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The Influence of Ancestral Lifeways on Individual Economic Outcomes in Sub-Saharan Africa

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August, 2014

Abstract. A growing literature examines the impact of the historical legacies, including the date of the Neolithic revolution and early political development, on current economic outcomes across countries and regions. In this paper, we investigate the shadow of history at an even finer scale: individuals. Specifically, we explore whether the descendants of agriculturalists are wealthier and better educated than the descendants of groups that practiced other economic life-ways. We match individual level survey data from contemporary Africa (from the DHS) with information on the ancestral ethnicities of respondents. In both rural and urban areas, within ethnic homelands and even within villages, we find that descent from pastoralists predicts significantly poorer outcomes. A tentative exploration of the possible channels reveals an inferior treatment of women among those of pastoral ancestry.

We are grateful to Daniel Prinz, Devin Streur, Young Min Kim, and especially Yunan Ji for superlative research assistance. We are also grateful to seminar participants at Cambridge University and Oxford University and to conference participants at "Deep-Rooted Factors in Comparative Economic Development" (Brown University, May 2014) and the CESifo workshop on Demographic Change and Long Run Development (Venice, July 2014) for helpful comments.

1. Introduction

Recent research by economists has shown a remarkable impact of the distant past on current economic outcomes (Spolaore and Wacziarg (2013), Nunn (forthcoming)). One strand within this literature echoes anthropologists embracing social evolutionary schema (Service, 1971; Johnson and Earle, 2000; Richerson et al., 2001; Carneiro, 2003), the economic demographer Esther Boserup (1965), and biologist-geographer-historian Jared Diamond (1998) and others) in emphasizing the importance of the transition to agriculture and subsequently to increasingly more densely populated and politically complex societies. Hibbs and Olsson (2004) find that countries inheriting the technological package of an agricultural core (Mesopotamia, China, Mesoamerica, etc.) in which the transition from foraging to agriculture occurred earlier have higher incomes today. Putterman (2008) confirms this result for country-specific estimates of the timing of the agricultural transition, and Putterman and Weil (2010) show that the effects of early agriculture and early states not only appear to be transmitted to descendants who migrated (e.g., to the Americas and Australia) during the colonial era and its aftermath, but also to impact the relative incomes of members of ethnic groups having different ancestral histories within ethnically diverse countries.

A social evolutionary approach in which large-scale polities based on intensive agriculture provide more fertile ground for the birth of urban industrial societies offers a framework that seems helpful to explaining some of the most striking differences among world regions today. Following the industrialization of Europe and its offshoots, it is densely settled agrarian societies like Japan, China, and India that appear to be in the lead of transitioning to modern forms of economic activity and organization, whereas previously horticultural, less populous, and less politically centralized societies like those of the Congo and Papua New Guinea lag behind. Predominantly pastoral societies like those of the Arabian Peninsula and the grasslands of central Asia have also lagged behind the previously advanced agrarian countries.

Although sub-Saharan Africa is one of the world's most ethnically diverse regions, it tends not to stand out for internal cross-border migration in recent centuries. Hence, the region offers a different possibility for testing what impact societies' past positions along the social evolutionary spectrum have had on contemporary economic outcomes. On the eve of the colonial "scramble for Africa," the continent was replete with examples of almost every kind of pre-industrial economy, from hunter-gatherers like the San of Botswana and the Mbuti of the Congo, to nomadic pastoralists like the Herero of Angola and the Maasai of the East African Rift Valley, to shifting agriculturalists like the Mossi of Burkina Faso and the Bemba of Zambia, to more intensive agriculturalists like the Bambara of Mali and the Luo of Kenya. If there is a connection between social evolutionary position along the arc from foraging to intensive agriculture and economic success in the modern world, it should be visible at the inter-ethnic level in Africa.

Africa's internal diversity on the eve of modernity means that whether agriculturalists become economically modern more quickly than do herders and those relying more partially on

agriculture can be examined at a more refined scale. Since the pre-colonial economic life-way of an individual's ancestors can be established if one knows the latter's ethnicity and can connect this to accounts of that group's primary sources of subsistence, it is possible to take individual-level data detailing contemporary economic outcomes and see whether they differ in the manner which such a framework leads us to expect.

A growing literature in economics investigates the persistent impact of cultural characteristics [citations here include Fenske, 2013, Alesina, Giuliano and Nunn, 2014]. Effects of societies' past political legacies have also been found [Michalopoulos and Papaioannou,2013, 2014, Giuliano and Nunn, 2013, and with respect to the existence per se of polities at the macro-level, Bockstette, Chanda and Putterman, 2002]. Our paper is the first of which we are aware which studies the impact of *economic* culture, as identified by the primary source of subsistence, at the individual level.

Pursuing our inquiry requires being able to associate individuals in a modern data set with historical characteristics of the tribes from which they are descended. The Demographic and Health Surveys on which we rely contain data on the ethnicity of individuals. We match this data with information from Murdock's Ethnographic Atlas on historical characteristics of tribes (as well as information from Murdock (1959) on the geographical regions historically inhabited by these tribes). Matching these two data sets required the construction of a concordance of ethnicities, the details of which are discussed below. We expect that this concordance will have great usefulness beyond the current paper.

Our main finding is that being descended from an ethnic group that traditionally practiced agriculture is a robust positive predictor of the two status measures that we examine in the DHS: education and wealth.

The rest of this paper is structured as follows. Section 2 discusses the related literature on the historical determinants of modern economic and political outcomes, with an emphasis on Africa. In Section 3 we introduce the ethnicity data from the DHS that we use, and discuss the matching of modern ethnicity with historical tribes and their characteristics. In Section 4 we introduce data on the historical means of subsistence of African tribes and present specifications linking education and wealth to the ancestral lifeway characteristics of an individual's tribe, controlling for the current location of residence. We experiment with splitting the sample by occupation and urban/rural status, with inclusion of fine-scale location fixed effects, and also assess the role of selection into migration. In Section 5, we examine how the inclusion of both pre-colonial, and colonial era variables influence our basic results. We also explore the role of differential representation in politics and attitudes towards women as potential channels, finding support for the latter.
In Section 6 we turn to explore the determinants of ancestral lifeways themselves, in particular the degree to which dependence on agriculture is a function of land's agricultural quality. We then use land quality as an instrument for ancestral agricultural dependence in our basic regression setting finding roughly similar estimates. In Section 7 we explore whether the

identified pattern is robust to exploiting variation in the mode of subsistence within linguistic or ethnic families. Section 8 concludes.

2. Related Literature

Our study belongs to a growing body of work on the historical origins and the political economy of African development. Broadly speaking the main arguments that have been proposed refer to different periods in African history. In reverse chronological order, the first category includes an influential body of research which stresses how the institutions that European powers established during colonization persisted upon independence and continue to shape contemporary economic performance (e.g., La Porta et al. (1997, 1998); Acemoglu et al. (2001, 2002), Michalopoulos and Papaioannou (2014)). The second set of studies focuses on events that took place during the colonial period itself. Huillery (2009), Berger (2009), and Arbesu (2011), for example, quantify the long-run effects of colonial investments and tax collection systems whereas recent works shed light on the negative effects of the improper colonial border design during the Scramble for Africa, see Englebert, Tarango, and Carter (2002), and Michalopoulos and Papaioannou (2013b). Despite the wide consensus that colonization in African has had lasting effects on subsequent African development, recent studies highlight the persistent legacy of the pre-colonial era. Nunn (2008) and Nunn and Wantchekon (2011), for example, stress the role of slave trades whereas Michalopoulos and Papaioannou (2013a) demonstrate the beneficial role of ethnic political centralization on regional African development. Our study belongs to the latter strand by establishing that descendants of agricultural groups today outperform economically individuals from groups of different pre-colonial occupational background. This finding contributes to our understanding of the legacy of ethnicity in Africa.

More generally, our work relates to the literature on the cultural origins of comparative development adding to a vibrant body of research that examines the within-country impact of various historical legacies on economic performance (e.g., Banerjee and Iyer (2005), Dell (2010), Michalopoulos and Papaioannou (2013a)). By utilizing individual-level variation we overcome problems inherent to cross-country or cross-regional analyses, and complement existing studies by uncovering the persistent lead in the economic well-being of descendants of pre-colonially agricultural groups.

Exploiting individual-level variation has straightforward advantages. First, instead of assigning current territories to tribal homelands we are able to directly link a respondent's ethnic background to the ancestral characteristics of the group he/she belongs to. This allows us to quantify how much of the individual-level variation in economic outcomes may be attributed to one's ethnic identity. Second, we may account for location-specific traits. This is feasible because we observe people from different ethnic groups residing in the same location.

The introduction of tribal homeland fixed effects is crucial since it allows us to absorb time-invariant characteristics related to the geographic, ecological and institutional environment

of a given region that recent studies have highlighted as important determinants of regional African development, see Aslan (2014), Michalopoulos and Papaioannou (2013a), Fenske (2012). Moreover, it allows us to uncover the importance of *portable* ethnic-specific traits whose influence is not limited to the ancestral homeland of a given group. This methodology is similar to Nunn and Wantchekon (2011) who investigate the impact of slavery on individual trust among respondents residing outside their ethnic enclaves. Our finding that descendants from groups, that in the pre-colonial era derived a larger share of subsistence from agriculture are today more educated and more wealthy brings to the foreground the persistent role of cultural traits and skills vertically transmitted within groups over time.

In this respect, our study contributes to an emerging body of work that emphasizes the importance of cultural norms, historical persistence, and human and geographic traits for comparative development (see Diamond (1997), Landes (1998), Guiso, Sapienza, and Zingales (2006), Spolaore and Wacziarg (2009), Putterman and Weil (2010), Ashraf and Galor (2013), Michalopoulos, Naghavi, and Prarolo (2012), and Michalopoulos and Papaioannou (2014) among others).

3. Ethnicity and Modern Outcomes

3.1 Ethnicity Data

Our starting point is data from the DHS for 24 countries in which an ethnicity variable was collected as part of the survey. We use the most recently available DHS wave for which *both* the ethnicity data and location coordinates are available. This reduces the sample to 20 countries since for 4 out of 24 countries we do not have coordinate information from the DHS. We restrict our data to males, although the results are similar when we use the female sample as well. The sample size ranges between 1,000 and 6,000 individuals per country, a total of 112,737 individuals. Of these individual, 102,712 have a non-missing value for ethnicity. In our DHS sample, there are 300 ethnic-country groups, where the same ethnicity appearing in two different countries is counted as two different groups. [1]

3.1.1 Matching Modern Ethnicities with Ancestral Tribes, Locations, and Tribal Characteristics

We conduct two different matching exercises: the first to ancestral characteristics in Murdock's Ethnographic Atlas (Murdock, 1967), and the second to ancestral homelands as delineated in

[1] The survey rounds in the respective countries are: BF6(Burkina Faso), BJ4(Benin), CD5(Congo Democratic Republic), CF3(CAR), CM4(Cameroon), ET6(Ethiopia), GH5(Ghana), GN4(Guinea), KE5(Kenya), ML5(Mali), MW5(Malawi), MZ6(Mozambique), NG5(Nigeria), NI3(Niger), NM4(Namibia), SL5(Sierra Leone), SN6(Senegal), TG4(Togo), UG6(Uganda), and ZM5(Zambia).

the Murdock Map (Murdock, 1959). The set of ethnicities in our Atlas dataset is a subset of the ethnicities in the Map data. Thus if were able to match an individual to an Atlas ethnicity, we were also able to match to a Map ethnicity.

A total of 94,212 individuals were matched to a Murdock Atlas group and assigned characteristics of the corresponding ethnic group in the Ethnographic Atlas. A slightly larger number, 96,586, were matched to homelands delineated on the Murdock Map.

