by the prehistoric Out-of-Africa Migration.

Considering the impact of the prehistoric dispersal of humanity on institutional and cultural characteristics, a conclusive empirical examination of the proposed hypothesis would not be feasible in a cross-country setting. Instead, the desirable empirical setting requires the exploration of the origins of variation in inequality within groups of individuals, who were born and reside a common country, and are exposed to the same economic forces and

nonroutine cognitive skills. Therefore, the share of entrepreneurs in each demographic bin represents the share of incorporated self-employed individuals within the bin.

³⁰At the bottom of the distribution there are some self-employed individuals with negative earned income. Since the Gini index is not defined for distributions which include negative values, we bottom code those observations to zero in order to compute inequality. The results are robust to the exclusion of those observations.

political institutions, but differ in their ancestral origin. In such a single-country context, the proposed hypothesis would imply that greater income inequality would be prevalent among groups of individuals, within the society, whose ancestral populations resided closer to the cradle of humanity in Africa and who are therefore more diverse.

Exploring the roots of inequality within the US population, leveraging rich micro-data on millions of US-born individuals, with more than hundred different ancestries, we find supporting evidence for our hypothesis. The findings hold across various samples, including a Native American sample that consists exclusively of individuals who have been subjected to selective migration into the US in the post-1500 period. Moreover, it is robust to the inclusion of potentially confounding geographical characteristics, which could be correlated with migratory distance from Africa, and the potentially confounding impact of ancestral ethnolinguistic fragmentation, inequality, and cultural and institutional characteristics, forces that could be associated with ancestral diversity.

The impact of diversity on inequality is mediated through its impact on the diversity in productive traits. In particular, the analysis establishes that US inhabitants whose ancestors resided closer to cradle of humanity in Africa, and are therefore more diverse, have: (i) greater educational diversity (ii) greater heterogeneity in the number of hours worked, reflecting plausibly a wider range of predisposition towards labor and leisure, and (iii) greater entrepreneurial spirit.

The findings suggest that implementations of growth enhancing diversity policies ought to be considered in the context of the trade-off between growth and inequality. Fostering diversity and thus growth in societies that are relatively homogeneous would be associated with greater inequality, whereas fostering social cohesion in societies that are highly diverse may promote growth along with greater equality.

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Appendix

A. Variable Definitions, Sources and Summary Statistics

A.1. Variable Definition and Sources

A.1.1. Ancestral Homeland

- Self-reported ancestry of the US population. Individuals are asked to self-report their primary ancestry (typically a country of origin). We leverage this information to match them to modern national homelands.³¹ We follow the coding of the variable "ancestr1d" (i.e., detailed ancestry, first response) in IPUMS USA to match the self-reported ancestry to a modern national boundary, where the set of nations is based on the classification of the World Bank Development Indicators.³² If IPUMS does not match an ancestry to a modern national boundary we establish the following assignment criteria: (i) if the ancestry is assigned unambiguously by historical sources to a unique modern national homeland, then we follow this assignment (e.g., Cornish and Manx as part of the United Kingdom), (ii) if the ancestry is a former nation that split up (e.g., Czechoslovakia and Yugoslavia), we match the ancestry to the contemporary country of the historical capital, (iii) if the ancestry is an ethnic group (that is not mapped by IPUMS to a modern nation), we use the assignment provided by the Ethnographic Atlas (e.g., Kurds and Lapps), (iv) if the group is not in the Ethnographic Atlas (e.g., Cossack), then we match it to the closest capital of a contemporary country where this group is currently located, (v) individuals who report an ancestry which can not be mapped into an a unique ancestral homeland (e.g. African-Americans) are excluded from the analysis. Data Source: Authors' assignment based on Ruggles et al., (2022).
- Native-American Tribe. We follow the coding of the variable "tribed" (i.e., detailed tribe) in IPUMS USA to match Native Americans to their ancestral homeland.³³ Data Source: Authors' assignment based on Ruggles et al., (2022).

³¹While respondents are allowed to report a secondary ancestry, in our sample, 53% do not indicate a secondary ancestry. The most common dual ancestry in the sample are European ancestry pairs (e.g., German-Irish, English-German, English-Irish), representing locations that have relatively similar migratory distance from Africa. The exclusion of individuals who report a secondary ancestry has not qualitative impact.

³²Based on WDI, Hong Kong, Macau, and Palestine are considered nations. The only exception is Taiwan which we classified as an independent homeland following the convention (e.g., Putterman and Weil 2010). The exclusion of Taiwan or its inclusion within China would strenghten our results.

³³We consider (i) Pueblo and Pueblo-Hopi, (ii) Tlingit-Haida and Haida, and (iii) Eskimo, Yupik, and Inupiat to be the same ancestral homeland.

A.1.2. Dependent Variable - Income Inequality

- **Gini:** The Gini index of earned income within each demographic bin. Data Source: Authors' computation based on Ruggles et al., (2022).
- **Top 1%:** The share of earned income held by the top 1% within each demographic bin. Data Source: Authors' computation based on Ruggles et al., (2022).
- **Top 5%:** The share of earned income held by the top 5% within each demographic bin. Data Source: Authors' computation based on Ruggles et al., (2022).
- **Top 10%:** The share of earned income held by the top 10% within each demographic bin. Data Source: Authors' computation based on Ruggles et al., (2022).

A.1.3. Independent Variable - Ancestral Migratory Distance from Africa

- **Migratory distance from Africa (Modern National Populations):** The great circle distance from Addis Ababa (Ethiopia) to the ancestral homeland modern capital city along a land-restricted path. Data Source: Ashraf and Galor (2013).³⁴
- **Migratory distance from Africa (Native Americans):** The shortest migratory distance from Addis Ababa (Ethiopia) to the pair of coordinates of the corresponding tribe on Ethnographic Atlas or Glottolog.³⁵ Data Source: Kirby et al., (2016), Murdock et al., (1999).

A.1.4. Fixed-Effects

- **Sex:** Each individual's sex. Data Source: Authors' computation based on Ruggles et al., (2022).

³⁴Since the ancestral homeland may consist of population which are themselves from different ancestries, the ancestry-adjusted migratory distance from Africa to the ancestral homeland captures the weighted average of the migratory distances from Africa of each of these ancestral populations, accounting for the proportional representation of these deeper ancestral populations in the ancestral homeland, using the migration matrix of Putterman and Weil (2010). If the ancestral homeland is not in the matrix, we keep the unadjusted migratory distance only if the homeland is in the Old World given the drastical changes in the composition of populations of the New World in the post-1500 period.

³⁵The coordinates of Alaskan Athabaskan are the average of all Central Alaska-Yukon Athabaskan or Southern Alaskan Athabaskan groups in Glottolog. The coordinates of Sioux are the average of Lakota and Dakota in Glottolog. The coordinates of Eskimo are the average of Yupik and Inupiat groups at Alaska in Glottolog. The coordinates of Siouan are the average of Yuman groups in Glottolog. The coordinates of Pueblo are the average of all groups in Glottolog which are in either the Keresan family, the Kiowa-Tanoan family, Zuni, or Hopi.

