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ABSTRACT

Roots of Cultural Diversity

This study reveals the pivotal impact of the prehistoric out-of-Africa migration on global variation in the degree of cultural diversity within ethnic and national populations. Drawing on novel diversity measures—encompassing folkloric and musical traditions among indigenous ethnic groups, as well as norms, values, and attitudes in modern societies—an intriguing pattern emerges: societies whose ancestors migrated farther from humanity's cradle in Africa exhibit lower cultural diversity. These striking findings underscore: (i) the profound role of cultural dynamics in shaping the enduring effects of the out-of-Africa migration on social cohesion, innovativeness, and living standards; (ii) the origins of persistent global variations in cultural expressions within an increasingly interconnected world; and (iii) the roots of variations in societal adaptability to evolving economic and technological landscapes.

JEL Classification: O10, Z10

Keywords: diversity, culture, out-of-africa, folkloric diversity, musical diversity, social norms

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1 Introduction

What forces have driven the substantial global disparity in the degree of cultural diversity within ethnic groups? Why are some societies significantly more diverse than others? Conventional wisdom attributes these variations to three primary factors: the differential impact of educational and political institutions on fostering social cohesion and a shared national identity; the prevalence of conformism, often rooted in geographical, environmental, and institutional heritage; and the extent of cultural fusion driven by global integration.

This research advances the hypothesis that the prehistoric exodus of Homo sapiens from Africa significantly shaped the heterogeneity in cultural diversity across the world. The prehistoric dispersal of humankind from Africa, tens of thousands of years ago, marks one of the most momentous chapters in human history, laying the foundation for the development of human societies across the globe. In this gradual, stepwise expansion, subgroups of individuals left their original communities to establish new colonies farther away, retaining only a fraction of the traits that existed in their ancestral population. Intriguingly, the sequential nature of this migration led to reduced genetic and phenotypic diversity among indigenous populations that settled at greater migratory distance from the cradle of humanity in Africa.[1]

Drawing on the observed patterns of human migration and their biological repercussions, we hypothesize that this process profoundly influenced cultural evolution, setting the stage for the development of narrower spectra of cultural traits in societies farther from the cradle of humanity in Africa. The diminished range of biological traits along the migratory routes limited societal capacity to adapt to environmental and social challenges, constrained the potential for cultural innovation and expression, and ultimately reduced cultural diversity.[2]

The proposed theory is tested empirically using four distinct datasets, incorporating novel measures of cultural diversity among indigenous ethnic groups, along with metrics of dispersion in cultural norms, values, and attitudes within modern national societies. The initial analysis of ethnic groups allows for a direct qualitative com-

[1] *This 'Serial Founder Effect'* is well documented (e.g., Manica et al. (2007), von Cramon-Taubadel and Lycett (2008), Hanihara (2008), Betti et al. (2009), Atkinson (2011), Betti et al. (2013), Pemberton et al. (2013) Betti and Manica (2018), Ashraf et al. (2021).

[2] Henrich (2016) and Muthukrishna and Henrich (2016) explore the role of cognitive diversity and collective processes in fostering cultural adaptation and innovations, while Boyd and Richerson (2005) provide complementary perspectives on the mechanisms underpinning cultural evolution.

parison between the impact of the out-of-Africa migration on genetic and cultural diversity, maintaining a unified empirical framework. In contrast, the subsequent analysis of cultural diversity among individuals in contemporary nations explores the persistence of these effects in multiethnic national societies that emerged in the wake of the massive migratory flows in the post-1500 era as well as during the nation-building processes.

Intriguingly, the impact of the out-of-Africa migration on cultural diversity in this sample of indigenous societies mirrors its impact on genetic diversity. Ethnic groups residing farther from the cradle of humanity in Africa exhibit lower folkloric and musical diversity. Analogous to the negative association with genetic diversity, this pattern prevails both within and across continents and remains qualitatively unchanged when accounting for a range of potentially confounding geographical factors. Notably, the findings are remarkably robust, withstanding alternative estimation methods, and accounting for various regional fixed effects and ethnographic characteristics that could have influenced the emergence of cultural diversity, such as the degree of political centralization, class stratification, community size, and religious predisposition. The impact of the prehistoric migratory distance from East Africa on cultural diversity among indigenous ethnic groups is substantial. An ethnic group located 10,000 km farther from the cradle of humanity in Africa has 59 fewer motifs and 10 fewer musical features compared to the mean levels of 87 motifs and 76 musical features.

The second layer of the empirical analysis examines the association between migratory distances from the cradle of humanity in Africa and the contemporary dispersion of cultural norms, values, and attitudes among: (i) individuals within each country, and (ii) second-generation migrants who originated from the same modern national homelands.[3] The analysis first establishes that lower cultural diversity, as reflected in the lower dispersion of responses to survey questions conducted by the World Values Survey (WVS), is prevalent among individuals within countries whose ancestral populations resided farther from the cradle of humanity in Africa. Mirroring the findings from the ethnic group analysis, this pattern is observed within and across continents and remains robust with the inclusion of potentially confounding ancestral geographical factors. Moreover, it remains qualitatively intact in cross-country

[3] The migratory distance of ethnically heterogeneous national populations from the cradle of humanity in Africa is captured by the weighted average of the migratory distances of each of their ancestral populations, while the migratory distance of second-generation migrants is measured by the migratory distance of their ancestral homeland from East Africa.

comparisons among individuals within each country that are grouped based on age, sex, and education.

Yet, although the examination of the proposed hypothesis within a cross-country framework where institutions and cultural characteristics vary across nations is informative, it may encounter considerable drawbacks. It is evident that population diversity has significantly influenced the development of institutional and cultural traits aimed at mitigating, enhancing, or exploiting the impact of diversity on social cohesiveness, cross-fertilization, and economic prosperity, masking the actual impact of migratory distance from East Africa on cultural diversity.

Accordingly, the impact of the out-of-Africa migration on contemporary cultural diversity could be more reliably assessed by evaluating the dispersion in social norms, values, and attitudes among second-generation migrants who are born and reside in the same host country, but originate from different ancestral homelands. Notably, by design, these groups are exposed to the same economic incentives and political institutions, yet they differ in the migratory distance of their ancestral homelands from the cradle of humanity in Africa. In this refined context, the hypothesis suggests that lower cultural diversity would be prevalent among second-generation migrants whose ancestral homelands consist of individuals whose ancestors resided farther from the cradle of humanity in Africa.[4]

Leveraging variations in the dispersion of responses from second-generation migrants to survey questions conducted by the European Social Survey (ESS), the findings suggest that, in line with the proposed hypothesis, groups of individuals who originated from ancestral homelands farther from the cradle of humanity in Africa exhibit lower dispersion in cultural values. Consistent with the findings from both the ethnic group analysis and the cross-country analysis based on the WVS, this pattern is observed within and across continents and remains qualitatively unaffected by the in-

[4]Although these individuals were born in European host countries, the distribution of their cultural traits may not accurately reflect that of their ancestral homelands due to selective migration in the parental generation. However, selection is highly unlikely to explain the observed pattern. While selection may have influenced the individuals in the parental generation who decided to migrate and consequently, the cultural traits that migrants brought to their European host countries, it is implausible that it led to group selection that *systematically* affected the variance of these traits among the immigrant population. Moreover, for this selection to provide an alternative explanation for the findings, it would need to further result in a very particular and highly improbable group selection, leading to a lower variance of cultural traits among descendants from ancestral homelands farther from East Africa, despite the assumption that there is no association between migratory distance from East Africa and cultural diversity.

clusion of potentially confounding ancestral geographical factors. It also withstands alternative estimation methods and the grouping of individuals based on sex, age, and education. The impact of the prehistoric migratory distance from East Africa on contemporary cultural diversity is sizable. In particular, an increase in adjusted migratory distance from East Africa to an ancestral homeland form the lowest to the highest level in the sample (i.e., a 20,000 km increase) would lower the dispersion in cultural values by 27% relative to its mean level, decreasing the dispersion in cultural values from the 50th to the 29th percentile of the cultural diversity distribution.

The findings demonstrate the pivotal influence of the prehistoric out-of-Africa migration on the intensity of cultural diversity across the globe. Societies—modern nations and indigenous ethnic groups alike—whose ancestral populations migrated farther from the cradle of humanity in Africa tend to exhibit lower levels of cultural diversity. This evidence highlights: (i) the significant role of cultural dynamics in shaping the enduring effects of the out-of-Africa migration on social cohesion, innovativeness, and living standards; (ii) the origins of persistent global variations in cultural expressions within an increasingly interconnected world; and (iii) the roots of differing societal capacities to adapt to rapidly evolving landscapes.

This research underscores the importance of properly conceptualizing cultural diversity. Economists have traditionally focused on the pivotal role of ethnic or linguistic identity in shaping diversity within multi-ethnic societies (Alesina et al., 2003), centering on ethnolinguistic fragmentation rather than the dispersion of traits *within* ethnic or linguistic groups.[5] While identity-based fragmentation may significantly influence social cohesion, it is the internal variation in the manifestation of each trait within society that is essential to our understanding of the mechanisms through which diversity influences social and economic progress, fostering cross-fertilization of ideas and innovation while diminishing social cohesion.

Cultural traits may shape the development process, driving progress or impeding it. However, it is the variation in these traits within a society that has predominantly fostered adaptability, creativity, and resilience. Such dispersion enables societies to draw on a wider range of perspectives, promoting cross-fertilization, complementarities in production, and innovation. This largely overlooked, yet vital, dimension of cultural evolution—the variation in the manifestation of cultural traits, rather than

[5]Contrary to common belief, cultural diversity arises largely from variations within ethnic groups, rather than between them (Desmet et al., 2017).

their societal mean—is central for the understanding of the divergent development trajectories observed across societies.

2 The Out-of-Africa Migration and Genetic Diversity

The prehistoric migration of Homo sapiens was largely characterized by a gradual, stepwise expansion, in which subgroups of individuals left their ancestral settlements to establish new colonies farther away, retaining only a portion of the traits present in their original community. In light of the stepwise nature of this human dispersal, the resulting *Serial Founder Effect* was intrinsically tied to a decline in diversity among populations that settled at a greater migratory distances from the cradle of humanity in Africa, reflecting subsampling, population bottleneck, and limited interbreeding (Figure 1).

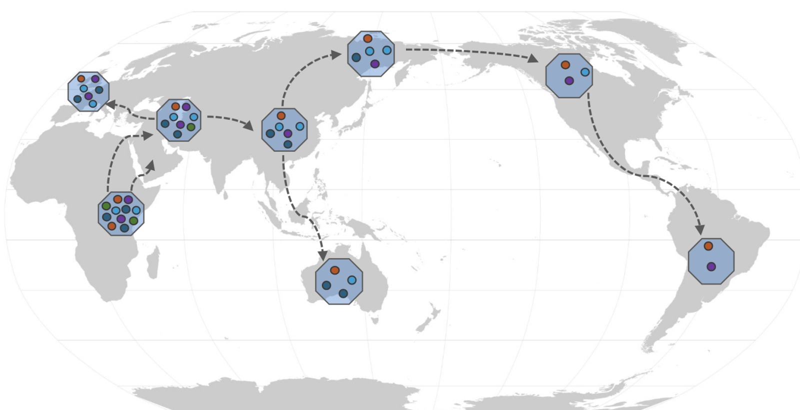


Figure 1: The Serial Founder Effect

Notes: An illustration of the declining diversity along the migratory routes Out-of-Africa.

2.1 The Benchmark Analysis

The most comprehensive and uniform dataset on genetic diversity across the globe consists of 207 distinct ethnic groups, whose worldwide distribution is illustrated in Figure 2. This dataset provides a valuable resource for understanding the profound impact of the migration out of Africa on population diversity.[6]

[6]The original dataset, compiled by Pemberton et al. (2013), includes 267 groups and regions, which are consolidated into 207 distinct indigenous ethnic groups (Arbatlı et al., 2020).

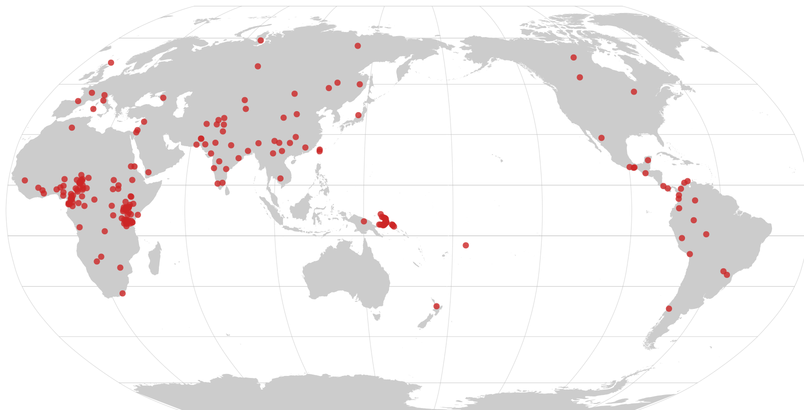


Figure 2: Worldwide Distribution of Indigenous Ethnic Groups – Genetic Diversity

Notes: The figure depicts the locations of the 207 distinct indigenous ethnic groups for which genetic diversity is available, as constructed by Arbatlı et al. (2020), based on (Pemberton et al., 2013).

Consistent with the Out-of-Africa hypothesis and the Serial Founder Effect, a markedly significant negative linear relationship exists between genetic diversity and migratory distance from East Africa (Figure 3).