Our matching procedure was as follows. We constructed a series of ten possible methods for matching ethnicities in the DHS with ethnicities in one of the Murdock dataset. These methods were ordered from best to worst in terms of our assessment of their likely accuracy. We then proceeded down the list, using for each ethnicity the first method for which we were able to achieve a match. Matching was done separately for the Atlas and Map ethnicities. In the text below we describe the most important methods. In the appendix we describe all ten methods and give the fractions of cases matched using each one.

The method at the top of our list was "direct match," in which the same name was used in the DHS and the Murdock source. We were able to directly match 58.7% of observations to Atlas ethnicities and 67.0% to Map ethnicities. The second method on our list was "Afrobarometer match:" we applied to the ethnicity names that appear in the DHS to the mapping constructed by Nunn and Wantchekon (2011) from ethnicity names that appear in the Afrobarometer dataset to ethnicities that appear in the Murdock dataset. This matched a further 4.5% of observations to Atlas ethnicities and 10.0% of observations to Map ethnicities. The next three methods all used data on alternate ethnicity names from the Ethnologue or Joshua Project. The third method applied to cases where the DHS and Murdock names were listed as alternates; the fourth where a name that appeared in the Murdock source is listed as a superset of the ethnicity that appears in the DHS; and the fifth where the name that appears in the DHS is listed as a subset of the ethnicity in the Murdock data. Together, these three methods matched 19.1% of observations to Atlas ethnicities and 13.2% to Map ethnicities.

3.1.2 Movers and Average Distance Moved

As described above, much of our interest in this paper is with the aspects of human capital (broadly defined) that persist over generations and are portable across locations. Further, we are interested in aspects of culture that have their origins in the conditions of particular geographic locations. To the extent that people live in the regions traditionally associated with their tribal group, it would not be possible to separately identify the effect of tribal characteristics from geographical characteristics. Thus we have a particular interest in individuals who live outside the territory associated with their tribe of origin. We follow Nunn and Wantchekon (2011) in calling such individuals "movers," even though they may not have moved in their own lifetimes. A better name for such individuals might be "non-autochthonous."[2]

[2] The DHS reports whether an individual has moved in his/her lifetime for a subsample of

The DHS reports coordinate information for a person's current residence. We can thus classify individuals as living inside or outside their ancestral homeland. For those living outside of their homeland, we generated a variable measuring distance to their homeland. Specifically, this is the distance from the coordinates of an individual's current residence reported in the DHS survey to the closest border of her ancestral homeland (Murdock's map). The African Equidistant Conic projection was used when computing these distances.[3]

In the DHS data, 37% of individuals live within the boundaries of their ancestral homelands. Figure 1 shows the breakdown of distance to homeland for those who live outside of it. 57.76% of these individuals live between 10 and 500 kilometers away from the border of their homeland, while 5.24% live within 10 kilometers of the border. Given the imprecise nature of the borders in the Murdock map, the fact that ethnic group locations may have some overlap and DHS coordinates are perturbed by 5 or 10 kilometers, we are reluctant to assume that member of this last group are in fact living away from their ancestral location. Thus we do not include them in our definition of "movers" in the empirical exercises below.

3.2 Ethnicity and Modern Outcomes

We focus on two outcomes: education and wealth. Education is coded on a scale of 0-5, which are labeled "no education", "incomplete primary", "complete primary", "incomplete secondary", "complete secondary", and "higher." Wealth is a measure of household wealth, and is coded on a 1-5 scale that divides the population in a country into quintiles of household wealth for that country. Rutstein and Johnson (2004) provide a full description of the construction of this index.[4] The raw correlation between education and wealth in the full sample is 0.46 and that with urban is 0.38 and 0.61, respectively.

Before turning to the role played by ancestral ethnic characteristics, we explore the role that ethnicity plays more generally in our data. Table 1 shows R-squareds from regression of our education and wealth measures on different sets of dummy variables: country fixed effects, ethnic homeland fixed effects, and ethnic group affiliation fixed effects. The ethnic homeland fixed effects are dummy variables corresponding to the current tribal location of the individual

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respondents. This question does not distinguish between people that moved out of their homeland or from some other location.

[3] For cases where an individual is matched to more than one ancestral homeland, the nearest homeland was picked to compute this distance.

[4] The DHS wealth index is composed taking into account consumer durables, electricity, toilet facilities, source of drinking water, dwelling characteristics, and some country-specific attributes such as whether there is a domestic servant, for example. The measure is derived by the DHS using principal component analysis to assign indicator weights resulting in a composite standardized index for each country.

according to the Murdock map. We also report the R-squared from combining different groups of dummy variables to gauge the additional explanatory variable of different sets of dummies.

The regressions show, first of all, the role of ethnicity in determining outcomes. For example, once country fixed effects are included in the regression, adding ethnicity-specific constants raises the R-squared for education from .136 to .234, and for wealth from .013 to .157 (results for movers are slightly larger).[5] Current tribal location has more predictive power than does ethnic affiliation: for education, the difference is about 2.5 percentage points, while for wealth the difference is about 10 percentage points. However, what is more important for our analysis is that even when dummies for current location are included in the regression, there is still an improvement in fit (of about 4 percent in all the specifications) from adding dummies for ethnicity.

4. The Influence of Ancestral Characteristics on Modern Outcomes

We now turn to the main line of inquiry of the paper, which is to examine how historical characteristics of an individual's tribe are related to his outcomes. We begin by discussing the main historical measure of interest, which is the tribe's mode of subsistence. We then present regressions of modern outcomes on historical mode of subsistence, and discuss the robustness of our findings.

4.1 Historical Mode of Subsistence

Our primary interest in this paper is in how historical characteristics of an individual's ancestral tribe are related to economic outcomes in the present. Having established a match between current ethnicity and historical tribes, we can use tribal characteristics as described in Murdock's *Ethnographic Atlas*. The central historical characteristic on which we focus is an ethnic group's pre-colonial mode of subsistence.

As mentioned in our introduction, proponents of an evolutionary approach to technological, social and economic development, including Sahlins and Service (1960), Service (1971), and Johnson and Earle (2000), see rough continua of social complexity, scale and degree of centralization of polity, and level of technological sophistication, running from "band-level" societies subsisting on hunting and gathering to "state-level" societies subsisting on agriculture and ultimately supporting the emergence of urban centers with more complex divisions of labor. Although usually denying uniformity of path along such a continuum, life-way steps from foraging to shifting cultivation and horticulture and onwards to settled, plough-using agriculture, and political steps from band to tribe to chiefdom to state, are frequently observed markers in this literature. The independent emergence of agriculture, of its gradual intensification, and of cities and large-scale states in distant (and in at least one case) largely independent regions

[5] Note that the R-squared for the country-fixed-effects regression on wealth is almost to zero because wealth is standardized by country.

including the Near East, China, and Mesoamerica, suggests a natural progression within which steps can be skipped, if at all, only when there are nearby models being copied or imposed. Absent such borrowing opportunities, cities and states will emerge only after a sufficient period of agricultural intensification and population growth.

The role that adoption of agriculture as a social evolutionary force played in sub-Saharan Africa appears to follow much the same general script as in other regions of the world. The pattern is clearest with respect to the spread of agriculturally-based societies from the region around modern-day Nigeria and Cameroon to the regions of central and southern Africa that contain modern countries such as Angola, D.R. Congo, Uganda, Kenya, Zimbabwe, South Africa, and many more. Linguistic and archeological evidence supports the conclusion that before the arrival of agriculture--about 3,000 years ago in Congo, 1,800 years ago in Zambia and a mere 1,000 years ago in Botswana--these regions were inhabited by considerably less populous forager populations of whom today's San and Pygmy groups are probably remnants. The state-level societies of these regions, including the civilization that built the stone structures of Great Zimbabwe between the 11th and 14th centuries CE and the various pre-colonial kingdoms on the edges of Lake Victoria including Buganda and Bunyoro, were all built by Bantu-speaking peoples whose subsistence depended on growing crops domesticated in the more northwesterly area of Bantu origin (Oliver and Fage, 1990; Diamond, 1997; Diamond and Bellwood, 2005).

While not a tenet of the social evolutionists in itself, the tendency towards gradualism of progressions just noted may have a correlate in cases of contact between cultures at different stages of development: that when an industrial society offers "modernizing" opportunities to pre-industrial societies via forms of contact including colonization, trade, and development assistance programs, the receiving cultures may be able to absorb the new opportunities more readily if situated on the agrarian side of the pre-industrial continuum than if reliant upon horticulture and, even more so, foraging. Reasons for greater ease of adoption by agrarian societies may include differences in work habits (longer and more intensive work hours are more the norm in agrarian than in foraging societies [Sahlins, 1972]), and cultural norms associated with large-scale, hierarchical and extra-familial organizations (such as states and their contemporary counterparts, corporations).[6] Of course, it may also be the case that "bearers of civilization" such as the European missionaries who transmitted literacy and other technologies to many in the countries concerned, had subjective biases about agriculturalists being more promising recipients of their message, and that this in itself skewed transmission towards members of agricultural groups.

Richerson *et al*. (2000) note the challenge of situating pastoralism within evolutionary frameworks of the kind discussed here. Because they rely primarily on domesticated rather than hunted animals, pastoralists must be located on the same side of the Neolithic divide, with

[6] The idea that modern organizational forms are more easily taken up by those on the agrarian state than those on the foraging band end of the social evolutionary continuum is discussed at length by Putterman (2000)

respect to foragers, as are members of agricultural societies. Their historical emergence is thus viewed as one of specialization following the onset of both plant and animal domestication, not an independent and early branching from foraging. While not therefore representing a stage lying between foraging and agriculture on a temporal continuum, pastoralists nonetheless resemble foragers in their less settled way of life. Consistent with this, Richerson *et al*. describe them as being "considerably more 'primitive' in terms of complexity of social and political organization." The more exaggerated sexual division of labor, tighter bonds to immediate family, frequently observed propensity towards violence, and more contested nature of property (Richerson et al. state that "herd animals are relatively easy to rustle, and pastoralists everywhere are in the habit of stealing from each other"), are among the features that might make adoption of modern norms and practices more challenging for members of pastoral than of agrarian societies.

Based on these considerations, it seems reasonable to treat pastoral societies as occupying a place intermediate between agrarian and foraging societies in terms of proximity of life-way to that of the populous agrarian civilizations that gave birth to industrial society. If this is so, then the idea of more rapid adoption of modern social and physical technologies by those closer to the urban industrial end of the foraging to agrarian civilization continuum should imply that those from agricultural societies will be found to have achieved better recent economic outcomes, on average, than those from pastoral ones, who would in turn have achieved better outcomes than those from societies practicing foraging when incorporated into colonial and post-colonial states.

The Ethnographic Atlas lists five activities--gathering, hunting, fishing, animal husbandry, and agriculture--and classifies the share of subsistence obtained from each into 9 broad bands: 0 - 5%, 6 - 15%, 16 - 25%, …., 85 - 100%. With the exception of eight individuals belonging to a single ethnic group (the Mbuti, in D.R.C.), our sample contains no other individuals from groups that pre-colonially relied primarily on hunting and gathering, activities that instead appear in our data mainly as supplementary subsistence sources for groups also engaged in agriculture. While the Atlas also distinguishes between "extensive agriculture" and "intensive agriculture," initial explorations making use of that division found no clear distinctions between groups described as having engaged in intensive versus those said to have engaged in extensive agriculture. To focus on potential differences in outcomes attributable to differences in the extent of ancestral groups' reliance on agriculture as opposed to pastoralism and other activities, we count reported subsistence shares from both extensive and intensive agriculture as belong to a single activity, agriculture.