- **Age group:** Each individual’s age group: 15-24, 25-34, 35-44, 45-54, or 55-64. Data Source: Authors’ computation based on Ruggles et al., (2022).
- **Sample:** The repeated cross-section include five different samples: Censuses of 1980, 1990, and 2000 as well as ACS 5-year samples of 2010 and 2020. Data Source: Authors’ computation based on Ruggles et al., (2022).
- **Continental Fixed-Effects:** Dummy variables capturing the location of each ancestral homeland of the US population in either: Africa, Asia, Europe, Americas, or Oceania. Data Source: Authors’ assignment.

A.1.5. Size of demographic bin

- **Size of demographic bin:** Number of individuals in a demographic bin. Data Source: Authors’ computation based on Ruggles et al., (2022).

A.1.6. Ancestral Geographical Controls

- **Absolute latitude:** The absolute value of the latitude of the geodesic centroid of each ancestral homeland of the US population. Data Source: Authors’ computation.
- **Ecological Diversity:** Standard deviation and mean of caloric suitability and elevation within the territory of each ancestral homeland. Data Source: Authors’ computation based on Galor and Ozak (2016) and Fick and Hijmans (2017), respectively.
- **Island:** A dummy variable that captures whether each ancestral homeland of the US population is located on an island. Data Source: Authors’ assignment.

A.1.7. Ancestral Ethnic Fragmentation Controls

- **Ethnic Fractionalization:** The index captures the probability that two individuals in a country share the same ethnicity. Data Source: Alesina et al., (2003).
- **Ethnolinguistic Fractionalization:** The index captures the probability that two individuals in a country share the same ethnicity, weighted by their linguistic distance. This is also known as the Greenberg index. Data Source: Desmet, Ortuño-Ortín, and Weber (2009).

A.1.8. Ancestral Inequality Controls

- **Class stratification:** The degree and type of class differentiation, excluding purely political and religious statuses. The original variable records ethnic groups as belonging to one of the following categories: (1) absence of significant class distinctions among freemen, (2) wealth distinctions, (3) elite stratification, (4) dual stratification, and (5) complex stratification. Using this information, we take as evidence of class stratification if the original variable takes on the value of 2, 3, 4, or 5. Data Source: Ethnographic Atlas (Giuliano and Nunn 2018).
- **Slavery:** The forms and prevalence of slave status, treated quite independently of both class and caste status. The original variable records ethnic groups as belonging to one of the following categories: (1) absence or near absence of slavery, (2) incipient or nonhereditary slavery (i.e., where slave status is temporary and not transmitted to the children of slaves), (3) slavery reported but not identified as hereditary or non-hereditary, and (4) hereditary slavery present and of at least modest social significance. Using this information, we take as evidence of slavery if the original variable takes on the value of 2, 3, or 4. Data Source: Ethnographic Atlas (Giuliano and Nunn 2018).
- **Share of income held by the top 10%:** The share of income held by the top 10% during in 1900. Data Source: World Inequality Database (Chancel, Piketty, Saez, Zucman, et al. 2022).
- **Gini:** The Gini index during the time period 1980-1999. Data Source: World Bank Development Indicators.
- **Ethnic Inequality:** The Gini index of mean luminosity per capita across ethnic homelands (GREG) within a given country. Data Source: Alesina, Michalopoulos, and Papaioannou (2016).

A.1.9. Ancestral Cultural Controls

- **Uncertainty Avoidance:** The degree to which individuals avoid ambiguity and uncertainty. Data Source: Hofstede (1991), and Hofstede et al. (2010).
- **Long-Term Orientation:** The fostering of virtues oriented towards future rewards, in particular, perseverance and thrift. Data Source: Hofstede (1991), and Hofstede et al. (2010).

- **Individualism:** The degree of interdependence a society maintains among its members. The importance placed on attaining personal goals. Source: Hofstede (1991), and Hofstede et al. (2010).
- **Share of European descent:** The share of the year 2000 population in every country that is descended from people in European countries in the year 1500. Data Source: Ashraf and Galor (2013), and Putterman and Weil (2010).
- **Early settlers:** Ancestral homelands which accounted for a significant share of the US population in 1850, which is the oldest full-count individual-level Census available. We define early settlers as the top 10 foreign birthplaces at that time. Data Source: Authors' computation based on Ruggles et al., (2022).

A.1.10. Institutions

- **Jurisdictional Hierarchy:** The number of jurisdictional levels beyond the local community, ranging from 1 for stateless societies, through 2 or 3 for petty and larger paramount chiefdoms or their equivalent, to 4 or 5 for large states. Polities imposed recently by colonial regimes are excluded. Data Source: Ethnographic Atlas (Giuliano and Nunn 2018).
- **Polity score:** Polity V Project provides a polity score based on the subtraction of the autocracy score from the democracy score. Data Source: Polity Project, Center for Systemic Peace.

A.1.11. Mediating Channels

- **Dispersion in Hours Worked:** The standard deviation of hours worked within each demographic bin. Data Source: Authors' computation based on Ruggles et al., (2022).
- **Dispersion in Education:** $1 - [\text{The Herfindahl index of educational categories (i.e., high school or below, some college, college, and more than college)}]$ within each demographic bin. Data Source: Authors' computation based on Ruggles et al., (2022).
- **Entrepreneurial Spirit:** Share of incorporated self-employed individuals within each demographic bin. Data Source: Authors' computation based on Ruggles et al., (2022).
- **Dispersion in Occupation:** $1 - [\text{The Herfindahl index of occupational categories (i.e., variable "occ" in IPUMS USA)}]$ within each demographic bin. Data Source: Authors' computation based on Ruggles et al., (2022).