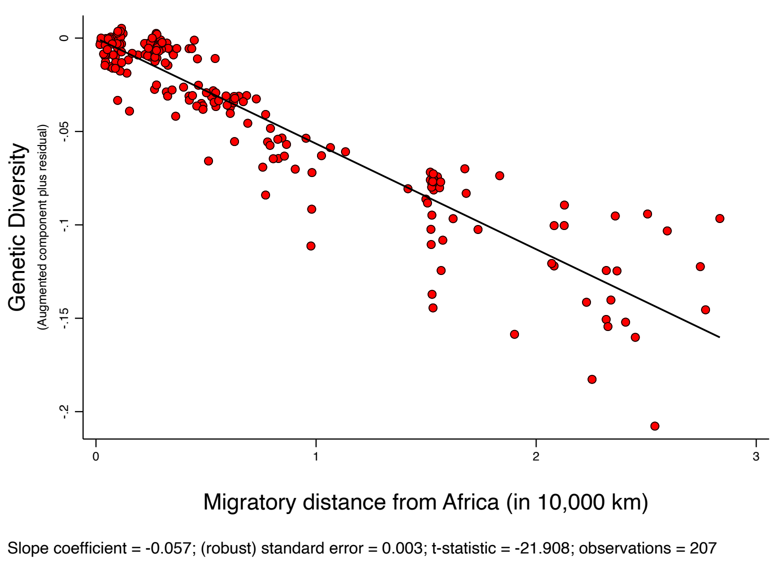


Figure 3: The Out-of-Africa Migration and Genetic Diversity within Indigenous Ethnic Groups: Unconditional Analysis

Notes: The figures presents a scatterplot of the unconditional association between genetic diversity within ethnic groups and their migratory distance from East Africa (Table I, Column(1)).

Nevertheless, the validity of the hypothesis that genetic diversity declines with migratory distance from East Africa hinges on the presence of this pattern both within and across continents. Observable and unobservable continent-specific characteristics, such as geographical factors (e.g., climatic conditions and disease environments) and historical forces (e.g., conflict and colonialism) may have influenced genetic diversity and they could be correlated with migratory distance from East Africa. Therefore, the conventional analysis should incorporate continental fixed effects, isolating within-continent variation when estimating the impact of the out-of-Africa migration on genetic diversity.

Moreover, various geographical characteristics may have influenced genetic diversity in each ethnic homeland. Specifically: (i) absolute distance from the equator and its negative effects on biodiversity and, plausibly, population diversity; (ii) geographical isolation and its tendency to reduce genetic diversity; (iii) the suitability of land for agriculture, its impact on community size (Ashraf and Galor (2011); Galor and Özak (2016)), and the vulnerability to population bottlenecks and genetic drift; and (iv) ecological diversity and its potential effect on intra-group trade and contact (Michalopoulos (2012); Fenske (2014); Dickens (2022)) and, in turn, its plausible impact on genetic flows. As migratory distance from East Africa may be linked to these geographical determinants of genetic diversity, the estimated effect should account for these characteristics to mitigate the impact of omitted variable bias.

Lastly, in line with the traditional view in the out-of-Africa literature, we associate the cradle of humanity with East Africa and thus estimate the impact of migratory distance from East Africa on genetic diversity. Although there is some uncertainty regarding the specific regions within the African continent where humans originated (e.g., Ragsdale et al. (2023)), since humans appear to have dispersed to the rest of the globe via East Africa, different points of origin within the continent would only result in augmenting the distances to all ancestral homelands outside Africa by the same constant, sustaining the qualitative relationship between migratory distance and genetic diversity. However, given the uncertainty about humanity's dispersal patterns within Africa, the estimated effect will be more precise if Africa was excluded from the sample.

2.2 The Augmented Empirical Model

Recognizing the potential limitations of the benchmark analysis, we estimate an augmented linear regression model that examines the effect of migratory distance from East Africa on genetic diversity across ethnic groups, accounting for continental fixed effects and potential geographical confounders. This analysis employs both the most extensive sample of indigenous ethnic groups with documented data on intrapersonal diversity and a subsample excluding ethnic groups from the African continent. Specifically, we estimate the model:

$$GD_e = \alpha + \beta D_e + \gamma Z_e + \delta_c + \epsilon_e.$$

In this model, the baseline dependent variable, GD_e, represents the degree of genetic diversity within ethnic group e. The independent variable, D_e, captures the migratory distance from East Africa to ethnic group e. The term Z_e is a vector of geographical characteristics that may confound the analysis, including absolute latitude, mean caloric suitability, standard deviation in caloric suitability, and a small island dummy. Finally, δ_c is a vector of continent fixed effects.

The analysis is initially conducted on the most extensive sample of indigenous ethnic groups for which documented data on intrapersonal diversity is available. However, given the limitations of using migratory distance from East Africa to accurately predict genetic diversity across ethnic groups within Africa, the impact of the out-of-Africa migration on genetic diversity is subsequently assessed in a restricted sample that excludes African ethnic groups. This approach reduces inaccuracies in measuring migratory distances from humanity's actual cradle, providing a more accurate estimate of the effect of the migration Out-of-Africa on genetic diversity.

2.3 Findings

The findings suggest that the prehistoric dispersal of humans Out-of-Africa had a significant impact on the global distribution of genetic diversity. Greater migratory distances from the cradle of humanity corresponded to lower levels of genetic diversity both within and across continents, and this impact remains qualitatively unaltered by potential geographical confounders. Furthermore, as conjectured, the effect is more pronounced when African ethnic groups are excluded from the analysis, thereby reducing measurement error associated with their estimated migratory distance from the cradle of humanity.

Table I: The Out-of-Africa Migration and Genetic Diversity within Indigenous Ethnic Groups

	Genetic Diversity			
	(1)	(2)	(3)	(4)
Migratory distance	−0.057***	−0.039***	−0.050***	−0.061***
from the cradle of humanity	(0.0026)	(0.0081)	(0.010)	(0.014)
Continent FE		✓	✓	✓
Geographical controls			✓	✓
Exclusion of Africa				✓
Dep. var. mean	0.72	0.72	0.72	0.69
Observations	207	207	207	106
Adjusted R^2	0.86	0.88	0.88	0.74

Notes: The table demonstrates a significant negative effect of migratory distance from East Africa on genetic diversity among indigenous ethnic groups. Migratory distance is measured in units of 10,000 km. Genetic diversity is defined as the expected heterozygosity, which reflects the probability that two individuals, selected at random from the relevant population, will differ with respect to a given spectrum of genetic traits. The geographical controls include absolute latitude, ecological diversity, caloric suitability, and a small island dummy. Heteroskedasticity robust standard errors are reported in parentheses. *** Significant at the 1 percent level.

Table I presents the results. Column (1) reveals a highly significant, unconditional negative association between migratory distance from East Africa and genetic diversity, as depicted in Figure 4. Column (2) establishes that the impact of the prehistoric migration out-of-Africa on genetic diversity also operated within continents. Column (3) demonstrates that accounting for various potentially confounding geographical factors—absolute latitude, ecological diversity, caloric suitability, and a small island dummy—does not alter the qualitative impact or statistical significance of migratory distance from East Africa on genetic diversity. Finally, consistent with the uncertainty surrounding the exact origin of humans within Africa, Column (4) shows that the estimated effect of migratory distance on genetic diversity increases when African ethnic groups are excluded from the analysis, leading to a reduction in measurement errors (Figure 4).[7]

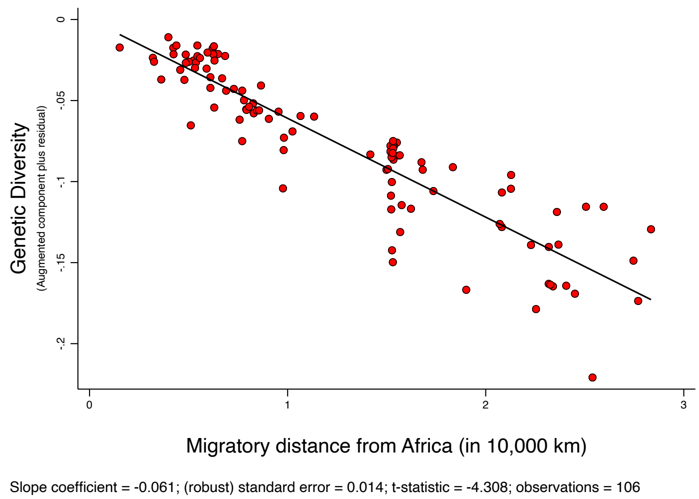


Figure 4: The Out-of-Africa Migration and Genetic Diversity within Indigenous Ethnic Groups: Excluding Africa

Notes: The figures presents a scatterplot of the association between genetic diversity and migratory distance from East Africa across ethnic groups (Table I, Column(4)).

The findings suggest that the prehistoric dispersal of humans Out-of-Africa reduced genetic diversity among indigenous populations with greater migratory distance from the cradle of humanity. Yet, did this process only impact genetic and phenotypic diversity, or did it further set the stage for a dual process that diminished cultural diversity along these migratory routes?

[7]These baseline findings about the impact of the out-of-Africa migration on genetic diversity are remarkably robust. They withstand the use of various alternative regional fixed effects (e.g., viewing Asia and Europe as a single region or including North Africa in the Old World) (Table A.6). Furthermore, it is highly improbable that omitted variables could have affected the qualitative results. In particular, as established in Table A.9, based on Oster (2019)'s methodology, if unobservables were as correlated with the dependent variables as the observables, the predicted effects of migratory distance from East Africa on genetic diversity would be qualitatively similar to the baseline estimates.

3 The Out-of-Africa Migration and Cultural Diversity within Indigenous Ethnic Groups

The proposed hypothesis suggests that lower cultural diversity would be prevalent among indigenous ethnic groups farther from the cradle of humanity in Africa. In the absence of surveys on the social norms, values, and attitudes of ethnic groups in pre-industrial times, the first layer of the empirical examination of this thesis analyzes variations in folkloric and musical diversity across nearly a thousand widely dispersed indigenous ethnic groups worldwide.

3.1 Data

We introduce two measures of cultural diversity across ethnic groups, drawing on (i) Berezkin's Folklore and Mythology Catalogue, which compiles data on traditional stories and categorizes them by motifs (Berezkin, 2015), and (ii) Lomax's Cantometrics, which collects recordings of traditional songs and classifies them based on musical features (Lomax, 1962).

3.1.1 Folkloric Diversity

The proposed measure of folkloric diversity is based on the monumental work of anthropologist and folklorist Yuri Berezkin, who has dedicated his career to compiling and classifying folkloric motifs for indigenous ethnic groups across world regions (Figure 5). These motifs, as categorized in his *Folklore and Mythology Catalogue*, capture significant events, experiences, and images rooted in the histories of these groups.[8]

Berezkin's consistent classification methodology permits the assessment of the imprint of the out-of-Africa migration on the diversity of narratives within indigenous societies worldwide. In particular, the total number of distinct motifs formed in the course of the history of each indigenous ethnic group naturally captures an important dimension of the degree of cultural diversity within that group.

[8] Motifs are shared by several distinct oral traditions.

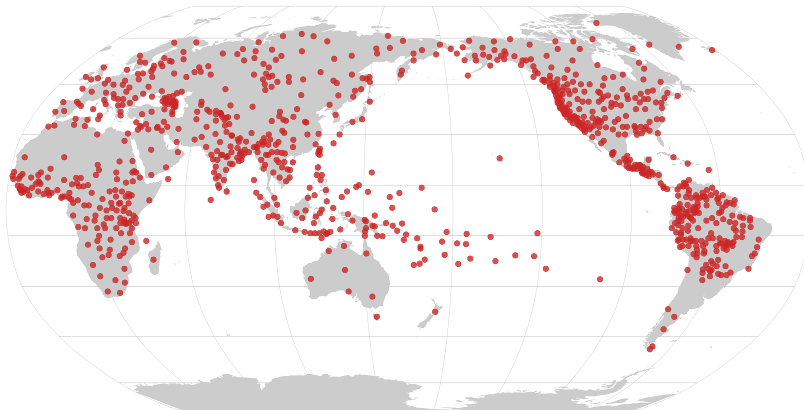


Figure 5: Worldwide Distribution of Indigenous Ethnic Groups – Folklore

Notes: The figure depicts the locations of the 958 indigenous ethnic groups surveyed in Berezkin's Folklore and Mythology Catalogue.

3.1.2 Musical Diversity

The proposed measure of musical diversity draws on the pioneering work of the ethnomusicologist Alan Lomax, who made a groundbreaking classification of musical features through a systematic analysis of traditional songs from a wide range of indigenous ethnic groups around the globe (Figure 6). These musical features, as classified in his *Cantometrics*, capture fundamental dimensions such as vocal quality, melodic structure, and rhythmic patterns.[9]

Lomax's systematic classification methodology permits the assessment of the impact of the out-of-Africa migration on musical diversity within indigenous societies worldwide. Specifically, the total number of distinct musical features in each indigenous ethnic group captures an important dimension of cultural diversity within that group.

[9]Musical features are shared by several distinct musical traditions.