Of the nearly 88,000 individuals in our sample, 82.6% are members of ethnic groups for which agriculture was the most important source of subsistence pre-colonially, according to the Atlas, 9.6% being from groups in which animal husbandry was most important (pastoralists), 7.8% from groups in which agriculture and animal husbandry (6.9%) or agriculture and fishing (0.9%) were equally important, and none other than the eight Mbuti being from a group for which hunting, gathering, or fishing were leading activities in their own right. Using the Atlas's

subsistence share bands, individuals from groups in which agriculture was most important score an average of 6.3 (standard deviation of 1.0), implying that agriculture provided about 60% of subsistence. Animal husbandry, hunting, gathering and fishing together account for the remaining roughly 40% of the traditional subsistence of agricultural tribes, with each of the last three categories providing less than 5% of subsistence on average, although fishing in particular accounts for up to 35% of subsistence for a few small groups.

Individuals from groups in which pastoralism was most important have virtually the same average band score for their leading activity (6.3, with a standard deviation of 1.6). Among these groups, the mean of the agriculture variable is 2.4 (standard deviation of 1.6). In our regression analysis, we treat pastoralism as the default activity and use as our focal independent variable the percentage of traditional reliance on agriculture, with the cumulative percentage of reliance on hunting, gathering and fishing by the individual's ethnic group among our controls. In interpreting our regression coefficients, a convenient standard is to consider the difference in reliance on agriculture between groups reporting agriculture as their most important means of subsistence and those reporting that pastoralism plays this role. The difference is 3.9 points on the scale described above.

4.2 Benchmark Regressions

The first panel of Table 2 shows our most basic results. We regress our education and wealth measures on the shares of agriculture and hunt/gather/fish in an individual's ancestral tribe's subsistence. The omitted category is the share of pre-colonial subsistence derived from pastoralism. In the simplest specifications (Columns 1 and 5) we include only country fixed effects and controls for age and age-squared (referred to as "simple controls"). The coefficient on agriculture is positive and significant, implying that the more of their subsistence a man's ancestral group obtained from working the land, as opposed to animal husbandry, the more educated and the wealthier he is today. This accords with the conjecture that agriculturalists and their descendants have on average obtained more education, adopted more advanced technologies, and entered more modern sectors of their economies than pastoralists and their lineages.

In this regression, as well as most of the rest of the specifications in this table, the coefficient on the hunt/gather/fish measure is also positive and significant. If this were an indication that descendants of hunter-gatherers such as the Twa of Rwanda, the Kung-San of Botswana and Namibia, or the Mbuti of the Congo, have also modernized more rapidly than pastoralist counterparts, it would severely challenge the social evolutionist logic discussed above. Recall, however, that hunting and gathering are primary sources of subsistence for the (ancestors of) only a handful of individuals in our sample. It is common to see hunting and gathering account for a minor share of traditional subsistence in primarily agricultural groups, according to our sources, but only fishing is ever assigned parity with the lead subsistence source, and only in a few small groups accounting for under 800 observations. Given the supplemental rather than

primary role of these activities, positive effects of a larger subsistence share from hunting, gathering and fishing are thus more plausibly interpreted as suggesting lasting benefits of an ancestral group's occupation of an enriched environment, rather than signaling that the lifeway of true hunter-gatherers conferred long-run advantages in its own right.[7]

In the second and sixth columns we replace the country fixed effect with a fixed effect for the ethnic homeland in which the individual currently resides (allowing for two different fixed effects if the homeland lies in two countries.) To the extent that ancestral lifeways predict current outcomes only because lifeways predict the current state of development of different regions of a country, these fixed effects will capture such a channel. However, in practice, the coefficient on agriculture in the regressions for education and wealth is reduced by a quarter or less when these fixed effects are added. This finding highlights that the importance of differences in ancestral lifeways in shaping individual economic outcomes is not confined to the homeland of origin of the specific group but is portable across different locations within the country.

The magnitude of these coefficients can be interpreted as follows. As mentioned above, for ethnic groups characterized in the Murdock data as having agriculture as their primary form of subsistence, the mean of our agriculture variable is 6.3 (recall that this is on a scale of 0-9). For groups that report pastoralism as their primary form of subsistence, the mean for the agriculture variable is 2.4. Thus moving between these groups, agriculture rises by 3.9 points. The coefficient in column two, 0.143, thus implies that shifting from pastoralism to agriculture as the primary form of subsistence would raise education by 0.56 points. Since education is in turn measured on a scale where each point corresponds to roughly 3 years, this would be one and one half years of education. The wealth coefficient, 0.164, implies that a shift from agriculture to pastoralism as the primary form of subsistence raises the wealth index by 0.64 points. Since the wealth index corresponds to quintiles, this would be roughly equivalent to raising an individual's percentile rank by 12 points. Both of these effects seem quantitatively significant.

In the third and seventh columns, we control for urban residence. Not surprisingly, this is strongly predictive of both education and wealth. The coefficient on agriculture falls by between one third and one half, but remains significant in predicting both education and wealth levels. The fact that the coefficient falls suggests that one channel by which agricultural heritage improves modern outcomes is by raising the probability of having moved to a city. However, agricultural heritage evidently has an impact on current outcomes through other channels as well.

[7] The evidence from other sources is consistent in indicating disadvantageous modern outcomes for hunter-gathers attempting to adapt to modern lifeways. In fact, adding a dummy for individuals tracing ancestry to groups that had hunting and gathering as their primary source of subsistence enters with a negative and significant estimate. Note that this dummy reflects the socioeconomic status of 8 individuals which belong to the Mbuti group. For completeness, we note that there are two groups, the Herero and the Nam, both of Namibia, for whom hunting and gathering are listed as important sources secondary to animal husbandry rather than to farming. These exceptions to the rule that hunting and gathering appear as supplements to agriculture, in our data, account about a thousand of our observations.

Finally, in the fourth and eighth columns, we control for a set of occupation fixed effects.[8] This accounts for the possibility that the primary channel through which ancestral lifeway affects current outcomes is through an individual's choice of occupation. This allows us to rule out the possibility that the source of our estimates is simply that the descendents of farmers are still farmers and the descendents of pastoralists are still pastoralists. Surprisingly, although the occupation dummies significantly improve the R-squared of our education and wealth regressions, they only slightly change the coefficient on agriculture.

In the second panel of Table 2, we repeat the same set of regressions for "movers," that is, people living more than 10 kilometers outside their ancestral homelands. (These individuals have not necessarily moved during their own lifetimes.) Doing so we focus on a sample consisting of individuals who are outside their tribal homelands and allow the location-specific constants as well as the other controls to have a different association with the outcome variables in this sample. The pattern of coefficients on the agriculture variable is very similar, although the magnitude a bit larger, than for the full sample.

4.2.1 Heterogeneity by Occupation, Urban Status, and Country

To assess the sensitivity of our results as well as provide some evidence on the possible channels via which ancestral lifeways affect current outcomes, we split the sample along various dimensions.

We start by splitting the sample by occupation into two broad categories: farming-related and non-farming related.[9] The results are presented in Table 3 for the full sample (panel A) and for movers only (panel B). This allows us to assess the extent to which the effect of ancestral lifeway operates in the traditional or in the modern sectors of the economy. For education, the effect of agriculture remains significantly positive in both sub-samples. The coefficient on agriculture in the non-farming group (0.112) is almost twice as large as the coefficient in the farming-related group (0.066). This implies that agricultural ancestry has more import outside of agriculture than within it. However, both of the coefficients just mentioned are lower than the coefficient on agriculture in the regression in which the sample is not split (0.143, from column 2 of Table 2), which suggests that part of the way in which an agricultural ancestral background affects modern outcomes is through individuals leaving agriculture. In the case of wealth, the coefficient on agriculture also remains significant when the sample is split, but the difference in coefficients between farming and non-farming occupations is much smaller, although coefficients from the split sample are once again smaller than when the sample is not split.

[8] Occupation categories are: not working, professional/technical/managerial, clerical, sales, agriculture self employed, agriculture employee, household & domestic, services, skilled manual, unskilled manual, and other. In addition, there is a category for agriculture/breeding/fishing/forest that is found in two countries (Guinea and Mali). We create a separate dummy variable for this combination category in these two countries.

[9] Farming-related includes: agriculture self employed, agriculture employee and agriculture/breeding/fishing/forest. Non-farming related include all the rest (except for not working).

Splitting the sample into urban vs. rural residence, we find an interesting difference in the results for education compared to wealth. For education, the results generally remain significant, the coefficient in the two sub-samples are similar, and both coefficients are about two-thirds of the size of the corresponding coefficient in Table 2. In the wealth regression the coefficients are again significant in the sub-samples, but in this case, the coefficient on agriculture for individuals living in rural areas is three times as large as that in urban areas. (Some part of the difference is explained by the fact that the variance of wealth in rural areas is 30% larger than in urban while the variances of the agriculture measure are almost equal in the two areas.)

Finally, we re-run our benchmark regressions for each country separately in our sample. These result are shown in Appendix Table 3. Depending on the specification used, the coefficient on agriculture is positive and significant at the 10% level in between 10 and 14 countries. It is only negative and significant in one country. This suggests that the benchmark pattern is not driven by a handful of countries but reflects a more generalized phenomenon of the African landscape. Agricultural descent is a strong positive predictor of contemporary individual well-being.

4.2.2 Including DHS-Location Fixed Effects

Our benchmark regressions include location fixed effects at the level of the Murdock map region in which an individual currently lives. The justification for this approach is that these tribal regions may have characteristics that directly influence modern outcomes -- indeed, these may be the same characteristics that determine traditional lifeways.

In this section we examine the robustness of controlling for location at a much finer scale. Specifically, we use the location information in the DHS, creating a fixed effect for every pair of coordinates. This leads to a very large number of geographic fixed effects: 8,861. Correspondingly, the units within which we are exploiting variation have just a handful of households: an average of just under ten. The DHS sampling clusters are sufficiently small that there is no doubt that the these fixed effects represent a perfect control for the geographic components of the economic environment that individuals face, for example, labor market opportunities.

Table 4 shows the results. Compared to our benchmark regression with region fixed effects, the coefficient on agriculture in both the education and wealth regressions falls by between one half and two thirds; however, it remains statistically significant.

While it is impressive that our basic results survive such a fine level of geographic control, we do not treat these fixed-effect regressions as our benchmark. The most important reason is that there is a good deal of endogeneity in the exact location of the respondents where concerns regarding sorting by socioeconomic status become more pressing. In large cities, for example, there are many sampling clusters.

4.3 Selection into Migration

As discussed above, we are able to identify the portable component of ancestral influence on current outcomes only because we have in our sample a substantial number of people who are living outside of their ancestral homelands. Using our criterion of calling someone a "mover" if they live more than 10 kilometers outside of the homeland associated with their ethnic group, this comes to 56 percent of our sample. A natural worry with our inference strategy is that people who live outside their ancestral homelands are not randomly selected, and in particular, that the manner in which selection operates may differ according to the ancestral lifeway associated with his/her ancestral homeland.

As a first step in assessing whether selection into migration biases our results, we look at the extent to which ancestral lifeway itself predicts migration. We use two different measures of migration: first, the "mover" definition used above, and second, a variable from the DHS that indicates whether an individual has moved during his/her life (this latter measure is only available for a subsample of observations). The results are shown in Tables 5 A and B. The first table show strong evidence that individuals from ethnicities that historically practiced more agriculture are less likely to be classified as "movers". A person from the average ethnicity that relied mostly on agriculture is roughly 20 percentage points less likely to be a mover than someone from a group that relied mostly on pastoralism, and this result is robust to the inclusion of ethnic homeland and occupation fixed effects as well as an urban dummy. The probable explanation is that areas in which agriculture was practiced were more likely to develop cities, which in turn attracted migrants, although another possibility is that the locations of the ethnic homelands of pastoral people are not as precisely measured as that of agriculturalists mechanically producing the observed correlations.