A.2. Summary Statistics

Table A.2. Summary Statistics I

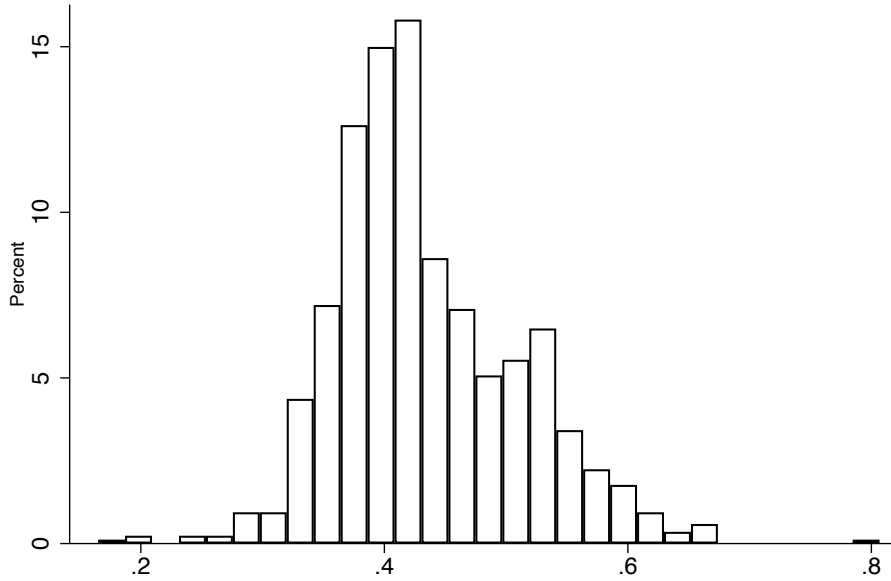
	MEAN	SD	MEDIAN	MIN	MAX	N
<hr/> A. DEPENDENT VARIABLES <hr/>						
Gini index	0.43	0.08	0.42	0	0.8	847
Share of income held by the top 1%	0.06	0.01	0.06	0	0.1	526
Share of income held by the top 5%	0.19	0.04	0.19	0	0.5	769
Share of income held by the top 10%	0.30	0.06	0.29	0	0.7	847
<hr/> B. INDEPENDENT VARIABLES <hr/>						
Ancestral migratory distance from East Africa	7240.45	3841.22	5862.76	0	19388.3	102
<hr/> C. SIZE OF DEMOGRAPHIC BIN <hr/>						
Size of demographic bin	4208.10	13457.62	247.00	10	116926.0	847
<hr/> D. ANCESTRAL GEOGRAPHY <hr/>						
Absolute latitude	34.62	15.26	35.05	3	68.8	102
Caloric suitability (s.d.)	1637.05	910.09	1594.73	0	3986.4	102
Elevation (s.d.)	418.50	306.85	354.31	27	1712.3	102
Caloric suitability (mean)	6774.67	2495.85	7628.15	0	10107.5	102
Elevation (mean)	545.51	371.40	474.73	39	1838.5	102
Island	0.06	0.22	0.00	0	1.0	102

Notes: The table provides for all variables used in the data analysis the mean, the standard deviation (SD), the median, the minimum value (MIN), the maximum value (MAX), and the number of observations (N).

Table A.2. Summary Statistics II

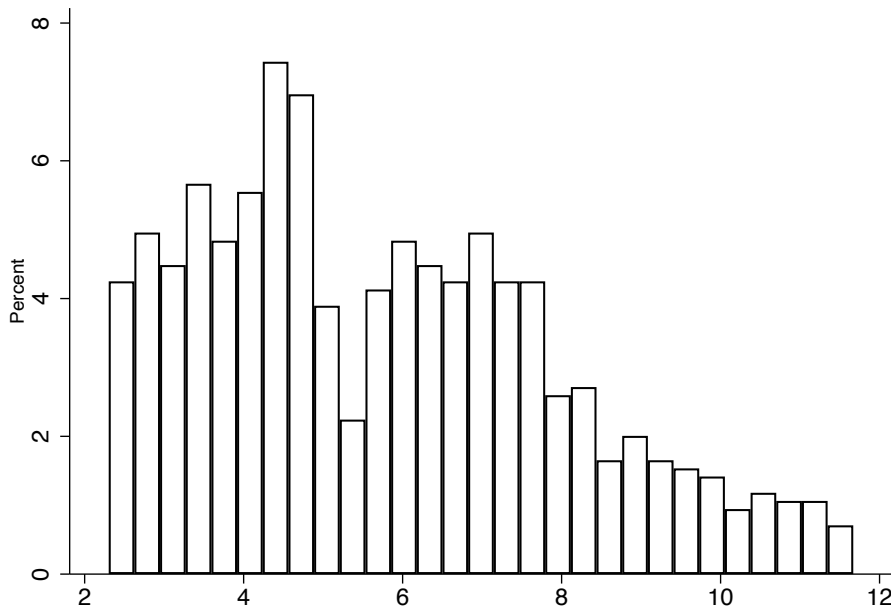
	<u>MEAN</u>	<u>SD</u>	<u>MEDIAN</u>	<u>MIN</u>	<u>MAX</u>	<u>N</u>
<u>E. ANCESTRAL ETHNIC FRAGMENTATION</u>						
Ethnic fractionalization	0.38	0.23	0.40	0	0.9	96
Ethnolinguistic fractionalization	0.15	0.16	0.08	0	0.6	99
<u>F. ANCESTRAL INEQUALITY</u>						
Class stratification	0.96	0.13	1.00	0	1.0	100
Slavery	0.29	0.41	0.01	0	1.0	99
Share of income held by the top 10% (1900)	0.53	0.06	0.54	0	0.6	22
Gini index (1980-1999)	0.40	0.11	0.36	0	0.6	66
Ethnic inequality	0.41	0.24	0.41	0	0.9	95
<u>G. ANCESTRAL CULTURAL FACTORS</u>						
Uncertainty avoidance	67.46	21.32	68.00	13	112.0	79
Long term orientation	46.43	23.79	46.50	4	100.0	76
Individualism	41.16	22.86	35.50	6	90.0	80
% European descent	0.49	0.44	0.46	0	1.0	99
Early settlers	0.10	0.30	0.00	0	1.0	101
<u>H. ANCESTRAL INSTITUTIONS</u>						
Jurisdictional hierarchy	2.85	0.63	3.00	1	4.0	99
Polity score (1900)	-0.71	6.06	-2.00	-10	10.0	49
<u>I. MEDIATING CHANNELS</u>						
Dispersion in Hours Worked	11.14	2.12	10.89	3	24.3	847
Dispersion in Education	0.67	0.07	0.70	0	0.7	847
Dispersion in Occupation	0.96	0.03	0.97	1	1.0	847
% Entrepreneurs	0.04	0.04	0.03	0	0.3	869

Notes: The table provides for all variables used in the data analysis the mean, the standard deviation (SD), the median, the minimum value (MIN), the maximum value (MAX), and the number of observations (N).