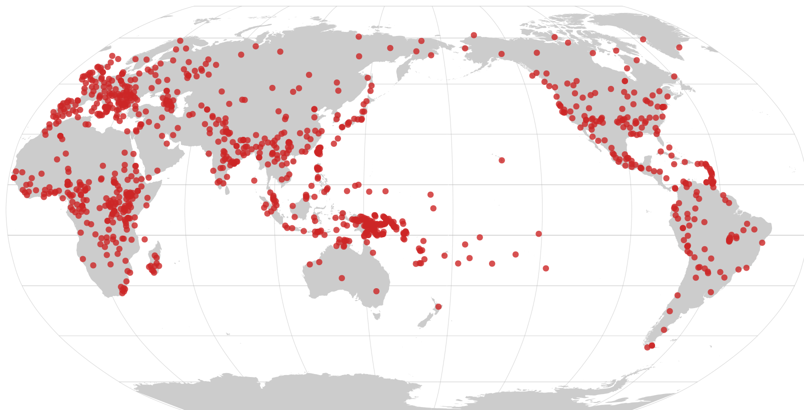


Figure 6: Worldwide Distribution of Indigenous Ethnic Groups – Music

Notes: The figure depicts the locations of the 936 indigenous ethnic groups surveyed in Lomax's Cantometrics.

3.2 Empirical Strategy

Since neither folkloric nor musical diversity influenced the migratory distance out of Africa for ethnic groups tens of thousands of years ago, our empirical strategy is immune to concerns about reverse causality. However, if migratory distance out of Africa is correlated with geographical determinants of cultural diversity, our analysis could still face challenges of omitted variable bias.

We mitigate this concern by incorporating a range of potentially confounding geographical characteristics that may have influenced cultural diversity. We demonstrate that the estimated effect remains intact qualitatively once we account for: (i) ecological diversity and its potential role as a source of inspiration for cultural expression, as well as its impact on trade and intra-group contact, which, in turn, might have plausibly shaped cultural flows; (ii) absolute distance from the equator and its negative effect on biodiversity; (iii) geographical isolation, which tends to reduce both biodiversity and cultural diversity; and (iv) land suitability for agriculture, affecting population density and community size, and, in turn, the creation and diffusion of motifs and musical features.

Additionally, observable and unobservable continent-specific characteristics, such as geographical factors (e.g., climatic conditions and disease environments) and historical forces (e.g., conflict and colonialism), may have influenced cultural diversity and could be correlated with migratory distance from East Africa. Uneven research into traditional stories and songs across regions and continents may also have affected observed cultural diversity. However, the estimated effect remains intact qualitatively once we account for continent-specific fixed effects, isolate intra-continental differences, and leverage the variation within continents to estimate the impact of the out-of-Africa migration on cultural diversity.

3.3 Empirical Model

In line with the proposed hypothesis, we estimate a linear regression model to examine the effect of migratory distance from East Africa on cultural diversity across ethnic groups, accounting for continental fixed effects and potential geographical confounders. This analysis utilizes the most extensive sample of indigenous ethnic groups with documented data on folkloric and musical diversity, as well as a subsample that excludes ethnic groups from the African continent.[10] Specifically, we estimate the model:[11]

$$CD_e = \alpha + \beta D_e + \gamma Z_e + \delta_c + \epsilon_e$$

where the baseline dependent variable CD_e represents the degree of cultural diversity for ethnic group e, measured as either folkloric or musical diversity. The independent variable D_e reflects the migratory distance from East Africa to ethnic group e, Z_e is a vector of confounding geographical characteristics, including absolute latitude, mean caloric suitability, standard deviation in caloric suitability, and a small island dummy, while δ_c is a vector of continent fixed effects.[12] The coefficient of interest, β, is expected to be negative.

[10] As elaborated in Section 2.1, given the uncertainty surrounding the exact origins of humans within the African continent, we estimate the effect both including and excluding ethnic groups within Africa.

[11] The distribution of the total number of motifs across indigenous ethnic groups is highly skewed, as shown in Table A.2. Half of the groups have fewer than 62 motifs, while the top 1% have more than 450 motifs. Due to this skewness, the baseline estimation of the impact of the prehistoric out-of-Africa migration on folkloric diversity uses a logarithmic transformation of the number of motifs. For comparability of the analysis across samples, the same transformation is applied to musical diversity. The removal of the logarithmic transformation has no qualitative implications for the results as shown in Table A.4.

[12] We also include the log of the number of songs sampled from ethnic group e, given the strong correlation between musical diversity and the number of songs sampled by Lomax.

3.4 Main Findings

The findings suggest that the prehistoric dispersal of humans out-of-Africa had a significant impact on the global distribution of cultural diversity within ethnic groups. Greater migratory distances from the cradle of humanity corresponded to lower levels of folkloric and musical diversity both within and across continents, and this impact remains unaffected by potential geographical confounders. Furthermore, as conjectured, the effect is more pronounced when African ethnic groups are excluded from the analysis, reducing measurement error related to their estimated migratory distance from the cradle of humanity.

3.4.1 Folkloric Diversity

Table II reports the results of the impact of the out-of-Africa migration on folkloric diversity, as depicted in Figure 7. The estimates in Column (1) reveal a highly significant, unconditional negative association between the out-of-Africa migration and folkloric diversity. Column (2) establishes that the impact of the prehistoric migration out-of-Africa on folkloric diversity also operates within continents. Column (3) demonstrates that accounting for various potentially confounding geographical factors—such as absolute latitude, ecological diversity, caloric suitability, and a small island dummy—does not alter the qualitative impact or statistical significance of migratory distance from East Africa on folkloric diversity.[13] Finally, consistent with the uncertainty surrounding the exact origin of humans within Africa, Column (4) shows that the estimated effect of migratory distance on folkloric diversity increases in absolute value and becomes more statistically significant when African ethnic groups are excluded from the analysis, leading to a reduction in measurement errors.

[13] The reduction in the magnitude of the point estimate by about 25% suggests that indeed migratory distance is correlated with geographical determinants of cultural diversity.

Table II: The Out-of-Africa Migration and Folkloric Diversity within Indigenous Ethnic Groups

	Folkloric Diversity			
	(1)	(2)	(3)	(4)
Migratory distance	−0.18***	−0.58***	−0.45***	−0.62***
from the cradle of humanity	(0.043)	(0.15)	(0.16)	(0.17)
Continent FE		✓	✓	✓
Geographical controls			✓	✓
Exclusion of Africa				✓
Dep. var. mean	87	87	87	93
Observations	958	958	956	813
Adjusted R^2	0.018	0.20	0.24	0.24

Notes: The table demonstrates a significant negative association between migratory distance from East Africa and folkloric diversity among indigenous ethnic groups. Migratory distance is measured in units of 10,000 km. Folkloric diversity is defined as the log number of motifs. The geographical controls include absolute latitude, ecological diversity, caloric suitability, and a small island dummy. As caloric suitability is not reported for the Polynesian islands of Kapingamarangi and Ulithi, the number of observations in Column (3) is reduced to 956. Heteroskedasticity robust standard errors are reported in parentheses. *** Significant at the 1 percent level.

The impact of an increase in prehistoric migratory distance from East Africa on folkloric diversity is substantial. Specifically, a 10,000 km increase in migratory distance from East Africa to a given ethnic group (equivalent to the distance between the Inupiat at the Bering Strait and the Kuna in Colombia) is associated with 59 fewer motifs, compared to the mean level of 87 motifs per ethnic group.

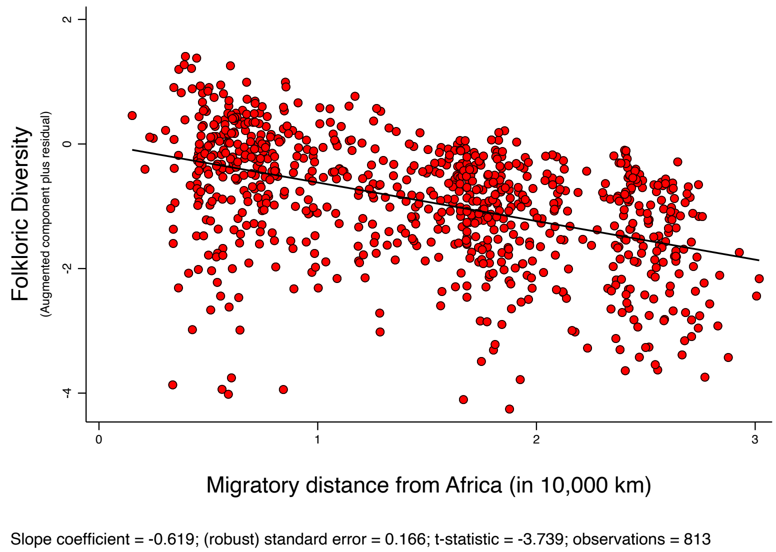


Figure 7: The Out-of-Africa Migration and Folkloric Diversity within Indigenous Ethnic Groups

Notes: The figure presents a scatterplot of the association between folkloric diversity and migratory distance from East Africa among indigenous ethnic groups (Table II, Column (4)). A non-parametric test (Lind and Mehlum, 2010) suggests that this relationship is not hump-shaped.

3.4.2 Musical Diversity

Table III reports the results of the impact of the out-of-Africa migration on musical diversity, as depicted in Figure 8. The estimates in Column (1) reveal a highly significant, unconditional negative association between the out-of-Africa migration and musical diversity. Column (2) demonstrates that the impact of the prehistoric migration out-of-Africa on musical diversity is also evident within continents. Column (3) demonstrates that accounting for various potentially confounding geographical factors—such as absolute latitude, ecological diversity, caloric suitability, and a small island dummy—does not alter the qualitative impact or statistical significance of migratory distance from East Africa on musical diversity. Lastly, consistent with the uncertainty surrounding the exact origin of humans within Africa, Column (4) shows that the estimated effect of migratory distance on musical diversity increases in absolute value and becomes more statistically significant when African ethnic groups are excluded from the analysis, leading to a reduction in measurement errors.

Table III: The Out-of-Africa Migration and Musical Diversity within Indigenous Ethnic Groups

	Musical Diversity			
	(1)	(2)	(3)	(4)
Migratory distance	−0.020***	−0.071***	−0.077***	−0.12***
from the cradle of humanity	(0.0075)	(0.025)	(0.026)	(0.027)
Continent FE		✓	✓	✓
Geographical controls			✓	✓
Exclusion of Africa				✓
Dep. var. mean	79	79	79	79
Observations	825	825	824	630
Adjusted R^2	0.89	0.90	0.90	0.90

Notes: The table demonstrates a significant negative association between migratory distance from East Africa and musical diversity among indigenous ethnic groups. Migratory distance is measured in units of 10,000 km. Musical diversity is defined as the log number of musical features. The geographical controls include absolute latitude, ecological diversity, caloric suitability, and a small island dummy. As caloric suitability is not reported for the Polynesian island of Ulithi, the number of observations in Column (3) is reduced to 824. Heteroskedasticity robust standard errors are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level.

The impact of an increase in the prehistoric migratory distance from East Africa on musical diversity is pronounced. In particular, a 10,000 km increase in migratory distance from East Africa to a given ethnic group (which corresponds to the migratory distance between the Inupiat in Alaska and the Warao in Guyana) is associated with 10 fewer distinct musical features compared to the mean level of 76 musical features per ethnic group.

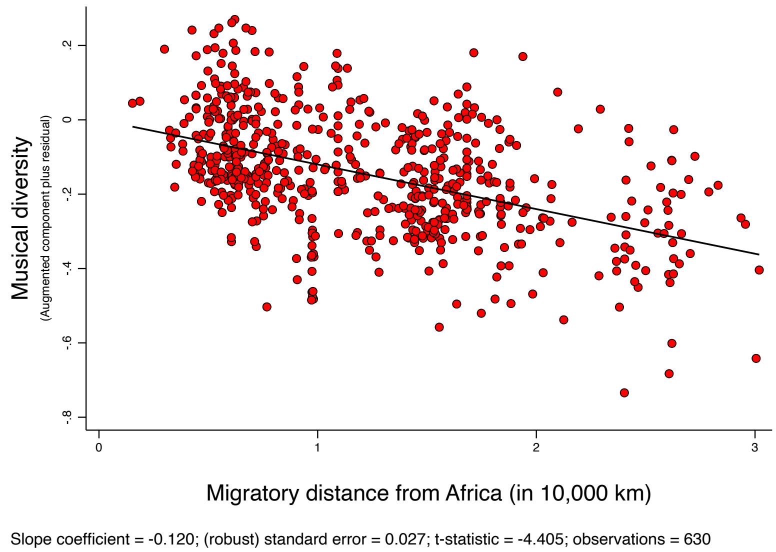


Figure 8: The Out-of-Africa Migration and Musical Diversity within Indigenous Ethnic Groups

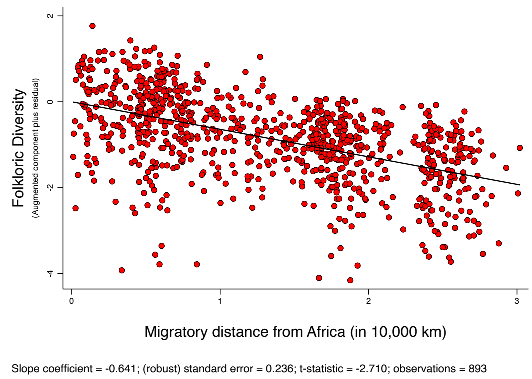
Notes: The figure presents a scatterplot of the association between musical diversity and migratory distance from East Africa among indigenous ethnic groups (Table III, Column (4)). A non-parametric test (Lind and Mehlum, 2010) suggests that this relationship is not hump-shaped.