In the case of our other measure, being from an agricultural background is weakly positively associated with the probability having moved in one's own life even when controlling for location fixed effects, but this result becomes insignificant when an urban dummy or occupation dummies are included in the regression. This is not surprising as the correlation between having moved in life and wealth and education levels is 0.27 and 0.21, respectively, suggesting that those of agricultural descent who are on average more wealthy and educated are more also more likely to move to opportunity towards the urban centers and engage in certain professions.

The finding that there is strong predictive power of ancestral lifeway for being a "mover" suggests that there could also be differential selection into migration across lifeway groups. To assess the potential effect of this selection, we repeat our benchmark regression, including a "mover" dummy and interacting this dummy with our two ancestral lifeway categories: agriculture and hunting/fishing/gathering. A finding that there is a differential impact of being a mover for people with different ancestral lifeways has two possible interpretations. One is that

there is indeed differential selection into migration -- that is, that migrants from, say, homelands with agricultural lifeways differ more from those who remain behind than do migrants from homelands with pastoral lifeways. The alternative interpretation is that there is differential portability of lifeway-specific skills outside of one's own homeland (and in particular in cities, where we expect a good fraction of movers to be located). This second channel would still be consistent with the idea that ancestral lifeway was an important determinant of modern outcomes, although via a slightly different channel than the one that we have stressed above.

The results are shown in Table 6. We run these regression with and without a dummy for urban residence. The findings are encouraging. When education or wealth are used as the dependent variable, the interaction of agriculture (the variable of greatest interest to us) and the moving dummy is insignificant, while the coefficient on agriculture itself remains quite significant. In both cases the interaction of agriculture with moving is negative albeit insignificant suggesting that either movers from agricultural areas are less positively (or more negatively) selected than those from pastoral areas, or alternatively that skills from agricultural areas are less portable than those from pastoral areas. The first of these possibilities strikes us as much more likely than the second.

5. Transmission Mechanisms

5.1 Pre-Colonial Characteristics

The Murdock Atlas provides a wealth of characteristics of tribal groups in addition to their means of subsistence. In this section, we experiment with adding a number of these to the right hand side of our benchmark regressions for education and wealth. We view this as both a further test of the robustness of our findings as well as an attempt to identify the channels of causation from ancestral lifeways to modern outcomes. We would expect that a society's means of feeding itself would determine a great many other societal characteristics.[10] Alternatively, it might be that ethnic groups that take up agriculture already had certain characteristics.[11] In either of these cases, it may be these characteristics that affect outcomes of individuals once they leave their traditional occupations. Finding that adding such a characteristic to the right hand side of our benchmark regression significantly reduced the coefficient on agriculture would be evidence for this story. Further, given that we show below that land quality affects the probability of a group practicing agriculture, one could view a finding that controlling for a certain characteristic reduced the coefficient on agriculture as evidence of a causal channel

[10] The notion that culture is a "superstructure" determined by a society's "mode of production" or material base, was famously proposed by Karl Marx and championed in the field of anthropology by Marvin Harris (1997), among others.

[11] As alluded to earlier,most agriculturalists in central, east and southern Africa belong to ethnicities speaking Bantu languages, and many of their ancestors are likely to have arrived at the locations at which Murdoch and colleagues found them, already carrying agricultural technologies with them, as argued for example by Diamond and Bellwood (2003).

from land quality to practice of agriculture to this specific characteristic and to modern outcomes.

The characteristics that we examine are the following: polygyny is a dichotomous indicator for the practice of men marrying multiple wives; clans is a dichotomous variable if community marriage organization is coded as characterized by clan communities or clan barrios and not segmented communities, exogamous communities, or segmented communities without local exogamy; settlements refers to position on a spectrum ranging from 1 for fully migratory and nomadic to 8 for complex settlements, with permanence and density of settlement presumably increasing with value assigned; locjuris indicates the degree of jurisdictional hierarchy (existence of governance structures) at the local (e.g., village) level; v33 indicates jurisdictionary hierarchy above the level of the local community, coded 1 (no supra-community hierarchy) to 5 (four levels of hierarchy above the local community); classdummy is a dichotomous indicator valued 0 if no class stratification "among freemen," 1 if the atlas records class stratification, wealth distinctions, elite class, dual classes, or "complex" class structure; elections takes value 1 if succession to the office of local headman was by election or other formal consensus, otherwise zero; slavery refers to presence of an internal institution of slave ownership; and property, set to 0 if "inheritance rule for real property (land)" is coded "absence of individual property rights," 1 for a matrilineal, patrilineal or other heirs response. We refer to these characteristics as "pre-colonial," since we believe that they are measuring aspects of tribal society that pre-date European interference. In addition to assessing how these characteristics affect the coefficient on agriculture, it is also of interest to look at their own effects.

The results are shown in Table 7. Each column of the table shows results from two regressions that use the same sample. The top line shows the coefficient on the agriculture share in a regression in which the only right hand side variables are the agriculture and hunt/gather/fish shares as well as our "simple controls" and country-ethnic homeland fixed effects. The bottom part of the table shows coefficients from a regression that adds to these one or more of the pre-colonial control variables. We follow this procedure because inconsistencies in the Atlas regarding which pre colonial variables are measured mean that the sample varies significantly among specifications (and, as seen the last column, is greatly reduced when we use all of the pre-colonial characteristics).

The first finding in this table is that controlling for pre-colonial characteristics, either one at a time or all together, has little effect on the coefficient on agriculture, looking at the effect on either education or wealth. The coefficient always remains statistically significant, and does not change in magnitude much when characteristics are entered one at a time. Even when all of the pre-colonial characteristics are entered in the regression together, the drop in the coefficient (in the case of movers, for which the drop is larger) is from 0.166 to 0.116 for education and from 0.159 to 0.119 for wealth. This suggests that the characteristic measures that we have available to us do not do a good job of capturing some channel by which agriculture as a traditional lifeway affected modern outcomes, either because of measurement error or because these characteristics really are not the channel.

We do find some evidence that the pre-colonial characteristics we look at are important. For example, the results point (although not completely consistently) to people descended from societies that practiced indigenous slavery having lower educational outcomes today.

5.2 Colonial Roots

In Table 8 we control for variables measuring factors from the colonial period that might influence economic outcomes of descendants today. We include two measures intended to capture the impact of slavery: slaves taken per square kilometer of the ancestral ethnic homeland and distance from the centroid of the ancestral homeland to the sea. We also include two variables that are intended to measure other influences of Europeans: missions per square kilometer of the ancestral ethnic homeland and distance of the homeland's centroid to the capital city. Finally, we include measures of religion at the individual level. The reference group in this case is Christian, with the two other categories being dummies for Muslim and for other/no religion.[12]

Inclusion of these variables has relatively little effect on our estimates. Including all of them together, the coefficient on agriculture in the education regression falls by less than a third, and that in the wealth regression hardly changes at all. Both remain statistically significant. Of the additional variables, the most notable effects are from religion. Non-Christians have lower levels of educational attainment, while for wealth, being other/no religion has a negative effect, but this is not the case for Muslims.

5.3 Institutional Roots: Political Representation

The literature on African political economy provides abundant evidence of the role played by ethnic favoritism in determining access to employment and government services. See Franck and Rainer (2012) and Kudamatsu (2009). Hence, a natural candidate for explaining the difference we observe in the socioeconomic status between pastoral and agricultural groups is their difference in political power. We attempted to shed light on this issue performing the following two tests.

First, motivated by the finding of Francois, Rainer and Trebbi (2014) that across roughly 15 African countries ruling coalitions are surprisingly large and that political power is allocated proportionally to population shares across ethnic groups, we added as a control in the benchmark regressions the log of the number of individuals belonging to the respondent's

[12] The DHS religion variable (v130) is coded differently for each country. For some countries, we collapsed several groups to form the "Christian" category. All the countries provided enough information for us to put individuals into one of our three categories, except for Namibia, which does not have a unique category for "Muslim". But considering that Namibia is overwhelmingly Christian (only 25 observations are non-Christian), this should not be a big problem.

ethnic group. This variable is meant to capture the de facto influence of that group in the political arena. Doing does not affect the quantitative significance of our estimates.

As an alternative way to gauge the political representation of a group we followed Michalopoulos and Papaioannou (2013b) and linked the groups in the Ethnic Power Relationship dataset (EPR) to the Murdock Atlas groups. The former dataset created by Wimmer, Cederman, and Min (2009) records periods/years of ethnic-based discrimination and the degree of participation in the government, ranging from junior to senior partner to dominant and monopolist. Using this direct measures as the outcome of interest we did not uncover a robust association between the pre-colonial degree of dependence on agriculture of a given group and its current degree of representation in the government the last 65 years (tables are available upon request).[13] These non-findings taken together suggest that the superior economic performance of individuals from agricultural background as documented in the DHS cannot be readily attributed to a disproportionate influence of such groups in the public sphere. Moreover, this pattern alleviates concerns that agents may emulate a certain ethnic identity in order to take advantage of government benefits.

5.4 Cultural Roots: Violence Toward Women

A natural theory explaining persistent effect of ancestral lifeways on modern outcomes is that there is cultural transmission of traits related to lifeways that impact behavior today. The range of potentially relevant traits is enormous, and measurement of any particular cultural trait is difficult. For example, Galor and Ozak establish a positive link between geographic endowments conducive to agriculture and patience as measured in contemporary populations.

Data availability leads us to focus on two features sometimes pejoratively attributed to pastoralist cultures and seeming at first blush to have the potential to reduce the success of individuals in modernizing societies. They are: a reputed proclivity to violence, in men (Nisbett and Cohen, 1996; Pinker, 2011; Grosjean, forthcoming), and alleged low status of women (Bodley, 2011; Krätli, 2001).[14] The first trait might disadvantage men as candidates for occupations requiring cooperative interaction with those from other cultures, and the second might, among other things, cause greater gender disparities, lower investment in education and health of women, and less female participation in the labor force. Unfortunately, our data do not permit us either to disentangle the two factors or to determine exactly how--i.e., in one of the

[13] This insignificance cannot be only interpreted as an outcome of measurement error as the degree of discrimination as measured in EPR across Murdock groups has been found to correlate with the event of partitioning, Michalopoulos and Papaioannou (2013b).

[14] Note that it is beyond the scope of our investigation to draw conclusions regarding the claims concerning these traits, and among the sources referenced both Bodley and Krätli view the claim of low status of women as being oversimplified.

manners just mentioned, or in some other way or ways--they influence outcomes.

We find in the DHS a set of attitudinal measures that reflect some combination of men's attitudes towards both violence and women. Five questions in the DHS ask respondents about the circumstances under which it would be acceptable for a man to beat his wife.[15] As our dependent variable, we use the first principal component of these five measures, which on average explains 59.9% of the variation in each of them. The standard deviation of the dependent variable is 1.73. This measure reflects a mix of attitudes toward women and proclivity toward violence.

Table 9 shows the results. We include our standard set of controls, and also experiment with including controls for education and wealth as well as a control for being Muslim, since Muslims are somewhat overrepresented among pastoralists and reduced freedom or lower status for women is sometimes attributed to Muslim cultures. Being from an ethnicity that was traditionally dependent on agriculture has a consistently negative and significant effect on the reported acceptability of violence towards women. Education also has a negative effect, consistent with a model in which modernization in attitudes leads to a negative view of such violence. But even controlling for education, the effect of ancestral lifeway remains significant. In the full specification, the effect of the difference between having agriculture instead of pastoralism as the primary source of pre-colonial livelihood (3.9 units multiplied by the coefficient of -.046) is slightly larger than the effect of one point on the education scale (equivalent to three years of schooling).