Mean = 0.434; median = 0.420; standard deviation = 0.076; observations = 847

(a) Gini index

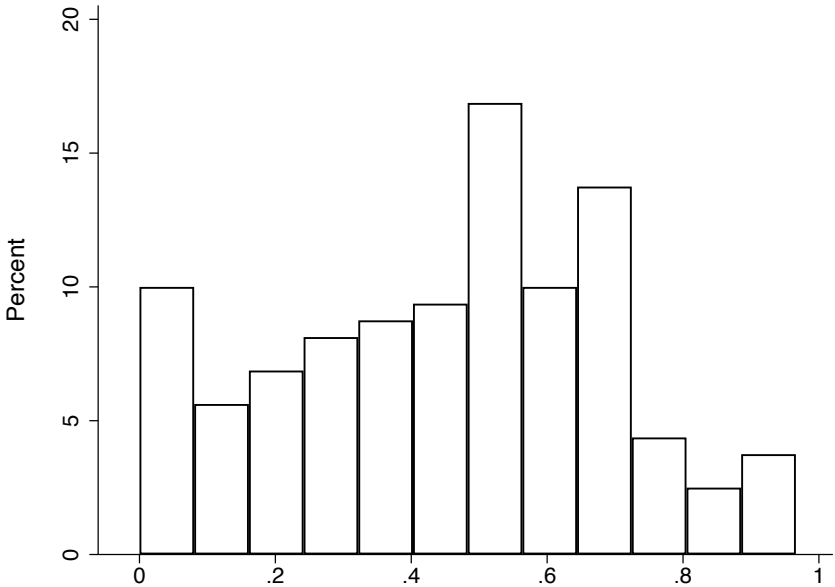


(b) Log Bin size

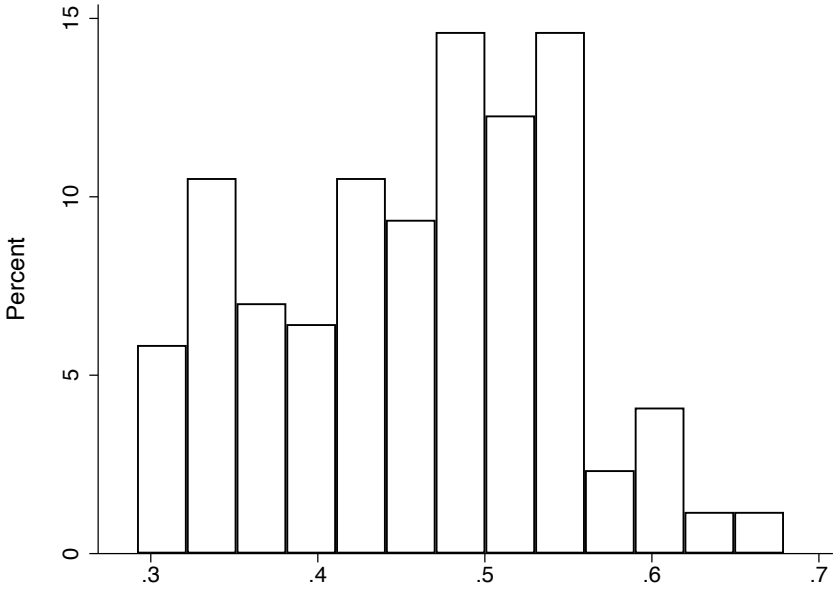
Figure A.1. The Structure of Demographic Bins.

Notes: This figure depicts the histograms of: (a) inequality across demographic bins as captured by the Gini index, and (b) the distribution of the log number of individuals in each demographic bin.

Appendix B - Disparity in National Inequality



(a) Ethnic Inequality



(b) Share of income held by the top 10%

Figure B.1. Disparity in in Ethnic Inequality within Nations and in Inequality across Countries.

Notes: This figure depicts the histogram of the: (a) global distribution of inequality across ethnic groups within a nation (Alesina, Michalopoulos and Papaioannou 2016), and (b) share of income held by the top 10% across countries during the time period 2000-2020 (Chancel, Piketty, Saez, Zucman, et al. 2022).

Appendix C - Alternative Empirical Specifications & Classifications

Table C.1. Robustness to Alternative Demographic Bins and Continental Fixed-Effects

	GINI				
	(1)	(2)	(3)	(4)	(5)
Ancestral migratory distance from East Africa	-0.039** (0.018)	-0.030* (0.018)	-0.052*** (0.014)	-0.047*** (0.013)	-0.040** (0.016)
Ancestry	yes	yes	yes	yes	yes
Sex FE	no	yes	no	yes	yes
Age FE	no	no	yes	yes	yes
Continent FE	no	no	no	no	yes
Dep. var. mean	0.50	0.49	0.44	0.43	0.43
Individuals	3565283	3565259	3564899	3564261	3564261
Demographic bins	112	221	470	847	847
Ancestral homelands	112	111	110	102	102
Adjusted R^2	0.018	0.0065	0.54	0.53	0.55

Notes: This table establishes that the impact of ancestral diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on inequality holds unconditionally, and in particular irrespective of the inclusion of sex and age fixed-effects. The unit of observation is a bin at the level of: (a) ancestry, (b) ancestry and sex, (c) ancestry and age-group, (d) baseline demographic bin. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level.* Significant at the 10 percent level.

Table C.2. Robustness to Alternative Employment Status and Working Age

	GINI				
	LABOR		PRIVATE	PRIME	
	FORCE	EMPLOYED	SECTOR	WORKING AGE	FULL-TIME
	(1)	(2)	(3)	(4)	(5)
Ancestral migratory distance from East Africa	-0.047*** (0.013)	-0.049*** (0.013)	-0.057*** (0.015)	-0.047*** (0.017)	-0.038** (0.015)
Dep. var. mean	0.43	0.41	0.45	0.40	0.36
Individuals	3564261	3344247	2555783	2387068	2537448
Demographic bins	847	840	803	525	798
Ancestral homelands	102	100	99	98	98
Adjusted R^2	0.53	0.52	0.46	0.10	0.20

Notes: This table establishes that the impact of ancestral diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on inequality is unaffected by estimating our specification on the sample of: (i) all working age individuals, (ii) working age individuals in the labor force, (iii) employed working age individuals, (iv) employed in the private sector, or (v) only full time workers. All specifications include sex and age-group fixed-effects. The unit of observation is a demographic bin. Heteroskedasticity robust standard errors (clustered at the ancestral origins of the US population) is reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

Table C.3. Robustness to Alternative Classifications of Age Group

Split in groups of:	GINI		
	25-YEAR	10-YEAR	5-YEAR
	(1)	(2)	(3)
Ancestral migratory distance from East Africa	-0.063*** (0.014)	-0.047*** (0.013)	-0.032*** (0.012)
Dep. var. mean	0.47	0.43	0.42
Individuals	3565071	3564261	3563272
Demographic bins	398	847	1533
Ancestral homelands	111	102	96
Adjusted R^2	0.43	0.53	0.41

Notes: This table establishes that the impact of ancestral diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on inequality is unaffected by the classification of age groups. All specifications include sex and age-group fixed-effects. The unit of observation is a demographic bin. Heteroskedasticity robust standard errors (clustered at the ancestral origins of the US population) is reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

Table C.4. The Impact of Diversity on Inequality: Men vs. Women

	GINI					
	ALL			FULL-TIME		
	(1)	(2)	(3)	(4)	(5)	(6)
Ancestral migratory distance from East Africa	-0.047*** (0.013)	-0.045** (0.019)	-0.049*** (0.014)	-0.038** (0.015)	-0.046** (0.019)	-0.029* (0.016)
Men	yes	yes	no	yes	yes	no
Women	yes	no	yes	yes	no	yes
Dep. var. mean	0.43	0.44	0.43	0.36	0.37	0.34
Individuals	3564261	1797455	1766806	2537448	1462701	1074747
Demographic bins	847	424	423	798	410	388
Ancestral homelands	102	101	101	98	98	91
Adjusted R^2	0.53	0.50	0.56	0.20	0.10	0.16

Notes: This table establishes that the impact of ancestral diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on inequality as measured by the Gini Index is similar in a sample of descendants that consist of only men or women (Columns (1)-(3)), and is not affected markedly by the extent of their employment (Columns (4)-(6)). All specifications accounts for sex and age-group fixed-effects. The unit of observation is a demographic bin. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level.* Significant at the 10 percent level.