3.4.3 Robustness Checks and Sensitivity Analyses

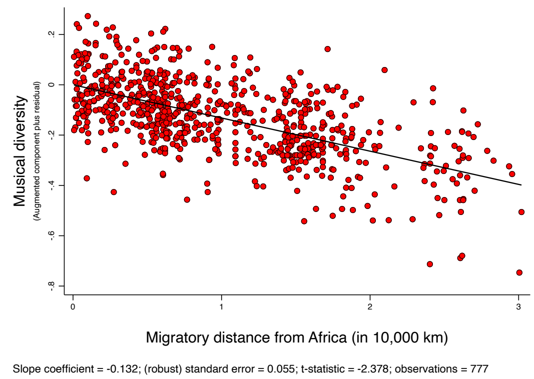
These baseline findings about the impact of the out-of-Africa migration on folkloric and musical diversity are remarkably robust, holding steady across a range of robustness checks and sensitivity analyses: (a) accounting for alternative estimation methods designed for count data and uneven dispersion in the dependent variable (Table A.4); (b) implementing alternative regional fixed effects (e.g., viewing Asia and Europe as a single region, including North Africa in the Old World (Table A.6);[14] (c)

[14] Asia and Europe form a single landmass, as there is no natural barrier significantly hindering the connection between these two continents. In pre-industrial times, there was a substantial flow of people, goods, and ideas between these regions, to the extent that the division between Asia and Europe could be considered somewhat artificial. This is not the case for North America and South America. Although technically connected by the Isthmus of Panama, this land route was virtually insurmountable due to the extreme environmental conditions of the Darien Gap, which connects Colombia to Panama. This, in part, explains why the flow of people, goods, and ideas between North and South America was much less intense than between Asia and Europe. Nevertheless, under our preferred specification with continent fixed effects, geographical controls, and excluding Africa, treating North and South America as a single region would not affect the qualitative impact of the out-of-Africa migration on folkloric and musical diversity.

accounting for ethnographic characteristics that could have influenced the emergence of cultural diversity, such as political centralization, class stratification, the presence of high gods, and the mean size of local communities (Table A.7 and Table A.8), and (d) including country fixed-effects to exploit variation within ethnicities within modern national boundaries (Figure 9).[15]



(a) Folklore



(b) Music

Figure 9: The Out-of-Africa Migration and Cultural Diversity within Indigenous Ethnic Groups: Conditional on Country Fixed-Effects

Notes: The figure presents scatterplots depicting the association between cultural diversity and migratory distance from East Africa among indigenous ethnic groups. Panel (a) displays the scatterplot for folkloric diversity, while Panel (b) shows the scatterplot for musical diversity. Note that the number of observations is reduced compared to the baseline, as singletons—single indigenous ethnic groups in a particular country—are automatically excluded from the analysis when using Stata command *reghdfe*, as their inclusion could lead to incorrect inference (Correia, 2015).

Furthermore, it is highly improbable that omitted variables could have affected the qualitative results. In particular, as established in Table A.9, based on Oster (2019)'s methodology, if unobservables were as correlated with the dependent variables as the observables, the predicted effects of migratory distance from East Africa on folkloric and musical diversity would be qualitatively similar to the baseline estimates.

[15]The impact of spatial correlation among neighboring observations on the precision of our estimated effects of migratory distance from East Africa on cultural diversity is minimal in our context. Societies with similar migratory distances from East Africa are not necessarily geographically proximate. Instead, migration out of Africa unfolded in multiple directions—southward, northward, eastward, and westward—resulting in numerous societies that, despite having comparable migratory distances from East Africa, are separated by thousands of kilometers and can be plausibly considered spatially independent. As shown in Table A.5, accounting for spatial correlation using Conley (1999) has a negligible effect on our results.

4 The Out-of-Africa Migration and Cultural Diversity within Modern Nations

The analysis of indigenous ethnic groups suggests that the prehistoric dispersal of humans out of Africa markedly impacted the global distribution of both cultural and genetic diversity within ethnic groups. Yet, has this influence endured in multiethnic national societies that emerged in the wake of the massive migratory flows in the post-1500 era as well as during the nation-building processes?

The second layer of the empirical analysis thus examines the association between migratory distances from the cradle of humanity in Africa and the contemporary dispersion of cultural norms, values, and attitudes among: (i) individuals within each modern nation, and (ii) groups of European second-generation migrants, originating from the same modern national homelands.

4.1 Data

4.1.1 National Populations Sample

This segment of the empirical analysis leverages variations in the dispersion of social norms, values, and attitudes among individuals within each country to estimate the long-lasting effect of the out-of-Africa migration on contemporary cultural diversity within modern nations, using data from the Integrated World Values Survey-European Values Survey (WVS-EVS) dataset covering 1981 to 2021. This dataset consists of over six hundred thousand individuals from 112 countries worldwide (Figure A.4). To measure cultural diversity, the analysis focuses on the coefficient of variation in responses to survey questions, capturing the dispersion of cultural traits among individuals in each country.[16] Additionally, the migratory distance of these ethnically heterogeneous national populations is quantified by the distance of their ancestral populations from the cradle of humanity in Africa along the migratory routes, accounting for their proportional representation.[17]

[16] Survey questions that are categorical or permit only binary responses do not naturally map to a measure of variation and are therefore excluded from the analysis.

[17] Contemporary populations are mapped to their ancestral homelands as of the year 1500 (Putterman and Weil, 2010). In view of potential measurement errors that could result from this mapping, it is important to note that restricting the analysis to countries whose modern populations are mostly native to their territory has no qualitative impact on the results (Figure A.2).

4.1.2 Second-Generation Migrants Sample

This segment of the empirical analysis leverages variations in the dispersion of social norms, values, and attitudes among European second-generation migrants originating from the same ancestral homeland, using data from the European Social Survey (ESS) covering 2002 to 2022.[18] This dataset consists of over twenty thousand second-generation migrants from 133 ancestral origins (Figure A.5). To measure cultural diversity, the analysis focuses on the coefficient of variation in responses to survey questions, capturing the dispersion of cultural traits among individuals from the same ancestral homeland who reside in the same host country. Additionally, the migratory distance of these groups is quantified by the distance of their ancestral populations from the cradle of humanity in Africa along the migratory routes, accounting for their proportional representation.

4.2 Empirical Strategy

Since contemporary cultural diversity could not have influenced prehistoric migratory distances from East Africa, our analysis is not subject to reverse causality. Nevertheless, to the extent that migratory distance from East Africa is correlated with other ancestral determinants of contemporary cultural diversity, our analysis may still be subject to omitted variable bias.

First, migratory distance from East Africa may be correlated with a range of potentially confounding geographical characteristics that might have influenced cultural diversity. We mitigate this concern by demonstrating that the estimated effect remains intact qualitatively once we account for various ancestral geographical factors that could have plausibly shaped cultural diversity. In particular: (i) absolute distance from the equator and its well-documented negative impact on biodiversity; (ii) ecological diversity and its influence on population diversity; (iii) geographical isolation and its tendency to reduce both biodiversity and cultural diversity; and (iv) land suitability for agriculture and its effect on population density, community size, and, in turn, the creation and diffusion of cultural diversity.

[18] Since cultural transmission tends to be stronger along maternal lineages, the baseline analysis of second-generation migrants uses the mother's country of birth to define ancestry. Notably, the impact of the out-of-Africa migration on contemporary cultural diversity remains unaffected qualitatively when ancestry is instead defined by the father's country of birth (Figure A.3).

Second, migratory distance from East Africa has been shown to lead to a decline in the number of ethnic groups (Galor and Klemp, 2024) and a reduction in the degree of ethnolinguistic fragmentation (Ashraf and Galor, 2013a). Hence, the impact of migratory distance from East Africa on contemporary cultural diversity may have operated through diversity between ethnic groups rather than being dominated by interpersonal diversity in cultural traits within each ethnic group. Considering the confounding effects of ethnic fragmentation, as captured by measures of ethnic fractionalization (Alesina et al., 2003) and ethnolinguistic fractionalization (Desmet et al., 2009), this potential alternative channel appears mute and has no impact on our findings.[19]

Third, post-1500 migration flows have shaped the composition of populations in New World countries and have therefore affected their cultural diversity. These migratory flows may have been motivated by the pre-existing degree of cultural diversity in the host countries. Nevertheless, although the distribution of cultural traits within each ethnic group of a modern nation may not mirror the distribution that existed in its ancestral homeland due to selective migration, it is highly unlikely that selection explains the observed pattern. While selection may have influenced the individuals in the ancestral generation who decided to migrate, and consequently, the cultural traits that those migrants brought to their current host countries, it is highly implausible that it led to group selection that *systematically* affected the variance of these traits among the immigrant population. For this selection to offer an alternative explanation for the findings, it would need to have resulted in a very peculiar and highly improbable group selection, leading to a reduced variance of cultural traits among descendants from ancestral homelands farther from East Africa, despite the assumption that there is no correlation between migratory distance from East Africa and cultural diversity. Not surprisingly, restricting the sample to countries that were not subjected to significant migration has no qualitative impact on the results.

Fourth, variations in cultural diversity across countries may reflect the differential emergence of political and economic institutions designed to exploit, mitigate, or foster the impact of human diversity. Given the highly likely impact of population

[19] While 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, overlooking the importance of interpersonal diversity *within* each ancestral group for the overall level of diversity at the national level.

diversity on the emergence of institutional characteristics,[20] a conclusive empirical examination of the proposed hypothesis would be challenging in a cross-country setting, even in the unlikely scenario where the influence of institutions could be accounted for accurately. Thus, discerning the impact of the out-of-Africa migration on contemporary dispersion in social norms, values, and attitudes may necessitate delving into the origins of variation in cultural diversity among groups of individuals who, although born and residing in the same country, originate from different ancestral homelands. These groups would be exposed to the same economic incentives and political institutions, yet display different levels of ancestral migratory distance from East Africa.

4.3 Cross-Country Analysis

The proposed hypothesis implies that lower dispersion in social norms, values, and attitudes would be prevalent in countries whose ancestral populations resided farther from the cradle of humanity in Africa.

4.3.1 Empirical Model

Following the proposed hypothesis, we estimate a linear regression model to examine the effect of migratory distance from East Africa on cultural diversity among individuals across countries, accounting for continental fixed effects and potential ancestral geographical confounders. This analysis utilizes the most extensive sample of countries covered by the WVS, as well as a subsample excluding the African continent. In particular, we estimate the following linear regression model:

$$CD_{v,c} = \alpha + \beta D_c + \gamma Z_c + \delta_v + \zeta_k + \epsilon_c$$

The baseline dependent variable $CD_{v,c}$ represents the dispersion in social norm v in country c. The independent variable D_c is the ancestry-adjusted migratory distance from East Africa to country c, and Z_c is a vector of confounding ancestry-adjusted geographical characteristics, including absolute latitude, mean caloric suitability, standard deviation in caloric suitability, and an island dummy. Social norm

[20] Arbatlı et al. (2020), Ashraf and Galor (2013b), and Galor and Klemp (2015).

fixed effects are denoted by δ_v, and continent fixed effects by ζ_k. The coefficient of interest, β, is hypothesized to be negative.

4.3.2 Main Findings

The findings suggest that greater migratory distances from the cradle of humanity corresponded to lower levels of dispersion in social norms, values, and attitudes, both within and across continents, and this impact remains unaffected by potential ancestral geographical confounders. Furthermore, consistent with the uncertainty surrounding the exact origins of humans within Africa, and mirroring the findings at the ethnic group level, the effect is more pronounced when African countries are excluded from the analysis.

Table IV: The Out-of-Africa Migration and Contemporary Dispersion in Cultural Values within Countries

	Dispersion in cultural value			
	(1)	(2)	(3)	(4)
Migratory distance	−0.076***	−0.096***	−0.085**	−0.12***
from the cradle of humanity	(0.022)	(0.029)	(0.034)	(0.033)
Continent FE		✓	✓	✓
Geographical controls			✓	✓
Exclusion of Africa				✓
Dep. var. mean	0.56	0.56	0.56	0.55
Demographic bins	26,558	26,558	26,558	23,562
Cultural values	383	383	383	380
Countries	112	112	112	96
Adjusted R^2	0.62	0.62	0.62	0.65

Notes: The table shows a significant negative association between ancestry-adjusted migratory distance from East Africa and contemporary dispersion in cultural values within countries. Ancestry-adjusted migratory distance is measured in units of 10,000 km. Dispersion in cultural values among individuals within each society is captured by the coefficient of variation with respect to each value, accounting for cultural value fixed-effects. Ancestry-adjusted geographical controls are absolute latitude, ecological diversity, caloric suitability, and a small island dummy. Heteroskedasticity-robust standard errors (clustered at the country level) are reported in parentheses. *** Significant at the 1 percent level.

[Table IV](#) presents the baseline analysis of the impact of migration out of Africa on cultural diversity among individuals in contemporary societies, as illustrated in Figure 10. The estimates in Column (1) reveal a highly significant, unconditional negative association between migratory distance from East Africa and the global dispersion of social norms, values, and attitudes, as captured by the coefficient of variations. Moreover, Column (2) suggests that this impact of prehistoric migration on cultural diversity is also shown to be captured based on variations only within continents. Column (3) demonstrates that accounting for various potentially confounding geographical factors—such as absolute latitude, ecological diversity, caloric suitability, and a small island dummy—does not affect the qualitative impact or statistical significance of migratory distance from East Africa on cultural diversity. Finally, Column (4) shows that when Africa is excluded from the analysis, the estimated effect of migratory distance from East Africa on the dispersion of social norms, values, and attitudes increases in absolute value and becomes more statistically significant, reflecting a reduction in measurement errors associated with the origins of humans within Africa.