6. Origins of Lifeways

So far we have focused our attention on the question of how ancestral lifeways are related to individual outcomes. A natural question is how ancestral lifeways themselves are determined. This is potentially important for several reasons. Most significantly, one might worry that the same factors that determine lifeways also determine individual outcomes. For example, certain cultures might be more inclined to undertake long-term investments that would be required in farming, and so members of these groups would be more likely to farm and to be economically successful, but farming itself would not be relevant. A second reason for studying the determinants of lifeways is to put more flesh on the social evolutionary narrative relayed above.

The most natural determinant of whether a group has historically practiced agriculture is the quality of the land itself. It would not be surprising if agriculture were more common in areas where it was more feasible. Figure 2 shows data for African regions on the pre-colonial dependence on agriculture (from the Murdock Atlas) and the suitability of land for agriculture, and averaged within tribal regions. Table 10 shows regression of agriculture, pastoralism, and

[15] The variables are MV744A-MV744E. The circumstances are: wife goes out without telling him; wife neglects the children; wife argues with him; wife refuses to have sex with him; wife burns the food.

hunt/gather/fish shares of ancestral subsistence on average land quality as measured by Ramankutty et al. (2001). As expected, the coefficient on land quality is significantly positive in the regression for agriculture and significantly negative in the regression for pastoralism. It is insignificant in the regression for gather/hunt/fish.

6.1 Instrumental Variables Regressions

Tables 11 A and B show instrumental variables regressions with education and wealth as dependent variables, using land suitability to instrument for the share of agriculture. In addition to dealing with the possible endogeneity of agriculture mentioned above, the IV procedure also corrects for measurement error in agriculture as a share of traditional subsistence, which is presumably non-negligible.[16]

In Table 11 A, which uses the full sample, the coefficient on agriculture is positive and significant only in the specifications where ethnic homeland fixed effects are not included. In the other specifications, the coefficient is positive but not significant.
The sample in Table 11 B is restricted to movers. The coefficient on agriculture is positive and significant at the 5% level in the first two specifications for both education and wealth, and significant at the 10% level in the other specifications, where the urban dummy is included.

The evidence in these two tables weakly supports a story in which ethnic groups which found themselves on land that was suitable for agriculture were more likely to take this up as a means of subsistence, and that engaging in agriculture then conferred portable characteristics on individuals from these ethnic groups that made them more prone to succeed after they migrated away from their homelands. A threat to identification in this case would be if characteristics of ethnic groups that affected their success in a modern economy also had an effect on which groups selected in areas with land suitable for agriculture. For example, if some groups were naturally more acquisitive, and were able to push less acquisitive groups onto marginal land. We address this issue next.[17]

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[16] The peculiar geography of Africa in terms of its suitability for the Tsetse fly also circumscribed the use of animals in specific parts of the continent and shaping the locations where pastoralism was a viable mode of production, see Alsan (2014).

[17] There is a large literature in linguistics and anthropology arguing that the spread zones of agriculturalists and pastoralists and their languages following the Neolithic Revolution trace closely land endowments that were amenable to agricultural and herding activities, respectively. Hence, pastoralism is viewed as an adaptation to ecological niches unable to support much agricultural production (Richerson et al.; Bellwood (2001)). This observation might raise the possibility that pastoralists attain lower outcomes today due to some genetic inferiority that consigned their ancestors to marginal environments centuries or even millennia ago. We think it unlikely that any differences predating ancestral sorting into life-ways has strong effects on capabilities today given than both cultural and genetic forces have been at work for many intervening centuries. For example, even if it had been the case that pastoralists are descended from lineages that lost the struggle for good agricultural land due to lack of physical strength or

7 Ethnic and Linguistic Families

As mentioned above, a threat to our identification of a channel whereby participating in agriculture endows ethnic groups with characteristics that lead to success in the modern economy would be if pre-existing ethnic characteristics drove both the likelihood that a group took up agriculture and economic outcomes in the modern world. Unfortunately, we do not have direct measures of these potential characteristics (although some of these are likely to be reflected in the other pre-colonial traits recorded in the Ethnographic Atlas, whose variation does not seem to explain away our findings). As a partial fix for this concern, we repeat our benchmark regressions including fixed effects for linguistic families and subfamilies as well ethnic clusters. Groups in the same family will, we presume, have similar cultural characteristics, and thus it seems more likely that variation in agriculture as a source of livelihood within an ethnic/linguistic category will be more likely due to variation in opportunity to practice agriculture than to variation in broad cultural characteristics.

We consider 3 different levels of linguistic and ethnic aggregation. In particular, the 190 groups in our dataset correspond to 6 language phylums as defined in the Murdock Atlas entry (v98), 13 linguistic subfamilies (entry v99 in Murdock Atlas) and 36 ethnic clusters which correspond to Murdock's (1959) heading of the respective chapters. It is important to keep in mind that for the construction of ethnic clusters Murdock relied on agricultural features, among other things (Murdock p.42-43 "common cultigens"). This implies that the latter classification absorbs most of the variation in our explanatory variable imposing a rather stringent test for our thesis.

To give some examples of the various groupings, in Kenya, the Kikuyu, Meru, and Kamba are all part of the Kenya Highland Bantu ethnic family the Niger-Congo language Phylum and the Niger Congo: Bantoid or Central language sub-family, while the Luo and Kipsigi are part of the Nilotes ethnic family and the Chari-Nile language family belonging to the Eastern Nilotic or Sudanic language sub-family. For Burkina Faso, we have observations from members of the Bobo, Dagari, Diula, Gurma, Lobi, Mossi, and Senufo ethnicities, all of which belong to the Voltaic ethnic family, from the Udalan, of the Plateau Nigerians family, the Futajalonke, in the Negroes of the Sudan Fringe family, and the Bisa, whose ethnic family classification is Central Bantu. Although the Bobo, Lobi,Gurma and Senufo belong to the same language sub-family, Niger-Congo Gur or Voltaic, the Diula are classified as belonging to the Niger-Congo Mande sub-family, yet the language spoken by the Bisa is listed as Niger-Congo Voltaic.

As one would expect, these groupings by themselves explain a good deal of the variation in agriculture as a source of livelihood. The R-squared from regressing agricultural dependence on the set of linguistic sub-family dummies is .176, and from regressing it on the set of ethnic dummies the R-squared is .579.

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toughness, casual empiricism casts doubt on the proposition that the pastoralists of recent times are lacking in those respects--consider the repeated historical conquests of agrarian by pastoralist armies. To further assuage concerns that our evidence reflects somehow primordial differences between groups, please Section 7..

Tables 12 A , B and C show the effect of including these dummies in our benchmark regressions. The linguistic sub-family dummies have a larger effect on education: the coefficient falls by more than half (although it remains significant) when these dummies are included, and it is significant in one of the two more extensive specifications. The effect of linguistic sub-family dummies on the coefficient on agriculture in the regression for wealth is smaller than was the case with ethnic family dummies, and the coefficient remains significant in all of the specifications.

With education as the dependent variable, including ethnic dummies lowers the coefficient on our agriculture variable by between a quarter and a fifth of its value, but it remains statistically significant in all formulations. The effect is larger when wealth is the dependent variable, and when a dummy for urban residence is included, agriculture becomes insignificant.

We note that a reduction in the measured effect of agriculture when ethnic and linguistic group controls are added does not necessarily imply that less is explained by practice of agriculture; it means, rather, that there is a smaller effect that we can attribute with confidence to agriculture as opposed to other forces that may have shaped the location of languages and ethnicities in the first place. If, for instance, the average descendant of a Bantu agriculturalist group has a better economic outcome than the average descendant of a Nilo-Saharan pastoralist group, the effects could be due to aspects of these ethnic family groupings' cultures that are independent of their centuries of engagement in agricultural and pastoral ways of life, respectively, but the groups' distinctive features could also be due to the co-evolution of their cultures with their lifeways over those very long time horizons. This implies that the full impact of agriculture is likely to lie somewhere between that estimated with and that without including ethnic or linguistic family fixed effects.

7. Conclusion

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Table 1: R-squared From Fixed Effects Regressions

R^2 from FE Regressions	All Education	All Wealth	Movers Education	Movers Wealth
Country FE	0.136	0.013	0.120	0.038
Homeland FE	0.249	0.227	0.251	0.292
Ethnicity FE	0.220	0.134	0.220	0.185
Country-Ethnicity FE	0.234	0.157	0.237	0.214
Country-Homeland FE	0.258	0.245	0.261	0.316
Country-Homeland FE & Country-Ethnicity FE	*0.285*	*0.288*	*0.295*	*0.367*
Observations	87924	87926	49399	49400

Table 2: Benchmark Regressions

Benchmark: DHS Regressions with Simple Controls

Table 1. All Individuals

VARIABLES	1 Education	2 Education	3 Education	4 Education	5 Wealth	6 Wealth	7 Wealth	8 Wealth
agriculture	0.188**	0.143***	0.0950***	0.0863***	0.197***	0.164***	0.0877***	0.0777***
	(0.0804)	(0.0291)	(0.0294)	(0.0248)	(0.0688)	(0.0214)	(0.0175)	(0.0156)
gather/hunt/fish	0.209**	0.0988**	0.109***	0.0956***	0.133*	0.0144	0.0311	0.0275
	(0.0931)	(0.0436)	(0.0391)	(0.0351)	(0.0684)	(0.0377)	(0.0244)	(0.0203)
urban			1.060***	0.675***			1.670***	1.318***
			(0.101)	(0.0667)			(0.0931)	(0.0770)
Simple Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	No	No	No	Yes	No	No	No
Ethnic Homeland-Country FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Occupation FE	No	No	No	Yes	No	No	No	Yes
Observations	86,718	86,718	86,718	86,718	86,720	86,720	86,720	86,720
R-squared	0.190	0.294	0.375	0.482	0.044	0.264	0.501	0.546

Standard errors in parentheses are clustered at Atlas and country levels
***p<0.01, **p<0.05, *p<0.1

Benchmark: DHS Regressions with Simple Controls

Table 2. Movers

VARIABLES	1 Education	2 Education	3 Education	4 Education	5 Wealth	6 Wealth	7 Wealth	8 Wealth
agriculture	0.235***	0.173***	0.108***	0.0954***	0.270***	0.194***	0.0963***	0.0848***
	(0.0760)	(0.0319)	(0.0323)	(0.0248)	(0.0575)	(0.0259)	(0.0192)	(0.0170)
gather/hunt/fish	0.201**	0.146***	0.132***	0.107***	0.152**	0.0731	0.0519*	0.0418*
	(0.0838)	(0.0457)	(0.0418)	(0.0337)	(0.0732)	(0.0495)	(0.0300)	(0.0239)
urban			1.126***	0.696***			1.715***	1.347***
			(0.151)	(0.0881)			(0.104)	(0.0712)
Simple Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	No	No	No	Yes	No	No	No
Ethnic Homeland-Country FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Occupation FE	No	No	No	Yes	No	No	No	Yes
Observations	48,792	48,792	48,792	48,792	48,793	48,793	48,793	48,793
R-squared	0.186	0.300	0.383	0.497	0.097	0.341	0.564	0.603

Standard errors in parentheses are clustered at Atlas and country levels
***p<0.01, **p<0.05, *p<0.1

Table 3: Heterogeneity by Occupation and Location

	1	2	3	4	5	6	7	8
	Education	Education	Education	Education	Wealth	Wealth	Wealth	Wealth
VARIABLES	Farming-Related	Non-Farming Related	Urban	Rural	Farming-Related	Non-Farming Related	Urban	Rural
agriculture	0.0660*	0.112***	0.0924***	0.0796*	0.115***	0.0946***	0.0354**	0.114***
	(0.0351)	(0.0277)	(0.0268)	(0.0452)	(0.0159)	(0.0179)	(0.0142)	(0.0177)
gather/hunt/fish	0.0681*	0.135***	0.124***	0.0856*	0.0376	0.00954	0.00456	0.0402
	(0.0389)	(0.0280)	(0.0308)	(0.0469)	(0.0374)	(0.0164)	(0.0172)	(0.0334)
Simple Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ethnic Homeland-Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	39,691	33,243	30,566	56,152	39,693	33,243	30,566	56,154
R-squared	0.347	0.248	0.212	0.349	0.216	0.314	0.348	0.222

Standard errors in parentheses, clustered at Atlas and country level. Farming-related industries include self-employed agriculture, agricultural employee, forest, breeding, hunting and fishing. Non-farming related industries include professional, technical, managerial positions, clerical positions, sales, household and domestic, services, skilled manual, and unskilled manual.