It should be noted that the effect of diversity on inequality is larger for men among individuals that are fully employed and larger for women among all individuals.

Table C.5. Ancestral Diversity & Inequality: Individuals from a Single Ancestry

	GINI	TOP 1%	TOP 5%	TOP 10%
	(1)	(2)	(3)	(4)
Ancestral migratory distance from East Africa	-0.048*** (0.014)	-0.014** (0.0058)	-0.036*** (0.011)	-0.044*** (0.013)
Dep. var. mean	0.43	0.061	0.19	0.30
Individuals	1902726	1888683	1901408	1902726
Demographic bins	805	453	710	805
Ancestral homelands	96	58	89	96
Adjusted R^2	0.49	0.14	0.15	0.20

Notes: This table establishes that the impact of ancestral diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on inequality is unaffected qualitatively if we exclude individuals who report a secondary ancestry. All specifications accounts for sex and age-group fixed-effects. The unit of observation is a demographic bin. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level.* Significant at the 10 percent level.

Table C.6. Accounting for Mean Income

	GINI		
	(1)	(2)	(3)
Ancestral migratory distance from East Africa	-0.047*** (0.013)		-0.038*** (0.014)
Log mean wages		0.064*** (0.011)	0.059*** (0.011)
Dep. var. mean	0.43	0.43	0.43
Individuals	3564261	3564261	3564261
Demographic bins	847	847	847
Ancestral homelands	102	102	102
Adjusted R^2	0.53	0.55	0.56

Notes: This table establishes that the impact of ancestral diversity (predicted by the ancestry adjusted pre-historic migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on inequality is unaffected by the mean income in the demographic bin. All specifications accounts for sex and age-group fixed-effects. The unit of observation is a demographic bin. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level.* Significant at the 10 percent level.

Table C.7. Accounting for Business Income

	GINI		
		BUSINESS	EARNED
	WAGE	INCOME	INCOME
	(1)	(2)	(3)
Ancestral migratory distance from East Africa	-0.047*** (0.013)	-0.078*** (0.025)	-0.047*** (0.012)
Dep. var. mean	0.43	0.70	0.45
Individuals	3564261	412903	3978742
Demographic bins	847	493	869
Ancestral homelands	102	74	105
Adjusted R^2	0.53	0.15	0.48

Notes: This table establishes that the impact of ancestral diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on inequality is unaffected by (i) shifting the analysis to self-employed workers and computing inequality based on their business income, or (ii) including both wage-workers and self-employed workers and computing inequality based on their earned income. All specifications accounts for sex and age-group fixed-effects. The unit of observation is a demographic bin. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level.* Significant at the 10 percent level.

Table C.8. Ancestral Diversity & Inequality: Accounting for Ancestral Population from a European Descent & Time since Settlement in the US

	GINI					
	(1)	(2)	(3)	(4)	(5)	(6)
Ancestral migratory distance from East Africa	-0.047*** (0.013)		-0.061*** (0.013)	-0.053*** (0.014)		-0.053*** (0.014)
Ancestral European descent		-0.014** (0.0064)	-0.022*** (0.0063)			
Early settlers					-0.0088** (0.0041)	-0.0097*** (0.0037)
Dep. var. mean	0.43	0.43	0.43	0.43	0.43	0.43
Individuals	3558977	3558977	3558977	3414597	3414597	3414597
Demographic bins	819	819	819	837	837	837
Ancestral homelands	99	99	99	101	101	101
Adjusted R^2	0.53	0.52	0.54	0.53	0.51	0.53

Notes: This table establishes that the impact of ancestral diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on inequality is not governed by the impact of the descendants of ancestral homelands which accounted for a significant share of the US population in 1850 (e.g., descendants of Ireland, Germany, United Kingdom) or by the impact of populations of European descent, as captured by the share of European population in each ancestral homeland. All specifications accounts for sex and age-group fixed-effects. The unit of observation is a demographic bin. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

It should be noted that although: early settlers and populations of European decent are characterized by lower income inequality, they do not have a qualitative effect on the impact on the effect of diversity on inequality.

Table C.9. Ancestral Diversity & Inequality: Robustness to Exclusion of Africa

	GINI	TOP 1%	TOP 5%	TOP 10%
	(1)	(2)	(3)	(4)
Ancestral migratory distance from East Africa	-0.044*** (0.013)	-0.012*** (0.0040)	-0.037*** (0.0087)	-0.045*** (0.014)
Dep. var. mean	0.43	0.062	0.19	0.30
Individuals	3561618	3549000	3560774	3561618
Demographic bins	793	515	732	793
Ancestral homelands	93	68	86	93
Adjusted R^2	0.55	0.14	0.22	0.27

Notes: This table establishes that the impact of ancestral diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on inequality is unaffected by the removal of individuals whose ancestral homelands are in Africa. All specifications accounts for sex and age-group fixed-effects. The unit of observation is a demographic bin. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

Table C.10. Robustness to Conley's Spatial Correlation.

	GINI		TOP 1%		TOP 5%		TOP 10%	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ancestral migratory distance from East Africa	-0.047*** (0.013)	-0.060*** (0.017)	-0.012*** (0.0042)	-0.014*** (0.0055)	-0.039*** (0.0095)	-0.042*** (0.011)	-0.046*** (0.015)	-0.056*** (0.016)
All exogenous controls	no	yes	no	yes	no	yes	no	yes
Dep. var. mean	0.43	0.43	0.061	0.061	0.19	0.19	0.30	0.30
Individuals	3564261	3564261	3550387	3550387	3563182	3563182	3564261	3564261
Demographic bins	847	847	526	526	769	769	847	847
Ancestral homelands	102	102	71	71	93	93	102	102

Notes: This table establishes that the impact of ancestral diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on inequality remains significant if spatial autocorrelation across ancestral homelands are accounted for using the Conley's method. All specifications accounts for sex and age-group fixed-effects. Conley standard errors (500 km cutoff) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

Table C.11. Repeated Cross Section Analysis: Robustness to Exclusion of any Decade

Exclude:	GINI				
	1980	1990	2000	2010	2020
	(1)	(2)	(3)	(4)	(5)
Ancestral migratory distance from East Africa	-0.032*** (0.0088)	-0.034*** (0.0092)	-0.030*** (0.0097)	-0.024** (0.010)	-0.025** (0.010)
Dep. var. mean	0.43	0.42	0.42	0.41	0.41
Individuals	13231847	12850357	13384063	12889618	13459631
Demographic bins	3282	3234	3151	3072	2937
Ancestral homelands	119	123	123	123	106
Adjusted R^2	0.54	0.54	0.55	0.55	0.58

Notes: This table establishes that the impact of ancestral diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on inequality as measured by the Gini Index is not driven by any particular decade and it remains stable and significant if any of the decades is removed from the analysis. All specifications accounts for sex and age-group fixed-effects. The unit of observation is a demographic bin. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level.* Significant at the 10 percent level.