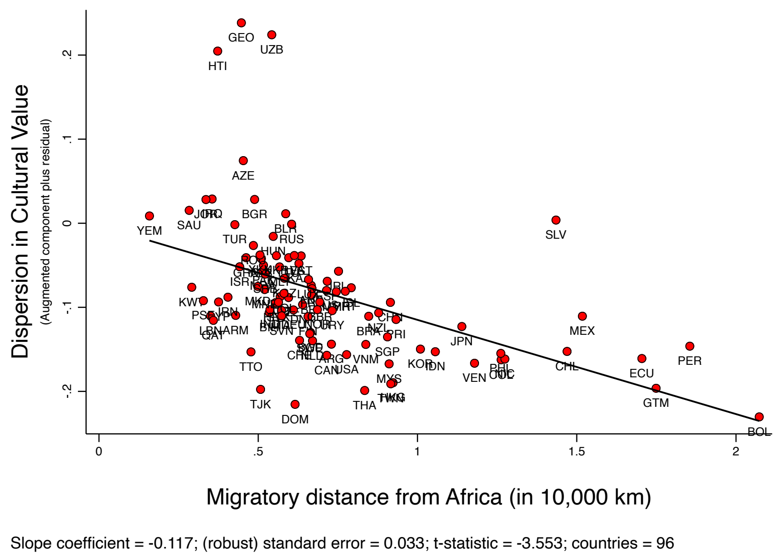


Figure 10: The Out-of-Africa Migration and Contemporary Dispersion in Cultural Values within Countries

Notes: The figure presents a scatterplot illustrating the association between contemporary dispersion in cultural values within countries and ancestry-adjusted migratory distance from East Africa (Table IV, Column (4)). A non-parametric test (Lind and Mehlum, 2010) indicates that this relationship is not hump-shaped.

The impact of an increase in prehistoric migratory distance from East Africa on contemporary cultural diversity is substantial. Specifically, shifting the geographic origin of an ancestral population from the lowest to the highest ancestry-adjusted migratory distance from East Africa (i.e., an increase of 20,000 km) would reduce the coefficient of variation by 44% relative to its mean. This reduction would correspond to a shift in the dispersion of cultural values from the 50th percentile to the 2nd percentile of the cultural diversity distribution.

4.4 Second-Generation Migrants Analysis

Since variations in cultural diversity across countries may reflect the differential emergence of political and economic institutions designed to exploit, mitigate, or foster the impact of human diversity, discerning the impact of the out-of-Africa migration on contemporary dispersion in social norms, values, and attitudes requires delving into the origins of variation in cultural diversity among groups of individuals who, although born and residing in the same country, originate from different ancestral homelands. These groups would be exposed to the same economic incentives and political institutions, yet display different levels of ancestral migratory distance from East Africa.

In this context, the proposed hypothesis implies that lower dispersion in social norms, values, and attitudes would be prevalent among second-generation migrants whose ancestral homeland is farther from the cradle of humanity in Africa.

4.4.1 Empirical Model

In line with the proposed hypothesis, we estimate a linear regression model to examine the effect of migratory distance from East Africa on cultural diversity among second-generations migrants, accounting for continental fixed effects and potential ancestral geographical confounders at the ancestral homeland. This analysis utilizes the most extensive sample of countries covered by the ESS, as well as a subsample excluding the African continent. In particular, we estimate the following linear regression model:

$$CD_{v,h,c} = \alpha + \beta D_h + \gamma Z_h + \delta_v + \zeta_c + \theta_k + \epsilon_c$$

The baseline dependent variable $CD_{v,h,c}$ is the dispersion in social norm v among second-generation migrants from ancestral homeland h born and residing at host-country c. The independent variable D_h is the ancestry-adjusted migratory distance from East Africa to ancestral homeland h, and Z_h is a vector of confounding ancestry-adjusted geographical characteristics, including absolute latitude, mean caloric suitability, standard deviation in caloric suitability, and an island dummy. Social norm fixed effects are denoted by δ_v, ζ_c are host-country fixed-effects, and θ_k are continent fixed-effects. The coefficient of interest, β, is hypothesized to be negative.[21]

4.4.2 Main Findings

The findings suggest that greater migratory distances from the cradle of humanity to the ancestral homelands of second-generation migrants corresponded to lower levels of dispersion in social norms, values, and attitudes among them, both within and across continents. This impact remains unaffected by potential ancestral geographical confounders. Furthermore, consistent with the uncertainty surrounding the exact origins of humans within Africa, and mirroring the findings at the ethnic group level, the effect is more pronounced when African countries are excluded from the analysis.

Table V reports the baseline analysis of the impact of migration out of Africa on cultural diversity among second-generations migrants, as depicted in Figure 11. The estimates in Column (1) suggest that indeed, unconditionally, there exists a highly significant negative association between the migratory distance from East Africa of the ancestral homeland second-generation migrants and the dispersion in their social norms, values, and attitudes. Moreover, Column (2) suggests that this impact of prehistoric migration on cultural diversity can be identified based on variation within the continents where ancestral homelands are located. Column (3) demonstrates that accounting for various potentially confounding ancestral geographical factors—such as absolute latitude, ecological diversity, caloric suitability, and a small island dummy—does not affect the qualitative impact or statistical significance of migratory distance from East Africa on cultural diversity. Finally, Column (4) shows that when Africa is excluded from the analysis, the estimated effect of migratory distance from East Africa on the dispersion of social norms, values, and attitudes

[21] Standard errors are clustered at the country level, as the main independent variable (i.e., ancestry-adjusted migratory distance from East Africa) varies at that level.

increases in absolute value and becomes more statistically significant, reflecting a reduction in measurement errors associated with the origins of humans within Africa.

Table V: The Out-of-Africa Migration and Contemporary Dispersion in Cultural Values within Populations of Second-Generation Migrants in Europe

	Dispersion in cultural value			
	(1)	(2)	(3)	(4)
Migratory distance	−0.029**	−0.035**	−0.032**	−0.057***
from the cradle of humanity	(0.013)	(0.016)	(0.014)	(0.013)
Continent FE		✓	✓	✓
Geographical controls			✓	✓
Exclusion of Africa				✓
Dep. var. mean	0.42	0.42	0.42	0.42
Demographic bins	68,381	68,381	68,381	61,288
Cultural values	119	119	119	119
Host countries	39	39	39	39
Ancestral homelands	133	133	133	99
Adjusted R^2	0.21	0.21	0.21	0.24

Notes: The table demonstrates a significant negative association between ancestry-adjusted migratory distance from East Africa and dispersion in cultural values within populations of second-generation migrants in Europe. Ancestry-adjusted migratory distance is measured in units of 10,000 km. Dispersion in cultural values among individuals from an identical ancestral origin within each European country is captured by the coefficient of variation with respect to each value, accounting for cultural value and host-country fixed-effects. Ancestry-adjusted geographical controls are absolute latitude, ecological diversity, caloric suitability, and a small island dummy. Heteroskedasticity-robust standard errors (clustered at the ancestral homeland level) are reported in parentheses. *** Significant at the 1 percent level; ** Significant at the 5 percent level.

The impact of an increase in the prehistoric migratory distance from East Africa on contemporary cultural diversity among second-generation migrants is sizable. In particular, a shift in the geographic origin of an ancestral population from the lowest ancestry adjusted migratory distance from East Africa to the highest one (i.e., a 20,000 km increase in the adjusted migratory distance from East Africa) would decrease the dispersion in cultural values by 27% relative to its mean level. This would represent a decrease in the dispersion in cultural values from the 50th to the 29th percentile of the cultural diversity distribution.

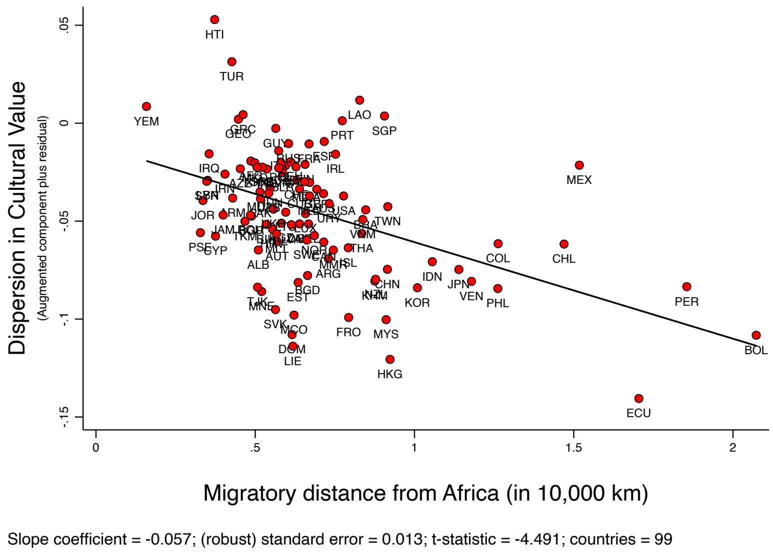


Figure 11: The Out-of-Africa Migration and Contemporary Dispersion in Cultural Values within Populations of Second-Generation Migrants in Europe

Notes: The figures presents a scatterplot of the association between contemporary dispersion in cultural values and ancestry-adjusted migratory distance from East Africa across populations of second-generation migrants in Europe (Table V, Column(4)). A non-parametric test (Lind and Mehlum, 2010) suggests that this relationship is not hump-shaped.

4.5 Robustness Checks and Sensitivity Analyses

These baseline findings from both national populations and second-generation migrants remain qualitatively unchanged when: (a) grouping individuals based on sex, age, survey wave, or educational attainment (Table A.12; Table A.13), (b) employing alternative estimation methods (Figure A.1), and (c) restricting the sample to homelands that were not subjected to significant migration (Figure A.2). Furthermore, as shown in Table A.15 and Table A.16, the impact of the out-of-Africa migration on contemporary cultural diversity across countries operates primarily through within-group diversity, rather than between-group diversity.[22]

[22]The impact of spatial correlation among neighboring observations on the precision of our estimated effects of migratory distance from East Africa on cultural diversity is minimal in our context.

5 Concluding Remarks

This research reveals the pivotal role of the prehistoric out-of-Africa migration in shaping global variations in cultural diversity within both ethnic groups and national populations. Drawing on novel measures of diversity—spanning folkloric and musical diversity among indigenous ethnic groups, as well as differences in norms, values, and attitudes within modern societies—the study reveals a striking pattern. Societies whose ancestors migrated farther from the African cradle of humanity tend to exhibit lower levels of cultural diversity.

In contrast to conventional wisdom, which attributes global variation in cultural diversity to the impact of education, political institutions, and global integration on social cohesion, cultural fusion, and a shared national identity, this intriguing finding underscores the significance of deep-rooted factors in shaping cultural diversity across countries and ethnic groups. Specifically, it highlights: (i) the enduring, yet largely overlooked, influence of cultural dynamics in driving the lasting effects of the out-of-Africa migration on social cohesion, innovativeness, and living standards; [23] (ii) the importance of harnessing the economic potential of cultural fluidity while mitigating social fragmentation; and (iii) the roots of persistence cultural diversity, despite the growing prevalence of population blending and massive migration flows.

Notably, this largely overlooked yet pivotal dimension of cultural evolution—the variation in the manifestation of cultural traits, rather than their societal mean or fractionalized identity—is central to the understanding of divergent development trajectories across societies. While the cultural traits may shape the development process by either reinforcing or hindering it, the dispersion of these traits has served as the primary driver of adaptability, creativity, and resilience. Societies with greater dispersion in cultural norms have benefited from a wider range of perspectives, facilitating cross-fertilization, complementarities in production, and innovation, albeit sometimes at the cost of diminished social cohesion. The striking revelation about the differentiated impact of the out-of-Africa migration on the evolution of cultural diversity

Societies with similar migratory distances from East Africa are not necessarily geographically proximate. Instead, migration out of Africa unfolded in multiple directions—southward, northward, eastward, and westward—resulting in numerous societies that, despite having comparable migratory distances from East Africa, are separated by thousands of kilometers and can be plausibly considered spatially independent. As shown in Table A.14, accounting for spatial correlation using Conley (1999) has a negligible effect on our results.

[23] Ashraf and Galor (2013a); Ashraf and Galor (2013b); Ager and Brückner (2013); Spolaore and Wacziarg (2013); Arbatlı et al. (2020); and Ashraf et al. (2021);

across world regions is thus transformative, providing profound insights into the roots of the uneven pace at which societies have adapted to rapidly evolving technological landscapes.

The findings further suggest that the observed impact of population diversity, as predicted by ancestral migratory distance from East Africa, on a broad spectrum of societal outcome–trust, innovativeness, conflicts, and prosperity–stems from an inseparable interplay between variations in cultural and biological attributes. The narrowing of traits along the migratory routes from the cradle of humanity in Africa diminished societal capacity to adapt to environmental and social challenges, constrained cultural innovation and expression, and ultimately reduced cultural diversity. This migration, set in motion an intertwined process of cultural and biological evolution that unfolded over millennia, shaping population diversity and its societal effects.

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Supplemental Appendix

Contents

A Ethnic-Level

A.1 Variable Definitions and Sources

A.1.1 Genetic Diversity

- Measured using an index commonly referred to as expected heterozygosity by population geneticists. This index represents the probability that two randomly selected individuals from a population will differ in terms of a given set of genetic traits. It is calculated based on allelic frequencies, which reflect the occurrence of different gene variants (alleles) within the population. Data Source: Pemberton et al. (2013) and Arbatlı et al. (2020).

A.1.2 Cultural Diversity

- **Folkloric diversity**: The total number of motifs that are prevalent in a given oral tradition (i.e., ethnic groups or clusters of ethnic groups along linguistic lines). Data Source: Berezkin (2015) and Michalopoulos and Xue (2021).