*** p<0.01, ** p<0.05, * p<0.1

Table 4: Benchmark Specification with Location Fixed Effects

VARIABLES	(1) Education	(2) Education	(3) Education	(4) Wealth	(5) Wealth	(6) Wealth
agriculture	0.188***	0.0756***	0.0696***	0.197***	0.0391***	0.0350***
	(0.0432)	(0.0236)	(0.0203)	(0.0440)	(0.0111)	(0.0101)
gather_hunt_fish	0.209***	0.0826***	0.0722***	0.133***	0.00734	0.00557
	(0.0489)	(0.0218)	(0.0195)	(0.0460)	(0.00996)	(0.00955)
Simple Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	No	No	Yes	No	No
Village FE	No	Yes	Yes	No	Yes	Yes
Occupation FE	No	No	Yes	No	No	Yes
Observations	86,718	86,718	86,718	86,720	86,720	86,720
R-squared	0.190	0.527	0.590	0.044	0.724	0.732

Standard errors in parentheses; standard errors clustered at country level for columns 1 and 4, addgps level for all other columns. *** p<0.01, ** p<0.05, * p<0.1

Table 5 Determinants of Migration

A: Dependent Variable: Mover

	1	2	3	4
VARIABLES	mover	mover	mover	mover
agriculture	-0.0632***	-0.0470**	-0.0514***	-0.0515***
	(0.0168)	(0.0196)	(0.0193)	(0.0192)
gather/hunt/fish	-0.113***	-0.124***	-0.123***	-0.123***
	(0.0267)	(0.0241)	(0.0241)	(0.0242)
urban			0.0964***	0.0822***
			(0.0191)	(0.0167)
Simple Controls	Yes	Yes	Yes	Yes
Country FE	Yes	No	No	No
Ethnic Homeland-Country FE	No	Yes	Yes	Yes
Occupation FE	No	No	No	Yes
Observations	85,776	85,776	85,776	85,776
R-squared	0.137	0.536	0.543	0.544

Standard errors in parentheses are clustered at Atlas and country level
*** p<0.01, ** p<0.05, * p<0.1

Table 5B: Dependent Variable: Moved in Life

	1	2	3	4
VARIABLES	moved_in_life	moved_in_life	moved_in_life	moved_in_life
agriculture	0.0402*	0.0167***	0.00714	0.00529
	(0.0210)	(0.00639)	(0.00496)	(0.00479)
gather/hunt/fish	0.0508***	0.00219	0.00230	0.00138
	(0.0190)	(0.00837)	(0.00786)	(0.00791)
urban			0.195***	0.142***
			(0.0233)	(0.0198)
Simple Controls	Yes	Yes	Yes	Yes
Country FE	Yes	No	No	No
Ethnic Homeland-Country FE	No	Yes	Yes	Yes
Occupation FE	No	No	No	Yes
Observations	58,038	58,038	58,038	58,038
R-squared	0.078	0.164	0.191	0.203

Standard errors in parentheses are clustered at Atlas and country level

*** p<0.01, ** p<0.05, * p<0.1

Table 6 Effect of Differential Selection into Migration

VARIABLES	(1) Education	(2) Education	(3) Wealth	(4) Wealth
agriculture	0.249**	0.197**	0.241**	0.159**
	(0.0979)	(0.0812)	(0.101)	(0.0741)
gather/hunt/fish	0.310***	0.270***	0.203***	0.138**
	(0.0959)	(0.0957)	(0.0772)	(0.0628)
mover	0.759**	0.593**	0.596	0.331
	(0.387)	(0.291)	(0.496)	(0.332)
mover X agric	-0.0513	-0.0573	-0.0260	-0.0357
	(0.0514)	(0.0404)	(0.0649)	(0.0455)
mover X ghf	-0.108*	-0.0912**	-0.0416	-0.0152
	(0.0564)	(0.0392)	(0.0859)	(0.0487)
urban		1.159***		1.846***
		(0.101)		(0.0816)
Simple Controls	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	86,718	86,718	86,720	86,720
R-squared	0.198	0.316	0.058	0.411

Robust standard errors in parenthes
*** p<0.01, ** p<0.05, * p<0.1

Table 7 Pre-Colonial Characteristics

Pre-Colonial Roots Table 1. Education, All Individuals

	1	2	3	4	5	6	7	8	9	10
VARIABLES	Education	Education	Education	Education	Education	Education	Education	Education	Education	Education
agriculture	0.146***	0.169***	0.148***	0.148***	0.148***	0.152***	0.0932**	0.152***	0.130***	0.120**
	(0.0300)	(0.0319)	(0.0307)	(0.0307)	(0.0306)	(0.0322)	(0.0434)	(0.0305)	(0.0480)	(0.0521)
agriculture	0.146***	0.164***	0.167***	0.149***	0.150***	0.153***	0.0858	0.144***	0.130***	0.103**
	(0.0299)	(0.0376)	(0.0253)	(0.0316)	(0.0282)	(0.0332)	(0.0554)	(0.0270)	(0.0492)	(0.0417)
gather/hunt/fish	0.102**	0.0785*	0.0975**	0.108**	0.101**	0.106**	0.0661	0.102***	0.0865**	0.0495
	(0.0433)	(0.0424)	(0.0411)	(0.0439)	(0.0437)	(0.0451)	(0.0743)	(0.0367)	(0.0420)	(0.0475)
polygyny	-0.000432									0.0822
	(0.0464)									(0.146)
clans		-0.0893								-0.238
		(0.0946)								(0.167)
settlements			-0.0479***							-0.0203
			(0.0168)							(0.0351)
locjuris				0.0519						0.127
				(0.0468)						(0.120)
v33					-0.0230					-0.0983
					(0.0368)					(0.0765)
classdummy						0.0586				0.107
						(0.0879)				(0.126)
elections							-0.154			-0.271
							(0.233)			(0.216)
slavery								-0.250***		-0.221**
								(0.0623)		(0.101)
property									0.00739	-0.0370
									(0.143)	(0.209)
Simple Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ethnic Homeland-Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	87,086	78,582	83,821	84,092	84,092	79,695	69,143	83,040	79,264	54,748
R-squared	0.290	0.303	0.292	0.293	0.293	0.296	0.291	0.295	0.290	0.318

Standard errors in parentheses are clustered at Atlas and country levels
***p<0.01, **p<0.05, *p<0.1

Pre-Colonial Roots Table 2. Wealth, All Individuals

VARIABLES	1 Wealth	2 Wealth	3 Wealth	4 Wealth	5 Wealth	6 Wealth	7 Wealth	8 Wealth	9 Wealth	10 Wealth
agriculture	0.165***	0.186***	0.166***	0.167***	0.167***	0.165***	0.0878**	0.164***	0.130***	0.117***
	(0.0212)	(0.0218)	(0.0210)	(0.0219)	(0.0219)	(0.0207)	(0.0384)	(0.0214)	(0.0353)	(0.0388)
agriculture	0.170***	0.178***	0.174***	0.167***	0.163***	0.167***	0.0879**	0.164***	0.122***	0.0951**
	(0.0250)	(0.0215)	(0.0225)	(0.0224)	(0.0234)	(0.0229)	(0.0431)	(0.0207)	(0.0329)	(0.0395)
gather/hunt/fish	0.0216	-0.000941	0.0115	0.0143	0.0147	0.0235	-0.0109	0.0189	0.00587	-0.0285
	(0.0390)	(0.0368)	(0.0368)	(0.0413)	(0.0435)	(0.0415)	(0.0561)	(0.0323)	(0.0355)	(0.0537)
polygyny	0.0389									0.0319
	(0.0684)									(0.129)
clans		-0.158*								-0.0957
		(0.0872)								(0.170)
settlements			-0.0191							-0.0137
			(0.0222)							(0.0353)
locjuris				0.00659						0.112
				(0.0475)						(0.0977)
v33					0.0440					-0.0167
					(0.0610)					(0.0708)
classdummy						0.187***				0.248*
						(0.0413)				(0.130)
elections							0.00144			-0.154
							(0.149)			(0.172)
slavery								-0.00492		0.0181
								(0.0846)		(0.0674)
property									0.490***	0.354*
									(0.0687)	(0.188)
Simple Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ethnic Homeland-Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	87,088	78,584	83,823	84,094	84,094	79,697	69,145	83,042	79,265	54,749
R-squared	0.259	0.270	0.263	0.263	0.263	0.261	0.257	0.253	0.258	0.261

Standard errors in parentheses are clustered at Atlas and country levels
***p<0.01, **p<0.05, *p<0.1

Table 8: Colonial Characteristics

Colonial Roots

Table 1. All Individuals

	1	2	3	4	5	6	7	8	9	10
VARIABLES	Education	Education	Education	Education	Education	Wealth	Wealth	Wealth	Wealth	Wealth
agriculture	0.145***	0.143***	0.143***	0.106***	0.110***	0.164***	0.159***	0.159***	0.152***	0.154***
	(0.0297)	(0.0249)	(0.0244)	(0.0256)	(0.0221)	(0.0213)	(0.0206)	(0.0203)	(0.0192)	(0.0199)
gather_hunt_fish	0.100**	0.0994**	0.0962**	0.0652*	0.0711*	0.0151	0.0135	0.00925	0.00836	0.0114
	(0.0435)	(0.0422)	(0.0419)	(0.0386)	(0.0367)	(0.0376)	(0.0366)	(0.0366)	(0.0414)	(0.0419)
ln(1+slaves per km2)		0.00458	0.00321	0.00939	0.00663		0.0107	0.00895	0.0112	0.00994
		(0.0153)	(0.0153)	(0.0149)	(0.0140)		(0.0152)	(0.0149)	(0.0148)	(0.0146)
ln(1+missions per km2)			0.172	0.0421	0.0267			0.224*	0.188*	0.190*
			(0.116)	(0.113)	(0.125)			(0.126)	(0.114)	(0.114)
muslim				-0.631***	-0.625***				-0.0945	-0.0927
				(0.0821)	(0.0803)				(0.112)	(0.107)
other_no_religion				-0.758***	-0.757***				-0.691***	-0.690***
				(0.0997)	(0.0994)				(0.113)	(0.113)
capdistance					0.144					0.0997
					(0.131)					(0.242)
sead					-0.000227					-0.000100
					(0.000705)					(0.000331)
Simple Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ethnic Homeland-Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	87,778	87,778	87,778	87,778	87,778	87,780	87,780	87,780	87,780	87,780
R-squared	0.289	0.289	0.289	0.310	0.310	0.264	0.264	0.264	0.275	0.275

Standard errors in parentheses are clustered at Atlas and country levels. The default group in columns 4 and 9 are Christian. Distance to capital is the distance from one's ancestral homeland to the capital of the country, distance to coast is the distance from one's ancestral homeland to the nearest coast, ln(1+slaves per km2) is calculated using the total number of slaves per square kilometer in one's ancestral homeland, and similarly ln(1+ missions per km2) is computed using the total number of missions per square kilometer in one's ancestral homeland. ***p<0.01, **p<0.05, *p<0.1