Table C.12. Occupational Dispersion as a Potential Mediating Channel

	DISPERSION IN		
	GINI	OCCUPATION	GINI
	(1)	(2)	(3)
Ancestral migratory distance from East Africa	-0.047*** (0.013)	-0.0093 (0.011)	-0.046*** (0.013)
Dispersion in Occupation			0.10 (0.10)
Dep. var. mean	0.43	0.96	0.43
Individuals	3564261	3564261	3564261
Demographic bins	847	847	847
Ancestral homelands	102	102	102
Adjusted R^2	0.53	0.054	0.53

Notes: This table establishes that the impact of ancestral diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on inequality is neither mediated nor unaffected by occupational dispersion. All specifications accounts for sex and age-group fixed-effects. The unit of observation is a demographic bin. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level.* Significant at the 10 percent level.

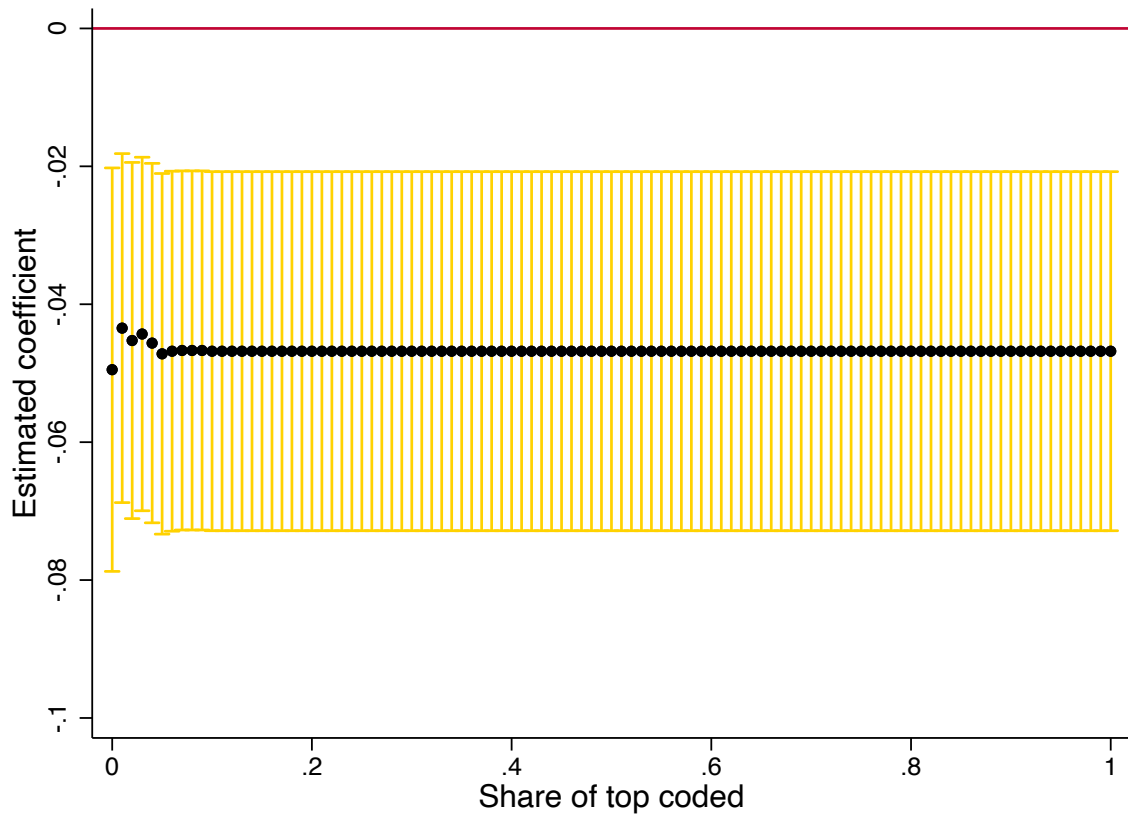


Figure C.1. The Effect of Migratory Distance from East Africa on Inequality as the Share of Top-Coded Individuals in the Demographic Bin Varies from 0 to 100%

Notes: This figure depicts the changes in estimated coefficient and the 95% confidence intervals in our baseline specification, as we restrict the set of demographic bins to include a maximal share of top-coded individuals that varies from 0 to 100%.

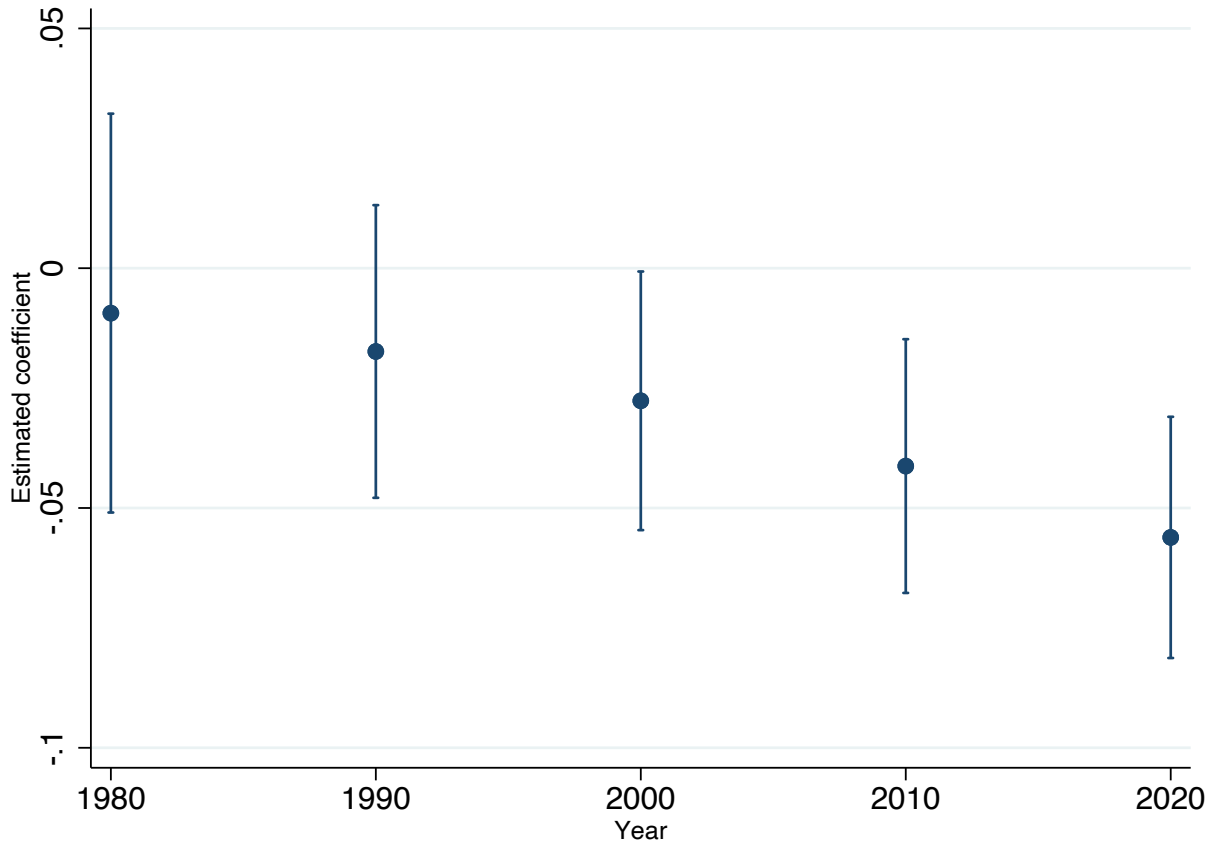


Figure C.2. The Impact Migratory Distance from East Africa on Income Inequality Among US Inhabitants By Decade.