- **Musical diversity**: The total number of musical features that are prevalent in a given musical tradition (i.e., ethnic groups). Data Source: Lomax (1962), Lomax (2017), and Wood et al. (2022).

A.1.3 Migratory Distance from the Cradle of Humanity

- The migratory distance to each ethnic group is defined as the shortest traversable path from Omo I (Ethiopia)—the site of the earliest known Homo sapiens remains in East Africa—to the geographic centroid of that group. In alignment with archaeological evidence, the migratory path permits crossings of the Bab-el-Mandeb Strait, the Strait of Hormuz, and the Bering Strait while excluding the crossing of the Strait of Gibraltar and the Himalayan mountain range. Due to the limited capacity of early humans to traverse large bodies of water, migratory paths were confined to land masses. However, considering that sea levels at the time of the exodus during the Ice Age were nearly 100 meters lower than today, along with the ability of humans to cross shallow water, we permit travel within 100 km of the shoreline. Varying the buffer to 25 km or 50 km does not alter the results. Moreover, given the uncertain dynamics of the Serial Founder

Effect over long maritime distances, it is assumed that oceanic travel to remote islands has no additional impact on diversity. Yet, permitting such an impact does not qualitatively affect our findings. Data Source: Authors' computations.

A.1.4 Fixed-Effects

- **Continental Fixed-Effects**: Dummy variables capturing the location of each ethnic homeland in either: Africa, Americas, Asia, Europe, or Oceania. Data Source: Michalopoulos and Xue (2021) and Authors' assignment.
- **Country Fixed-Effects**: Dummy variables capturing the location of each ethnic homeland within the boundaries of a specific modern nation-state. Data Source: Authors' assignment.

A.1.5 Data Source Controls

- **Number of publications**: Number of publications (i.e., books and journal articles) consulted by Berezkin to encode motifs. Data Source: Berezkin (2015) and Michalopoulos and Xue (2021).
- **Number of songs**: Number of songs sampled and classified by Lomax. Data Source: Lomax (1962), Lomax (2017), and Wood et al. (2022).

A.1.6 Geographical Controls

- **Absolute latitude**: The absolute value of the latitude of the geodesic centroid of each indigenous ethnic group. Data Source: Authors' computation.
- **Caloric Suitability**: The maximum potential caloric yield attainable in each indigenous ethnic group, given the set of crops that are suitable for cultivation in the pre-1500 period. Data Source: Galor and Özak (2016).
- **Ecological Diversity**: Standard deviation of caloric suitability within the territory of each indigenous ethnic group. Data Source: Authors' computation based on Galor and Özak (2016) and Fick and Hijmans (2017) respectively.
- **Island**: A dummy variable that captures whether the indigenous ethnic group is located on a small island country as defined by the United Nations M49 classification. Data Source: United Nations Statistics Division.

A.1.7 Ethnographic Controls

- **Political centralization**: 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: Murdock (1967). Matched to Berezkin's Folklore and Mythology Catalogue using Michalopoulos and Xue (2021).

- **High Gods**: The range of beliefs in high gods. A high god is defined as a spiritual being who is believed to have created all reality and to be its ultimate governor, even if his sole act was to create other spirits who, in turn, created or control the natural world. Data Source: Murdock (1967). Matched to Berezkin's Folklore and Mythology Catalogue using Michalopoulos and Xue (2021).

- **Mean size of local communities**: The average population of local communities. Data Source: Murdock (1967). Matched to Berezkin's Folklore and Mythology Catalogue using Michalopoulos and Xue (2021).

- **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: Bahrami-Rad et al. (2021) and Murdock (1967).

A.2 Summary Statistics

Table A.1: The Out-of-Africa Migration and Genetic Diversity within Indigenous Ethnic Groups: Summary Statistics

	Mean	SD	Median	Min	Max	N
Expected heterozygosity	0.72	0.05	0.73	0.55	0.8	207
Migratory distance (km)	7448.94	7394.53	4351.75	182.46	28345.7	207
Absolute latitude	15.15	15.09	8.81	0.04	68.9	207
Caloric suitability (mean)	6094.02	2808.23	6298.59	0.00	12060.7	207
Caloric suitability (std)	1035.00	863.89	931.89	0.00	4313.0	207
Island	0.13	0.33	0.00	0.00	1.0	207

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: The Out-of-Africa Migration and Folkloric Diversity within Indigenous Ethnic Groups: Summary Statistics

	Mean	SD	Median	Min	Max	N
Number of motifs	87.23	88.09	62	1	598.0	958
Migratory distance (km)	13048.90	8035.41	12,742	105	30186.1	958
Absolute latitude	27.53	19.34	24	0	77.5	958
Caloric suitability (mean)	5959.41	4020.75	6,323	0	19167.5	956
Caloric suitability (std)	707.68	802.03	425	0	4352.3	956
Island	0.05	0.22	0	0	1.0	958
Political centralization	1.90	1.05	2	1	5.0	579
High gods	2.12	1.17	2	1	4.0	460
Mean size of local communities	3.62	2.25	3	1	8.0	397
Class stratification	2.27	1.39	2	1	5.0	576

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.3: The Out-of-Africa Migration and Musical Diversity within Indigenous Ethnic Groups: Summary Statistics

	Mean	SD	Median	Min	Max	N
Number of musical features	79.45	32.26	78	34	175.0	825
Number of songs sampled	6.20	6.25	4	1	75.0	825
Migratory distance (km)	9787.91	6888.46	7,670	67	30192.5	825
Absolute latitude	23.03	17.77	19	0	70.5	825
Caloric suitability (mean)	6318.03	3238.52	7,126	0	17250.6	824
Caloric suitability (std)	817.12	787.62	609	0	4290.1	824
Island	0.14	0.35	0	0	1.0	825
Political centralization	2.25	1.33	2	1	5.0	564
High gods	2.31	1.25	2	1	4.0	457
Mean size of local communities	4.32	2.37	4	1	8.0	396
Class stratification	2.58	1.55	2	1	5.0	557

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).

A.3 Robustness Checks and Sensitivity Analyses

A.3.1 Estimation Method and Spatial Correlation

Table A.4: The Out-of-Africa Migration and Cultural Diversity within Indigenous Ethnic Groups: Robustness to Estimation Method

	Number of Motifs				Number of Musical Features			
	Log-Linear	Linear	Poisson	Negative Binomial	Log-Linear	Linear	Poisson	Negative Binomial
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Migratory distance	−0.62***	−59.1***	−0.76***	−0.77***	−0.12***	−9.78***	−0.13***	−0.12***
from the cradle of humanity	(0.17)	(13.7)	(0.15)	(0.14)	(0.027)	(2.28)	(0.030)	(0.029)
Dep. var. mean	93	93	93	93	79	79	79	79
Observations	813	813	813	813	630	630	630	630
Adjusted R^2	0.24	0.39	.	.	0.90	0.88	.	.

Notes: The table establishes that the impact of the out-of-Africa migration on folkloric and musical diversity is robust to alternative estimation methods such as linear regression, poisson, and negative binomial regressions. Migratory distance is measured in units of 10,000 km. Folkloric diversity is defined as the number of motifs. Musical diversity is defined as the number of musical features. All specifications account for geographical controls (i.e., absolute latitude, ecological diversity, caloric suitability, and a small island dummy) and continent fixed-effects. The analysis excludes ethnic groups in Africa. Heteroskedasticity robust standard errors are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

Table A.5: The Out-of-Africa Migration and Diversities within Indigenous Ethnic Groups: Robustness to Spatial Correlation

	Genetic Diversity		Folkloric Diversity		Musical Diversity	
	(1)	(2)	(3)	(4)	(5)	(6)
Migratory distance	−0.061***	−0.061***	−0.62***	−0.62***	−0.12***	−0.12***
from the cradle of humanity	(0.014)	(0.015)	(0.17)	(0.16)	(0.027)	(0.038)
Conley SE		✓		✓		✓
Observations	106	106	813	813	630	630
Adjusted R^2	0.74	.	0.24	.	0.90	.

Notes: The table establishes that the impact of the out-of-Africa migration on genetic, folkloric, and musical diversities remains significant if spatial correlations across ethnic groups are accounted for using the method of Conley (1999). Migratory distance is measured in units of 10,000 km. Genetic diversity is defined as the expected heterozygosity, which reflects the probability that two individuals, selected at random from the relevant population, will differ with respect to a given spectrum of genetic traits. Folkloric diversity is defined as the log number of motifs. Musical diversity is defined as the log number of musical features. All specifications account for geographical controls (i.e., absolute latitude, ecological diversity, caloric suitability, and a small island dummy) and continent fixed-effects. The analysis excludes ethnic groups in Africa. Conley standard errors (500km cutoff) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

A.3.2 Alternative Regional Fixed-Effects

Table A.6: The Out-of-Africa Migration and Musical Diversity within Indigenous Ethnic Groups: Alternative Regional Fixed-Effects

	Genetic Diversity			Folkloric Diversity			Musical Diversity		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Migratory distance	−0.039***	−0.039***	−0.041***	−0.58***	−0.87***	−0.93***	−0.071***	−0.052**	−0.072***
from the cradle of humanity	(0.0081)	(0.0082)	(0.0076)	(0.15)	(0.15)	(0.15)	(0.025)	(0.024)	(0.024)
Regions:									
Africa	✓	✓		✓	✓		✓	✓	
Asia	✓			✓			✓		
Europe	✓			✓			✓		
Eurasia		✓			✓			✓	
Old World			✓			✓			✓
Sub-Saharan Africa			✓			✓			✓
North America	✓	✓	✓	✓	✓	✓	✓	✓	✓
South America	✓	✓	✓	✓	✓	✓	✓	✓	✓
Oceania	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dep. var. mean	0.72	0.72	0.72	87.23	87.23	87.23	79.45	79.45	79.45
Observations	207	207	207	958	958	958	825	825	825
Adjusted R^2	0.88	0.87	0.88	0.20	0.14	0.16	0.90	0.90	0.90

Notes: This table establishes that the impact of the out-of-Africa migration on genetic, folkloric, and musical diversities is unaffected by different definitions of continents. Migratory distance is measured in units of 10,000 km. Genetic diversity is defined as the expected heterozygosity, which reflects the probability that two individuals, selected at random from the relevant population, will differ with respect to a given spectrum of genetic traits. Folkloric diversity is defined as the log number of motifs. Musical diversity is defined as the log number of musical features. All specifications account for continent fixed-effects. Heteroskedasticity robust standard errors are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

A.3.3 Ethnographic Characteristics

Table A.7: The Out-of-Africa Migration and Folkloric Diversity within Indigenous Ethnic Groups: Robustness to Ethnographic Characteristics

	Folkloric Diversity					
	(1)	(2)	(3)	(4)	(5)	(6)
Migratory distance from the cradle of humanity	−0.97***		−0.93***	−1.00***		−1.00***
	(0.19)		(0.19)	(0.20)		(0.20)
Political centralization		0.094**	0.059			
		(0.047)	(0.047)			
High gods					−0.0012	−0.0028
					(0.050)	(0.048)
Observations	443	443	443	350	350	350
Adjusted R^2	0.30	0.26	0.30	0.34	0.29	0.34
	(7)	(8)	(9)	(10)	(11)	(12)
Migratory distance from the cradle of humanity	−0.95***		−0.93***	−1.07***		−1.09***
	(0.23)		(0.23)	(0.19)		(0.19)
Mean size of local communities		0.065	0.039			
		(0.060)	(0.059)			
Class stratification					0.023	−0.024
					(0.043)	(0.043)
Observations	300	300	300	447	447	447
Adjusted R^2	0.31	0.27	0.31	0.32	0.27	0.32

Notes: This table establishes that the impact of the out-of-Africa migration on folkloric diversity is unaffected by ethnographic characteristics may have impacted the emergence and the diffusion of motifs. In particular, it accounts for potential possibly endogenous ethnographic confounders, such as the mean size of local communities, the degree of political centralization, the degree of cultural complexity as measured by the presence of high gods, as well as the degree of class stratification. In Columns (1) to (3), we restrict the analysis to the set of oral traditions for which we observe the level of political centralization. In Columns (4) to (6), we restrict the analysis to the set of oral traditions for which we observe the type of high gods. In Columns (7) to (9), we restrict the analysis to the set of oral traditions for which we observe the mean size of local communities. In Columns (10) to (12), we restrict the analysis to the set of oral traditions for which we observe class stratification. Migratory distance is measured in units of 10,000 km. Folkloric diversity is defined as the log number of motifs. Controls include geographical controls (i.e., absolute latitude, ecological diversity, caloric suitability, and a small island dummy) as well as continent fixed-effects. The analysis excludes oral traditions in Africa. Heteroskedasticity robust standard errors are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

Table A.8: The Out-of-Africa Migration and Musical Diversity within Indigenous Ethnic Groups: Robustness to Ethnographic Characteristics

	Musical Diversity					
	(1)	(2)	(3)	(4)	(5)	(6)
Migratory distance from the cradle of humanity	−0.15*** (0.033)		−0.11*** (0.035)	−0.15*** (0.037)		−0.15*** (0.038)
Political centralization		0.043*** (0.0082)	0.036*** (0.0085)			
High gods					0.0057 (0.010)	−0.0021 (0.010)
Observations	414	414	414	340	340	340
Adjusted R^2	0.90	0.90	0.90	0.91	0.90	0.91
	(7)	(8)	(9)	(10)	(11)	(12)
Migratory distance from the cradle of humanity	−0.14*** (0.040)		−0.11*** (0.042)	−0.13*** (0.033)		−0.11*** (0.034)
Mean size of local communities		0.034*** (0.0094)	0.027*** (0.0097)			
Class stratification					0.034*** (0.0082)	0.029*** (0.0084)
Observations	312	312	312	418	418	418
Adjusted R^2	0.90	0.90	0.90	0.90	0.90	0.90