Table 9: Violence Toward Women

VARIABLES	1 wifetreatment_pc	2 wifetreatment_pc	3 wifetreatment_pc	4 wifetreatment_pc1	5 wifetreatment_pc1	6 wifetreatment_pc1	7 wifetreatment_pc1
agriculture	-0.0720***	-0.0984***	-0.0745***	-0.0677***	-0.0674***	-0.0545**	-0.0464**
	(0.0123)	(0.0250)	(0.0214)	(0.0222)	(0.0224)	(0.0227)	(0.0215)
gather/hunt/fish	-0.0514	-0.0155	-0.0206	-0.0179	-0.0173	-0.00565	-0.00543
	(0.0321)	(0.0419)	(0.0329)	(0.0301)	(0.0305)	(0.0308)	(0.0291)
urban			-0.459***	-0.320***	-0.319***	-0.225***	-0.120***
			(0.145)	(0.0986)	(0.0988)	(0.0657)	(0.0373)
muslim					-0.0309	-0.00714	-0.00191
					(0.0551)	(0.0494)	(0.0493)
education						-0.137***	-0.117***
						(0.0408)	(0.0379)
wealth							-0.0925***
							(0.0302)
Simple Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	No	No	No	No	No	No
Ethnic Homeland-Country FE	No	Yes	Yes	Yes	Yes	Yes	Yes
Occupation FE	No	No	No	Yes	Yes	Yes	Yes
Observations	61,495	61,495	61,495	61,495	61,495	61,494	61,494
R-squared	0.068	0.137	0.149	0.157	0.157	0.165	0.168

Standard errors in parentheses are clustered at Atlas and country level
*** p<0.01, ** p<0.05, * p<0.1

Table 10: Log of Average Land Suitability and Subsistence Patterns

Regression at Map Level – Subsistence Variables on Log of Average Land Suitability

	(1)	(2)	(3)
VARIABLES	agriculture	pastoralism	gather/hunt/fish
lnmean_suit	0.573***	-0.648***	0.0702
	(0.136)	(0.146)	(0.0845)
Observations	190	190	190
R-squared	0.133	0.152	0.002

Robust standard errors in parentheses
***p<0.01, **p<0.05, *p<0.1

Table 11: IV Regressions

A: Full Sample

VARIABLES	(1) Education	(2) Education	(3) Education	(4) Education	(5) Wealth	(6) Wealth	(7) Wealth	(8) Wealth
agriculture	0.150***	0.0913	0.0577	0.0508	0.117**	0.0988	0.0459	0.0392
	(0.0554)	(0.0694)	(0.0545)	(0.0447)	(0.0590)	(0.0688)	(0.0438)	(0.0381)
gather_hunt_fish	0.190***	0.0720*	0.0905***	0.0777***	0.0943**	-0.0191	0.00989	0.00801
	(0.0525)	(0.0432)	(0.0341)	(0.0283)	(0.0468)	(0.0390)	(0.0217)	(0.0180)
urban			1.067***	0.680***			1.677***	1.324***
			(0.0570)	(0.0370)			(0.0478)	(0.0428)
Simple Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	No	No	No	Yes	No	No	No
Ethnic Homeland-Country FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Occupation FE	No	No	No	Yes	No	No	No	Yes
First Stage F-Statistic	55.32	29.71	29.73	29.91	55.32	29.71	29.73	29.91
Observations	86,718	86,718	86,718	86,718	86,720	86,720	86,720	86,720
R-squared	0.190	0.293	0.375	0.482	0.040	0.262	0.501	0.546

Standard errors in parentheses are clustered at Atlas levels
*** p<0.01, ** p<0.05, * p<0.1

B: Movers

VARIABLES	(1) Education	(2) Education	(3) Education	(4) Education	(5) Wealth	(6) Wealth	(7) Wealth	(8) Wealth
agriculture	0.157***	0.127**	0.0746*	0.0681*	0.191***	0.152**	0.0723*	0.0650*
	(0.0443)	(0.0572)	(0.0443)	(0.0353)	(0.0512)	(0.0637)	(0.0408)	(0.0365)
gather_hunt_fish	0.170***	0.123***	0.115***	0.0930***	0.121***	0.0516	0.0399**	0.0319*
	(0.0445)	(0.0378)	(0.0314)	(0.0256)	(0.0458)	(0.0360)	(0.0204)	(0.0169)
urban			1.136***	0.703***			1.722***	1.352***
			(0.0795)	(0.0472)			(0.0520)	(0.0430)
Simple Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	No	No	No	Yes	No	No	No
Ethnic Homeland-Country FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Occupation FE	No	No	No	Yes	No	No	No	Yes
First Stage F-Statistic	59.45	38.44	38.52	38.87	59.45	38.44	38.52	38.87
Observations	48,792	48,792	48,792	48,792	48,793	48,793	48,793	48,793
R-squared	0.182	0.299	0.383	0.497	0.092	0.340	0.564	0.603

Standard errors in parentheses are clustered at Atlas levels
*** p<0.01, ** p<0.05, * p<0.1

Table 12 A: Linguistic Family Fixed Effects

VARIABLES	1 Education	2 Education	3 Education	4 Education	5 Education	6 Wealth	7 Wealth	8 Wealth	9 Wealth	10 Wealth
agriculture	0.189**	0.144***	0.146***	0.0979***	0.0897***	0.201***	0.165***	0.162***	0.0853***	0.0762***
	(0.0807)	(0.0293)	(0.0319)	(0.0317)	(0.0262)	(0.0682)	(0.0219)	(0.0228)	(0.0172)	(0.0145)
gather/hunt/fish	0.211**	0.100**	0.101**	0.112***	0.0973***	0.140**	0.0155	0.0177	0.0347	0.0302
	(0.0930)	(0.0438)	(0.0470)	(0.0428)	(0.0366)	(0.0676)	(0.0380)	(0.0376)	(0.0237)	(0.0191)
urban				1.063***	0.677***				1.675***	1.322***
				(0.102)	(0.0680)				(0.0925)	(0.0771)
Simple Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	No	No	No	No	Yes	No	No	No	No
Ethnic Homeland-Country FE	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Linguistic Family(v98) FE	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Occupation FE	No	No	No	No	Yes	No	No	No	No	Yes
Observations	85,920	85,920	85,920	85,920	85,920	85,922	85,922	85,922	85,922	85,922
R-squared	0.192	0.295	0.295	0.377	0.483	0.047	0.259	0.260	0.500	0.544

Standard errors in parentheses are clustered at Atlas and country level

*** p<0.01, ** p<0.05, * p<0.1

Table 12 B: Linguistic sub-Family Fixed Effects

VARIABLES	1 Education	2 Education	3 Education	4 Education	5 Education	6 Wealth	7 Wealth	8 Wealth	9 Wealth	10 Wealth
agriculture	0.191**	0.148***	0.0645**	0.0319	0.0414**	0.215***	0.168***	0.114***	0.0622***	0.0639***
	(0.0794)	(0.0299)	(0.0299)	(0.0211)	(0.0173)	(0.0651)	(0.0218)	(0.0272)	(0.0164)	(0.0146)
gather/hunt/fish	0.217**	0.104**	0.0185	0.0359	0.0400	0.138*	0.0157	-0.00960	0.0178	0.0236
	(0.0972)	(0.0463)	(0.0451)	(0.0354)	(0.0294)	(0.0710)	(0.0403)	(0.0494)	(0.0235)	(0.0207)
urban				1.057***	0.680***				1.664***	1.318***
				(0.0982)	(0.0665)				(0.0948)	(0.0867)
Simple Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	No	No	No	No	Yes	No	No	No	No
Ethnic Homeland-Country FE	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Linguistic Subfamily(v99) FE	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Occupation FE	No	No	No	No	Yes	No	No	No	No	Yes
Observations	83,367	83,367	83,367	83,367	83,367	83,369	83,369	83,369	83,369	83,369
R-squared	0.198	0.296	0.304	0.383	0.487	0.050	0.260	0.268	0.501	0.546

Standard errors in parentheses are clustered at Atlas and country level

*** p<0.01, ** p<0.05, * p<0.1

Table 12 C: Ethnic Family Fixed Effects

	1	2	3	4	5	6	7	8	9	10
VARIABLES	Education	Education	Education	Education	Education	Wealth	Wealth	Wealth	Wealth	Wealth
agriculture	0.188**	0.143***	0.111***	0.0700**	0.0813***	0.197***	0.164***	0.0930**	0.0290	0.0340
	(0.0804)	(0.0291)	(0.0341)	(0.0355)	(0.0258)	(0.0688)	(0.0214)	(0.0392)	(0.0332)	(0.0293)
gather/hunt/fish	0.209**	0.0988**	0.102***	0.105***	0.0990***	0.133*	0.0144	-0.00439	0.000100	0.00461
	(0.0931)	(0.0436)	(0.0310)	(0.0275)	(0.0231)	(0.0684)	(0.0370)	(0.0508)	(0.0335)	(0.0302)
urban				1.050***	0.673***				1.655***	1.311***
				(0.0943)	(0.0630)				(0.0898)	(0.0768)
Simple Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	No	No	No	No	Yes	No	No	No	No
Ethnic Homeland-Country FE	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Ethnic_Family FE	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Occupation FE	No	No	No	No	Yes	No	No	No	No	Yes
Observations	86,718	86,718	86,718	86,718	86,718	86,720	86,720	86,720	86,720	86,720
R-squared	0.190	0.294	0.304	0.383	0.488	0.044	0.264	0.279	0.509	0.552