Notes: This figure depicts the association between ancestral diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa (measured in units of 20K km) and inequality across groups of individuals in the United States originated from the same ancestral background by decade using the common sample of ancestries across all decades.

Appendix D - Structure of the Demographic Bins

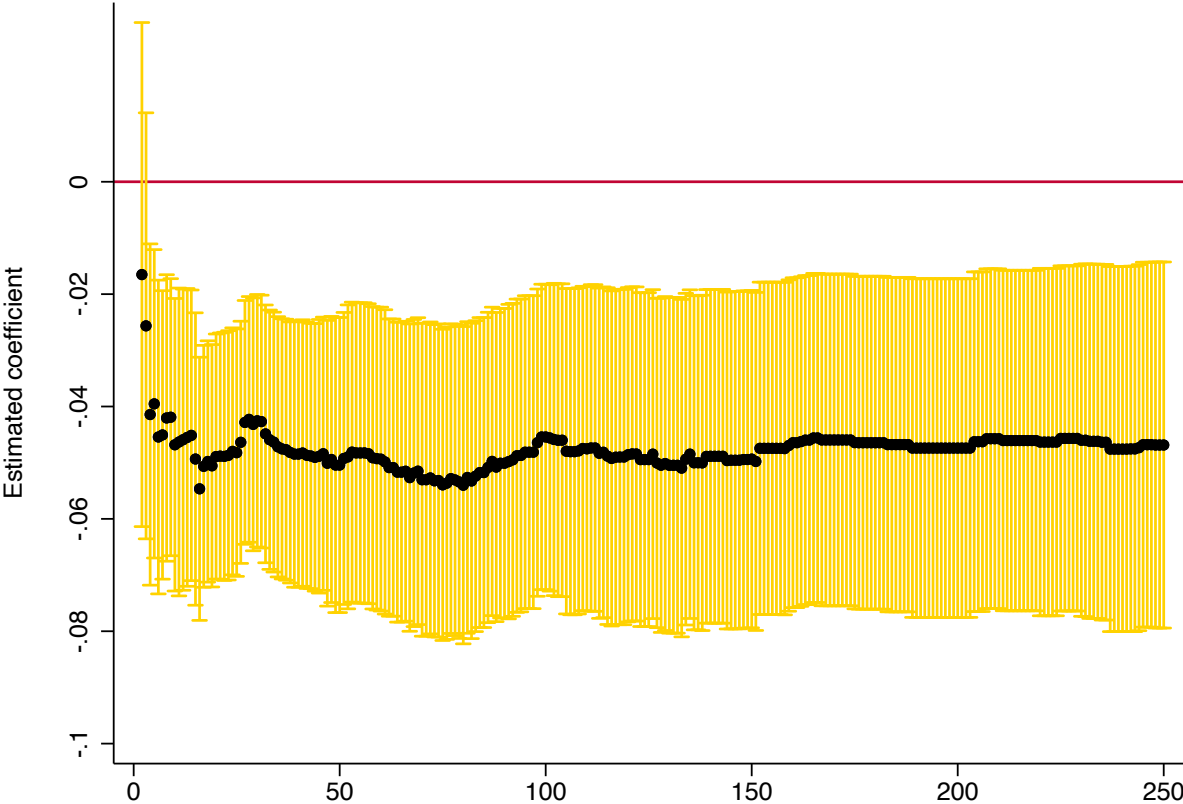


Figure D.1. Robustness to Minimum Size of Demographic Bins

Notes: This figure depicts the changes in estimated coefficient in our baseline specification, as we restrict the sample to demographic bins to include a minimum bin size and varying level from 2 to 250.

Appendix E - Accounting for Ancestral Inequality & Institutions

Table E.1 explores the effect of ancestral inequality on the Gini index in each demographic bin in the US, accounting for the ancestral inequality, as proxied by: (i) the Gini index and (ii) ancestral ethnic inequality. The results indicate that the estimated effects of ancestral inequality are insignificantly different than zero, and even slightly negative (Column (2) and (4)). Ancestral inequality therefore does not appear to persist. The finding further suggests that the estimated impact of the migration from Africa on inequality does not capture the impact of the persistence of ancestral inequality (Column (3) and (6)).

Table E.1. Accounting for Ancestral Inequality

	GINI					
	(1)	(2)	(3)	(4)	(5)	(6)
Ancestral migratory distance from East Africa	-0.065*** (0.016)		-0.076*** (0.020)	-0.056*** (0.014)		-0.061*** (0.015)
Ancestral Gini (1980-1999)		-0.061* (0.031)	0.029 (0.033)			
Ancestral ethnic inequality					-0.0029 (0.013)	0.012 (0.013)
Dep. var. mean	0.44	0.44	0.44	0.43	0.43	0.43
Individuals	3092175	3092175	3092175	3375173	3375173	3375173
Demographic bins	556	556	556	799	799	799
Ancestral homelands	66	66	66	95	95	95
Adjusted R^2	0.51	0.49	0.51	0.53	0.52	0.53

Notes: This table establishes that the impact of ancestral diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on inequality, as measured by the Gini Index, is unaffected by ancestral inequality, as captured by ancestral Gini over the period 1980-1999 (Columns (2)-(3)), and ancestral ethnic inequality (Columns (5)-(6)). All specifications accounts for sex and age-group fixed-effects. The unit of observation is a demographic bin. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level.* Significant at the 10 percent level.