Notes: This table establishes that the impact of the out-of-Africa migration on musical diversity is unaffected by ethnographic characteristics may have impacted the emergence and the diffusion of motifs. In particular, it accounts for potential possibly endogenous ethnographic confounders, such as the mean size of local communities, the degree of political centralization, the degree of cultural complexity as measured by the presence of high gods, as well as the degree of class stratification. In Columns (1) to (3), we restrict the analysis to the set of musical traditions for which we observe the level of political centralization. In Columns (4) to (6), we restrict the analysis to the set of musical traditions for which we observe the type of high gods. In Columns (7) to (9), we restrict the analysis to the set of musical traditions for which we observe the mean size of local communities. In Columns (10) to (12), we restrict the analysis to the set of musical traditions for which we observe class stratification. Migratory distance is measured in units of 10,000 km. Musical diversity is defined as the log number of musical features. Controls include geographical controls (i.e., absolute latitude, ecological diversity, caloric suitability, and a small island dummy) as well as continent fixed-effects. The analysis excludes musical traditions in Africa. Heteroskedasticity robust standard errors are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

A.3.4 Selection on Unobservables

Table A.9: The Out-of-Africa Migration and Diversities within Indigenous Ethnic Groups: Robustness to Selection on Unobservables

	Genetic Diversity		Folkloric Diversity		Musical Diversity	
	(1)	(2)	(3)	(4)	(5)	(6)
Migratory distance	−0.039***	−0.050***	−0.58***	−0.45***	−0.071***	−0.077***
from the cradle of humanity	(0.0081)	(0.010)	(0.15)	(0.16)	(0.025)	(0.026)
Continent FE	✓	✓	✓	✓	✓	✓
Geographical controls		✓		✓		✓
Observations	207	207	958	956	825	824
Adjusted R^2	0.88	0.88	0.20	0.24	0.90	0.90
β^*		−0.30		−0.18		−0.088

Notes: The table establishes that accounting for selection on unobservables, using Oster's method, if selection on unobservables is of equal proportion to selection on observables and the maximum R^2 is equal to 1.3 times the observed R^2, the impact of the out-of-Africa migration on genetic diversity, folkloric diversity, and musical diversity, β^*, is qualitatively similar to the predicted baseline effects. Migratory distance is measured in units of 10,000 km. Genetic diversity is defined as the expected heterozygosity, which reflects the probability that two individuals, selected at random from the relevant population, will differ with respect to a given spectrum of genetic traits. Folkloric diversity is defined as the log number of motifs. Musical diversity is defined as the log number of musical features. Geographical controls are absolute latitude, ecological diversity, caloric suitability, and a small island dummy. Robust standard errors are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

A.4 Contemporary Analysis

A.5 Variable Definitions and Sources

A.5.1 Dispersion in Social Norms

- The coefficient of variation in individual responses to each survey question. Data Source: WVS-EVS and ESS.

A.5.2 Migratory Distance from the Cradle of Humanity

- The migratory distance to each ancestral homeland is defined as the shortest traversable path from Omo I (Ethiopia)—the site of the earliest known Homo sapiens remains in East Africa— to the ancestral homeland modern capital city. In alignment with archaeological evidence, the migratory path permits crossings of the Bab-el-Mandeb Strait, the Strait of Hormuz, and the Bering Strait while excluding the crossing of the Strait of Gibraltar and the Himalayan mountain range. Due to the limited capacity of early humans to traverse large bodies of water, migratory paths were confined to land masses. However, considering that sea levels at the time of the exodus during the Ice Age were nearly 100 meters lower than today, along with the ability of humans to cross shallow water, we permit travel within 100 km of the shoreline. Varying the buffer to 25 km or 50 km does not alter the results. Moreover, given the uncertain dynamics of the Serial Founder Effect over long maritime distances, it is assumed that oceanic travel to remote islands has no additional impact on diversity. Yet, permitting such an impact does not qualitatively affect our findings. Data Source: Authors' computations.[24]

[24] Since the ancestral homeland may consist of population which are themselves from different ancestries, the ancestry-adjusted migratory distance from East Africa to the ancestral homeland captures the weighted average of the migratory distances from East 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 drastic changes in the composition of populations of the New World in the post-1500 period.

A.5.3 Fixed-Effects

- **Wave**: Indicates the survey wave during which individuals in each alternative bin were interviewed. Data Source: WVS-EVS and ESS.

- **Sex**: Binary variable indicating the sex of individuals in each alternative bin. Data Source: WVS-EVS and ESS.

- **Age**: Categorizes individuals into age groups: below 25, 25–34, 35–44, 45–54, 55–64, or above 64. Data Source: WVS-EVS and ESS.

- **Education**: Binary variable indicating whether individuals in each alternative bin have completed college education. Data Source: WVS-EVS and ESS.

- **Continental Fixed-Effects**: Indicator variables capturing the location of each ancestral homeland of the European second-generation migrant population in either: Africa, Asia, Europe, North America, Oceania, or South America. Data Source: Authors' assignment.

- **Cultural Value Fixed-Effects**: Indicator variables for each distinct cultural value. Data Source: Authors' assignment.

- **Host-Country Fixed-Effects**: Indicator variables for each European country hosting second-generation migrant populations. Data Source: Authors' assignment.

A.5.4 Ancestral Geographical Controls

- **Absolute latitude**: The ancestry-adjusted absolute value of the latitude of the geodesic centroid of each country. Data Source: Authors' computation.

- **Caloric Suitability**: The ancestry-adjusted maximum potential caloric yield attainable in each country, given the set of crops that are suitable for cultivation in the pre-1500 period. Data Source: Galor and Özak (2016).

- **Ecological Diversity**: The ancestry-adjusted standard deviation of caloric suitability within the territory of each country. Data Source: Authors' computation based on Galor and Özak (2016) and Fick and Hijmans (2017), respectively.

- **Island**: The ancestry-adjusted dummy variable that captures whether each each country is located on a small island country as defined by the United Nations M49 classification. Data Source: United Nations Statistics Division.

A.5.5 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 et al. (2009).

A.6 Summary Statistics

Table A.10: The Out-of-Africa Migration and Contemporary Dispersion in Cultural Values within Countries: Summary Statistics

	Mean	SD	Median	Min	Max	N
A. Dispersion in cultural value						
Coefficient of variation	0.56	0.80	0	0	34.7	26,558
B. Independent variable						
Migratory distance (km)	6631.75	3585.81	5,814	595	20729.7	112
C. Ancestral geography						
Absolute latitude	35.74	14.56	38	0	64.1	112
Caloric suitability (mean)	6257.36	2810.02	7,214	0	10107.7	112
Caloric suitability (std)	1734.13	958.74	1,653	0	3993.9	112
Island	0.003	0.02	0	0	0	112
D. Ancestral ethnic fragmentation						
Ethnic fractionalization	0.39	0.24	0	0	0.9	104
Ethnolinguistic fractionalization	0.16	0.17	0	0	0.6	107

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.11: The Out-of-Africa Migration and Contemporary Dispersion in Cultural Values within Populations of Second-Generation Migrants in Europe: Summary Statistics

	Mean	SD	Median	Min	Max	N
A. Dispersion in cultural value						
Coefficient of variation	0.42	0.34	0	0	35.6	68,381
B. Independent variable						
Migratory distance (km)	6077.70	3219.92	5,689	595	20729.7	133
C. Ancestral geography						
Absolute latitude	32.23	16.85	36	0	64.1	133
Caloric suitability (mean)	6468.11	2748.79	7,402	0	11084.6	133
Caloric suitability (std)	1697.31	946.19	1,675	0	3993.9	133
Island	0.021	0.13	0	0	1	133
D. Ancestral ethnic fragmentation						
Ethnic fractionalization	0.44	0.26	0	0	0.9	123
Ethnolinguistic fractionalization	0.16	0.16	0	0	0.6	125

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) .

A.7 Robustness Checks and Sensitivity Analyses

A.7.1 Alternative Bins

Table A.12: The Out-of-Africa Migration and Dispersion in Cultural Values within Countries: Robustness to Alternative Bins

	Dispersion in cultural value			
	(1)	(2)	(3)	(4)
Migratory distance from the cradle of humanity	−0.12***	−0.11***	−0.084***	−0.12***
	(0.033)	(0.031)	(0.021)	(0.038)
Wave FE		✓	✓	✓
Age FE			✓	
Sex FE			✓	
Education FE				✓
Dep. var. mean	0.55	0.56	0.54	0.54
Demographic bins	23,562	51,006	606,369	72,051
Cultural values	380	383	383	383
Countries	96	96	96	92
Adjusted R^2	0.65	0.61	0.66	0.56

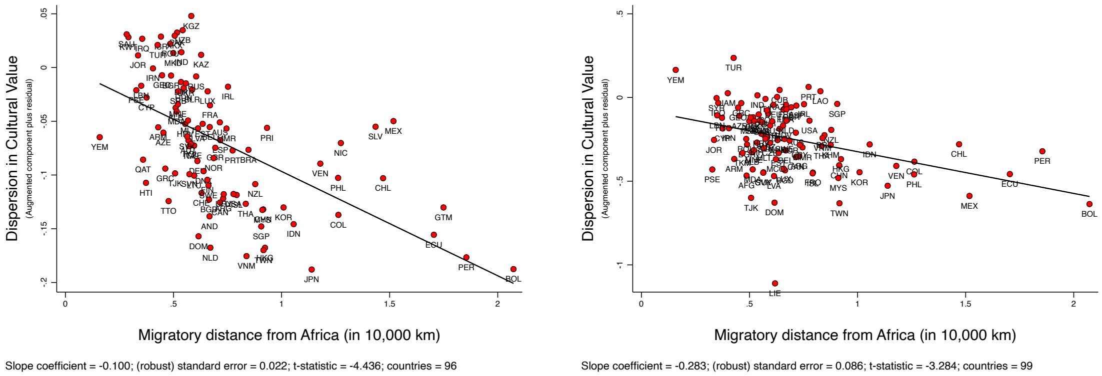
Notes: This table establishes that the impact of the out-of-Africa migration on contemporary dispersion in cultural values across countries holds irrespective of the inclusion of wave, age, and sex fixed-effects. The unit of observation is a bin at the level of: (a) country, (b) country and wave, (c) country and age-group, (d) country and sex, (e) country, age-group, and sex, and (f) country and education. Ancestry-adjusted migratory distance is measured in units of 10,000 km. Dispersion in cultural values among individuals within each society is captured by the coefficient of variation with respect to each value, accounting for cultural value fixed-effects. All specifications include ancestry-adjusted geographical controls (i.e., absolute latitude, ecological diversity, caloric suitability, and a small island dummy) as well as continent fixed-effects. The analysis excludes countries in Africa. Heteroskedasticity-robust standard errors (clustered at the country level) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

Table A.13: The Out-of-Africa Migration and Contemporary Dispersion in Cultural Values within Populations of Second-Generation Migrants in Europe: Robustness to Alternative Bins

	Dispersion in cultural value			
	(1)	(2)	(3)	(4)
Migratory distance	−0.057***	−0.050***	−0.045**	−0.049**
from the cradle of humanity	(0.013)	(0.017)	(0.019)	(0.019)
Wave FE		✓	✓	✓
Age FE			✓	
Sex FE			✓	
Education FE				✓
Dep. var. mean	0.42	0.41	0.40	0.41
Demographic bins	61,288	130,566	241,575	155,492
Cultural values	119	119	119	119
Countries	99	92	73	89
Adjusted R^2	0.24	0.20	0.15	0.19

Notes: This table establishes that the impact of the out-of-Africa migration on contemporary dispersion in cultural values across populations of second-generation migrants in Europe holds irrespective of the inclusion of wave, age, and sex fixed-effects. The unit of observation is a bin at the level of: (a) country, (b) country and wave, (c) country and age-group, (d) country and sex, (e) country, age-group, and sex, and (f) country and education. Ancestry-adjusted migratory distance is measured in units of 10,000 km. Dispersion in cultural values among individuals from an identical ancestral origin within each European country is captured by the coefficient of variation with respect to each value, accounting for cultural value and host-country fixed-effects. All specifications include ancestry-adjusted geographical controls (i.e., absolute latitude, ecological diversity, caloric suitability, and a small island dummy) as well as continent fixed-effects. The analysis excludes countries in Africa. Heteroskedasticity-robust standard errors (clustered at the ancestral homeland level) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

A.7.2 Estimation Method and Spatial Correlation



(a) National Populations (b) Second-Generation Migrants in Europe

Figure A.1: The Out-of-Africa Migration and Contemporary Dispersion in Cultural Values within Modern Nations: Log-Linear Model

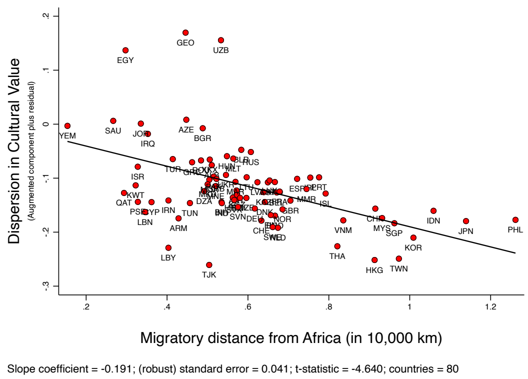
Notes: The figure presents a scatterplot illustrating the association between ancestry-adjusted migratory distance from East Africa and the natural logarithmic contemporary dispersion of cultural values across: (a) countries, and (b) populations of second-generation migrants in Europe.