Table E.2. Institutions

	GINI					
	(1)	(2)	(3)	(4)	(5)	(6)
Ancestral migratory distance from East Africa	-0.053*** (0.014)		-0.053*** (0.014)	-0.055*** (0.016)		-0.055*** (0.016)
Ancestral jurisdictional hierarchy		0.0071 (0.0051)	0.0070 (0.0049)			
Ancestral polity score (1900)					-0.0072** (0.0033)	-0.0072*** (0.0024)
Dep. var. mean	0.43	0.43	0.43	0.43	0.43	0.43
Individuals	3409984	3409984	3409984	2573459	2573459	2573459
Demographic bins	819	819	819	437	437	437
Ancestral homelands	99	99	99	49	49	49
Adjusted R^2	0.53	0.52	0.53	0.57	0.56	0.58

Notes: This table establishes that the impact of ancestral diversity (predicted by the ancestry adjusted prehistoric migratory distance from the cradle of humanity in Africa to the ancestral homelands of the US population) on the Gini Index is unaffected qualitatively by ancestral institutions, as captured by: (i) ancestral jurisdictional hierarchy (Columns (2)-(3)), and (ii) the ancestral polity score in 1900 (Column (5)-(6)). All specifications accounts for sex and age-group fixed-effects. The unit of observation is a demographic bin. Heteroskedasticity-robust standard errors (clustered at the ancestral origins of the bin) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level.* Significant at the 10 percent level.

Appendix F - Native Americans' Sample

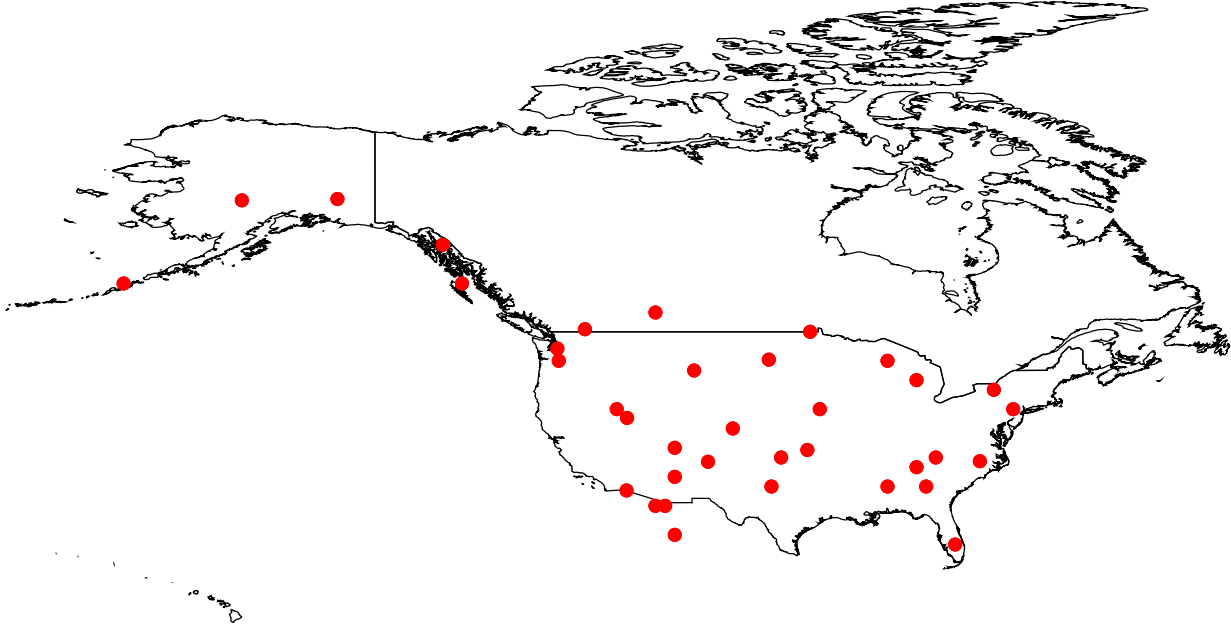
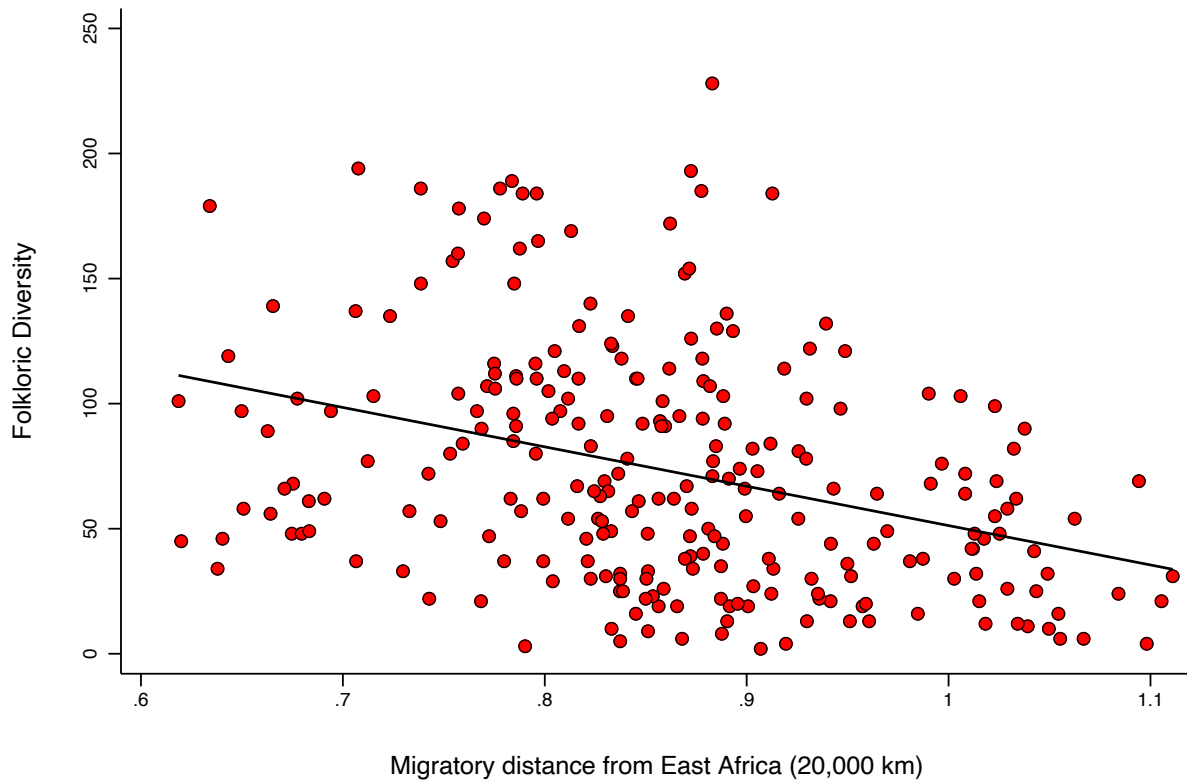


Figure F.1. Locations of Native-American Tribes.

Notes: This figure depicts the locations of the ancestral Native-American tribes in Table 10.



Slope coefficient = -157.428; (robust) standard error = 23.744; t-statistic = -6.630; observations = 250

Figure F.2. Declining Diversity along the Migratory Routes out-of-Africa in North America.

Notes: This figure presents the reduction in population diversity among indigenous populations in North America at greater migratory distances from Africa. In particular, it depicts the scatterplot of the association between the prehistoric migratory distance from East Africa and folkloric diversity across 250 ethnic groups in North America (Galor, Klemp and Wainstock, 2023a).