Table A.14: The Out-of-Africa Migration and Contemporary Dispersion in Cultural Values within Countries: Robustness to Spatial Correlation

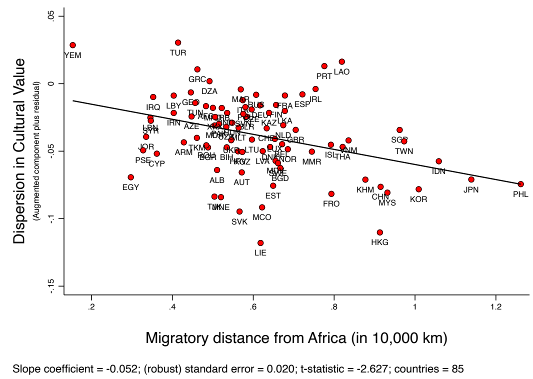
	Dispersion in cultural value	
	(1)	(2)
Migratory distance	−0.12***	−0.12***
from the cradle of humanity	(0.033)	(0.030)
Conley SE		✓
Dep. var. mean	0.55	0.55
Demographic bins	23,562	23,562
Cultural values	380	380
Countries	96	96
Adjusted R^2	0.65	.

Notes: The table establishes that the impact of the out-of-Africa migration on contemporary dispersion in cultural values across countries remains significant if spatial correlations across countries are accounted for using the method of Conley (1999).

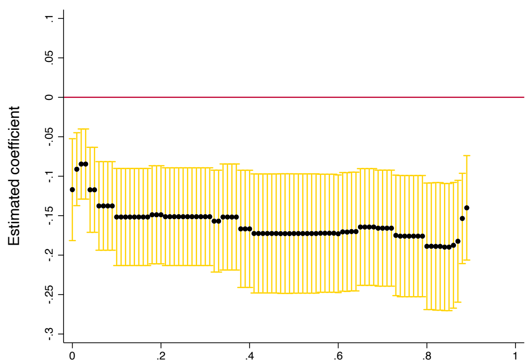
A.7.3 Migration Flows and Population Composition



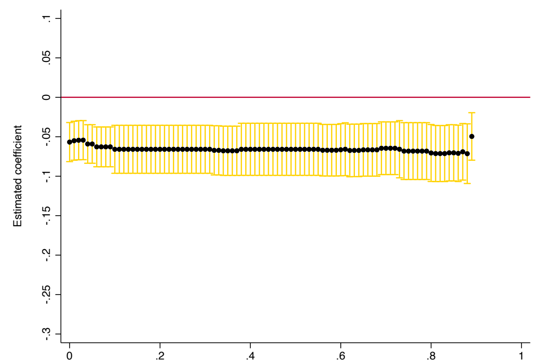
(a) Cross-Country



(b) Second-Generation Migrants in Europe



(c) Cross-Country



(d) Second-Generation Migrants in Europe

Figure A.2: The Out-of-Africa Migration and Dispersion in Cultural Values within Modern Nations: Migration Flows and Population Composition

Notes: This figure shows that the baseline findings from both national populations and second-generation migrants remain qualitatively unchanged when restricting the sample to homelands that were not subjected to significant migration. Panels (a) and (b) illustrate the association between ancestry-adjusted migratory distance from East Africa and contemporary dispersion in cultural values across: (a) countries in the Old World, and (b) populations of second-generation migrants in Europe, originating from modern national homelands in the Old World. Panel (c) and (d) depict the changes in the estimated coefficient in our baseline specification, as we restrict the sample to homelands to include a minimum share of indigenous population and varying level from 0 to 90%, across: (c) countries, and (d) populations of second-generation migrants in Europe. As the minimum share of indigenous people increases, the sample of homelands decreases significantly, making meaningful statistical inferences impractical. In particular, when the minimum threshold reaches 90%, the samples of national populations and second-generation migrants include, respectively, only 47 and 50 homelands.

A.7.4 Ancestral Origins

Since cultural transmission is typically stronger along maternal lineages, the baseline analysis of second-generation migrants uses the mother's country of birth to define ancestry. However, the impact of the out-of-Africa migration on contemporary cultural diversity is unaffected qualitatively when ancestry is instead defined by the father's country of birth (Figure A.3).

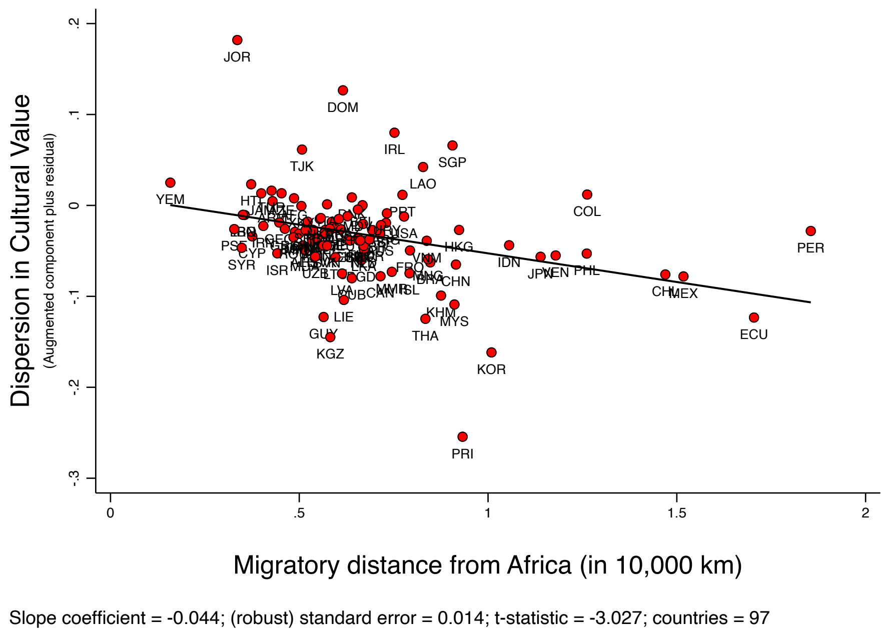


Figure A.3: The Out-of-Africa Migration and Dispersion in Cultural Values Among Second-Generations Migrants in Europe: Ancestry Along Paternal Lineage

Notes: The figures presents a scatterplot of the association between contemporary dispersion in cultural values and ancestry-adjusted migratory distance from East Africa across populations of second-generation migrants in Europe based on paternal lineages, under our preferred specification, which includes continent fixed effects, ancestry-adjusted geographical controls, and excludes Africa.

A.7.5 Within vs. Between Group Diversity

Table A.15: The Out-of-Africa Migration and Contemporary Dispersion in Cultural Values within Countries: Within vs. Between Group Diversity

	Dispersion in cultural value					
	(1)	(2)	(3)	(4)	(5)	(6)
Migratory distance from the cradle of humanity	−0.11*** (0.030)		−0.11*** (0.032)	−0.11*** (0.034)		−0.11*** (0.035)
Ethnic fractionalization		0.0038 (0.011)	0.00052 (0.0099)			
Ethnolinguistic fractionalization					0.0077 (0.010)	0.0097 (0.0091)
Dep. var. mean	0.55	0.55	0.55	0.56	0.56	0.56
Demographic bins	21,891	21,891	21,891	22,368	22,368	22,368
Cultural values	379	379	379	380	380	380
Countries	88	88	88	91	91	91
Adjusted R^2	0.64	0.64	0.64	0.64	0.64	0.64

Notes: The table establishes that the impact of the out-of-Africa migration on contemporary dispersion in cultural values across countries operates entirely via within-group rather than between-group population diversity. Ancestry-adjusted migratory distance is measured in units of 10,000 km. Dispersion in cultural values among individuals within each society is captured by the coefficient of variation with respect to each value, accounting for cultural value fixed-effects. All specifications include ancestry-adjusted geographical controls (i.e., absolute latitude, ecological diversity, caloric suitability, and a small island dummy) as well as continent fixed-effects. The analysis excludes countries in Africa. Heteroskedasticity-robust standard errors (clustered at the country level) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

Table A.16: The Out-of-Africa Migration and Contemporary Dispersion in Cultural Values within Populations of Second-Generation Migrants in Europe: Within vs. Between Group Diversity

	Dispersion in cultural value					
	(1)	(2)	(3)	(4)	(5)	(6)
Migratory distance	−0.060***		−0.064***	−0.057***		−0.057***
from the cradle of humanity	(0.012)		(0.013)	(0.012)		(0.012)
Ethnic fractionalization		−0.0040	−0.0064*			
		(0.0041)	(0.0035)			
Ethnolinguistic fractionalization					0.0032	0.0018
					(0.0054)	(0.0046)
Dep. var. mean	0.42	0.42	0.42	0.42	0.42	0.42
Demographic bins	58,173	58,173	58,173	58,075	58,075	58,075
Cultural values	119	119	119	119	119	119
Countries	90	90	90	92	92	92
Adjusted R^2	0.23	0.23	0.24	0.24	0.23	0.24

Notes: The table establishes that the impact of the out-of-Africa migration on contemporary dispersion in cultural values across populations of second-generation migrants in Europe operates entirely via within-group rather than between-group population diversity. Ancestry-adjusted migratory distance is measured in units of 10,000 km. Dispersion in cultural values among individuals from an identical ancestral origin within each European country is captured by the coefficient of variation with respect to each value, accounting for cultural value and host-country fixed-effects. All specifications include ancestry-adjusted geographical controls (i.e., absolute latitude, ecological diversity, caloric suitability, and a small island dummy) as well as continent fixed-effects. The analysis excludes countries in Africa. Heteroskedasticity-robust standard errors (clustered at the ancestral homeland level) are reported in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

A.8 Descriptive Figures

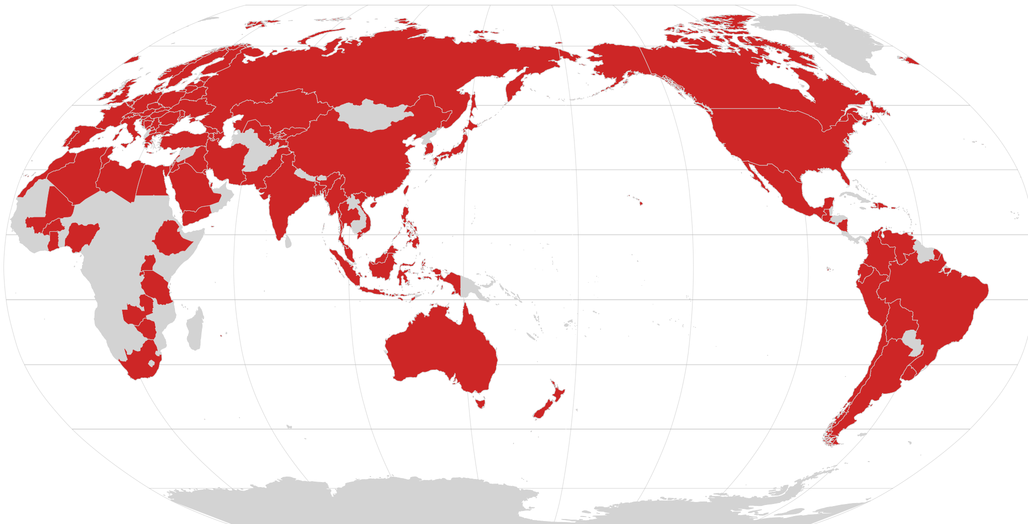


Figure A.4: Countries Included in the Analysis

Notes: This figure highlights in shaded red all the countries included in our analysis (Table IV, Column(1)).

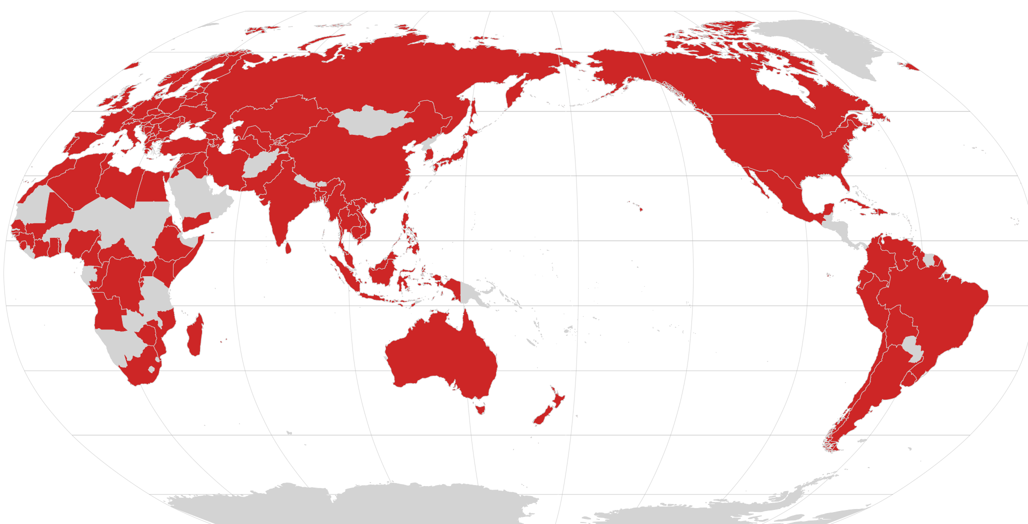


Figure A.5: Second-Generation Migrants' Homelands Included in the Analysis

Notes: This figure highlights in shaded red all the countries included in our analysis (Table V, Column(1)).