Standard errors in parentheses are clustered at Atlas and country level

*** p<0.01, ** p<0.05, * p<0.1

Figure 1: Distance to Ancestral Homeland

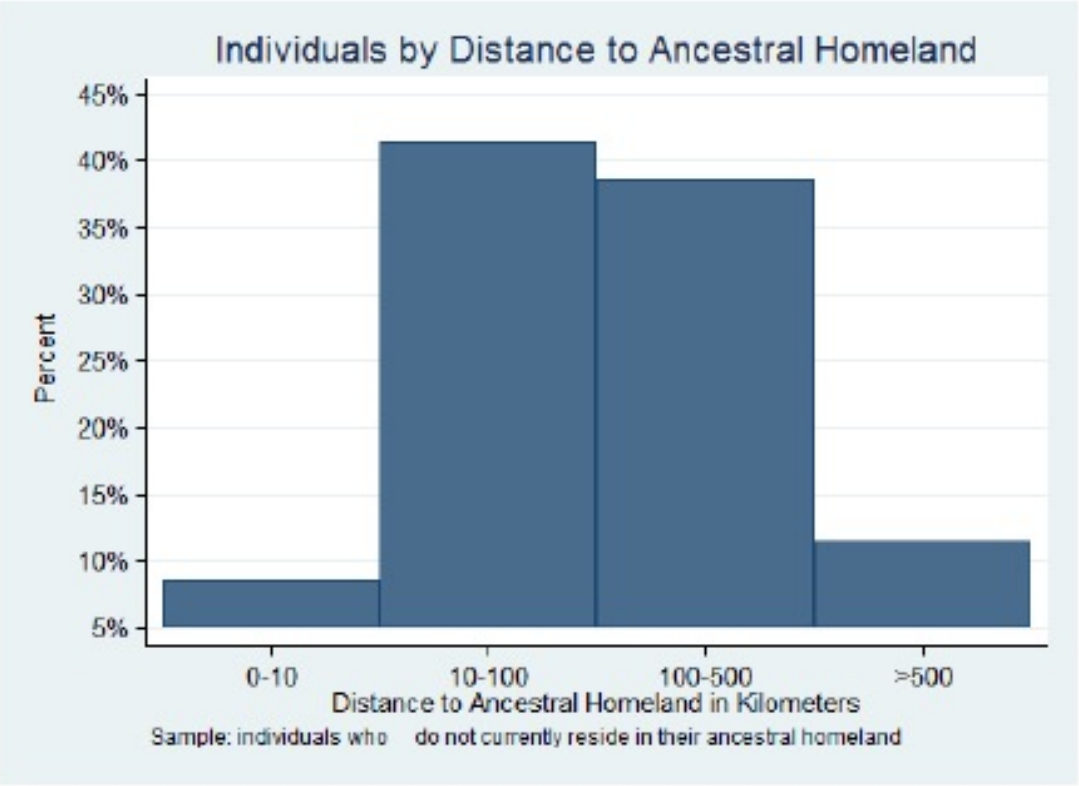
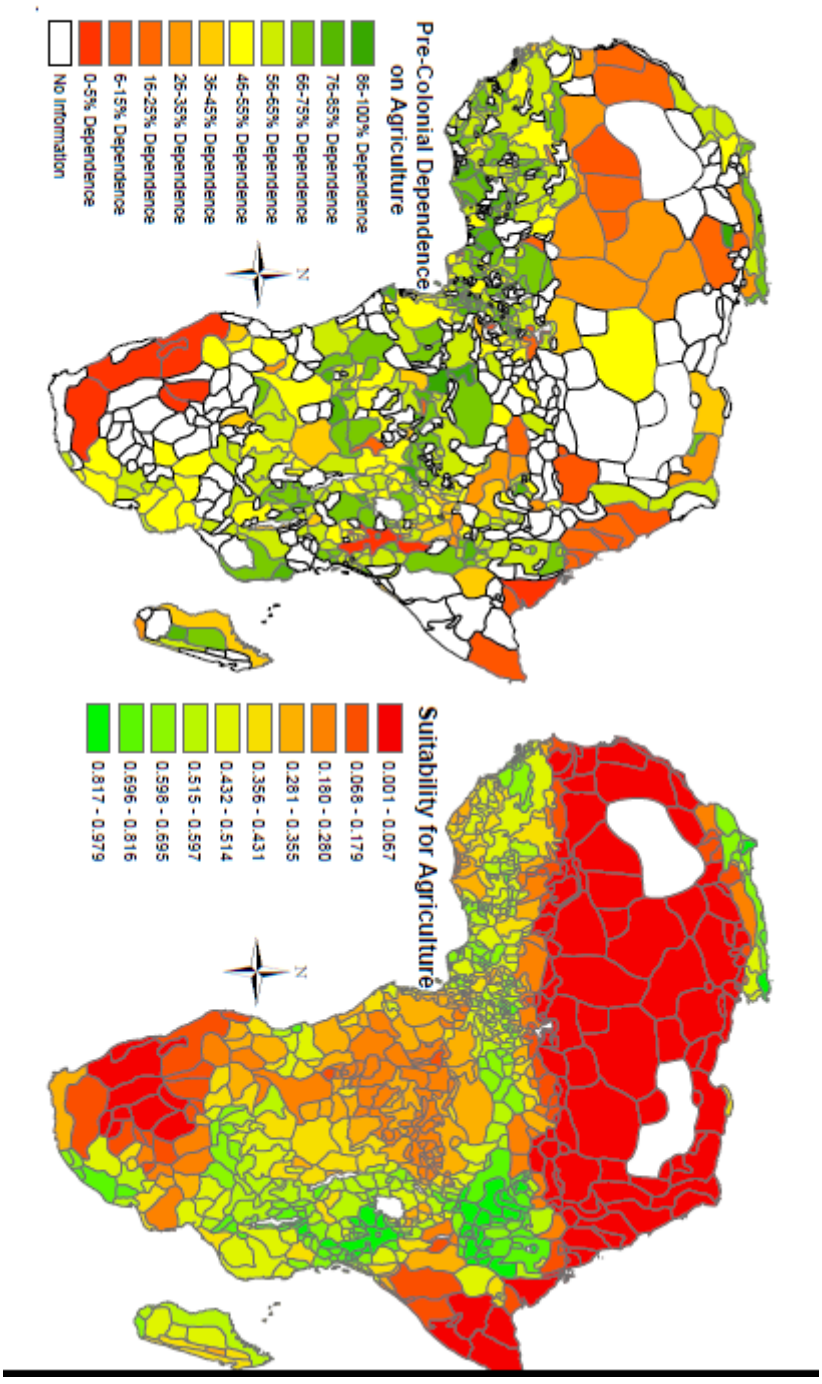


Figure 2: Land Quality and Agricultural Dependence



Appendix 1: Matching Ethnicities in the DHS to Murdock Map and Atlas

Method	Atlas Percent	Atlas Cum. Percent	Map Percent	Map Cum. Percent
Direct Match	58.41	58.41	66.7	66.7
Afrobarometer	4.43	62.84	10.92	77.61
Ethnologue/Joshua Alternate Name	11.44	74.28	6.33	83.95
Ethnologue/Joshua superset	2.53	76.81	2.27	86.21
Ethnologue/Joshua subset	5.05	81.86	4.49	90.7
Other Source (e.g. Wikipedia)	0.53	82.40	0.82	91.53
Other Source, not sure	5.47	87.87	0.28	91.8
Ethnologue/Joshua related	0.08	87.95	0.08	91.88
Nunn and Wantchekon (2011)	2.55	90.50	0.78	92.66
Michalopoulos and Papaioannou (2013)	0.81	91.31	0.95	93.61
Not Matched	8.69	100.00	6.39	100

Description of the Matching Methodologies:

1) Direct match: the DHS ethnicity name is the same as the name used in the Murdock source (Atlas or Map).

2) Afrobarometer match: Nunn and Wantchekon (2011) create matches between the Afrobarometer ethnicities (http://www.afrobarometer.org) and the Murdock names. Using the Nunn and Wantchekon (2011) data, we were able to match more DHS ethnicities to Murdock names through Afrobarometer names.

3) Ethnologue/Joshua Alternate Name: the DHS ethnicity name and the Atlas name are “alternative names” according to either Ethnologue (http://www.ethnologue.com/) or Joshua Project (http://joshuaproject.net/).

4) Ethnologue/Joshua superset: In Joshua or Ethnologue, we find a matching Atlas or Map name that appears as a superset (i.e., containing set) of our target DHS ethnicity. For example, if the group “American English” appears in the DHS and Ethnologue describes this group as a subset of “English,” which appears in the Murdock data.

5) Ethnologue/Joshua subset: In Joshua or Ethnologue we find a matching Atlas or Map name that appears as a subset of the DHS ethnicity that we want to match. For example, if “Chinese”appeared in the DHS and “Mandarin” appeared in the Murdock data, and if Ethnologue informed us the the latter was a subset of the former.

6) Other source (e.g., Wikipedia)

7) Other source (e.g., Wikipedia) not sure: used in cases where the information from other sources left questions about the quality of the match.

8) Ethnologue/joshua related: we find a group that is related to our target ethnic group, according to either Ethnologue or Joshua Project.

9) Nunn and Wantchekon (2011): we referred to a do file used in this paper that resolves the discrepancies in the Map and Atlas names of the same ethnicity

10) Michalopoulos and Papaioannous (2013)

Appendix 2: Summary Statistics

Summary Statistics – All Individuals, Unweighted

Variable	Obs	Mean	Std. Dev.	Min	Max
agriculture	87898	5.816776	1.591437	0	9
pastoralism	87898	2.414435	1.822851	0	9
gathering	87898	0.3000865	0.5209866	0	3
hunting	87898	0.7005848	0.7364832	0	7
fishing	87898	0.7617466	0.8210853	0	4
education	87896	1.721375	1.55424	0	5
wealth	87898	3.164281	1.435294	1	5
christian	87780	0.5332308	0.4988973	0	1
muslim	87780	0.4008544	0.4900744	0	1
other_no_religion	87780	0.0659148	0.2481345	0	1
ln_slavekm2	87898	4.201029	3.509755	0	10.53952
ln_missionskm2	87898	0.101214	0.1842755	0	1.28684
polygyny	87088	0.486749	0.4998273	0	1
clans	78584	0.2098264	0.4071872	0	1
settlements	83823	6.117378	1.670753	1	8
locjuris	84094	3.134124	0.6448288	2	4
v33	84094	2.76204	0.8989678	1	5
classdummy	79697	0.698483	0.4589195	0	1
elections	69145	0.2160532	0.411554	0	1
slavery	83042	0.8136606	0.3893827	0	1
property	79265	0.9440863	0.2297565	0	1

Summary Statistics – All Individuals, Weighted

Variable	Obs	Weight	Mean	Std. Dev.	Min	Max
agriculture	87898	89557.2464	5.96164	1.397709	0	9
pastoralism	87898	89557.2464	2.277012	1.604259	0	9
gathering	87898	89557.2464	0.2786761	0.5085849	0	3
hunting	87898	89557.2464	0.7062972	0.7141212	0	7
fishing	87898	89557.2464	0.7694066	0.8143098	0	4
education	87896	89555.5313	1.715737	1.546076	0	5
wealth	87898	89557.2464	3.196492	1.420048	1	5
christian	87780	89437.6314	0.5511742	0.4973771	0	1
muslim	87780	89437.6314	0.384568	0.4864957	0	1
other_no_religion	87780	89437.6314	0.0642578	0.2452129	0	1
ln_slavekm2	87898	89557.2464	4.34218	3.539045	0	10.53952
ln_missionskm2	87898	89557.2464	0.1099676	0.1927042	0	1.28684
polygyny	87088	89026.9314	0.4814956	0.4996603	0	1
clans	78584	78608.0623	0.1810992	0.3851028	0	1
settlements	83823	85592.0834	6.170345	1.532965	1	8
locjuris	84094	85829.9815	3.124968	0.6581301	2	4
v33	84094	85829.9815	2.804587	0.8781449	1	5
classdummy	79697	81341.8731	0.6775199	0.4674285	0	1
elections	69145	71639.2531	0.2354459	0.4242801	0	1
slavery	83042	84541.448	0.8118476	0.3908361	0	1
property	79265	82277.0159	0.9478844	0.2222614	0	1

Summary Statistics – Movers, Unweighted

Variable	Obs	Mean	Std. Dev.	Min	Max
agriculture	49392	5.66039	1.691819	0	9
pastoralism	49392	2.738379	2.046756	0	9
gathering	49392	0.2369615	0.4640637	0	3
hunting	49392	0.6685496	0.7263348	0	7
fishing	49392	0.6888565	0.7882222	0	4
education	49391	1.775506	1.581227	0	5
wealth	49392	3.280916	1.469837	1	5
christian	49322	0.5313653	0.4990203	0	1
muslim	49322	0.4056202	0.4910166	0	1
other_no_religion	49322	0.0630145	0.2429915	0	1
ln_slavekm2	49392	3.645769	3.427089	0	10.53952
ln_missionskm2	49392	0.0697855	0.1405079	0	1.28684
polygyny	48785	0.529835	0.4991142	0	1
clans	43500	0.2256092	0.4179877	0	1
settlements	46652	6.00403	1.852236	1	8
locjuris	46782	3.089415	0.7013772	2	4
v33	46782	2.76476	0.8682248	1	5
classdummy	44576	0.695621	0.4601491	0	1
elections	36906	0.2462201	0.4308141	0	1
slavery	46257	0.8041378	0.3968673	0	1
property	44162	0.9408088	0.2359848	0	1

Summary Statistics – Movers, Weighted

Variable	Obs	Weight	Mean	Std. Dev.	Min	Max
agriculture	49392	48139.2399	5.846943	1.478399	0	9
pastoralism	49392	48139.2399	2.502335	1.818597	0	9
gathering	49392	48139.2399	0.2366253	0.4640908	0	3
hunting	49392	48139.2399	0.7043661	0.706968	0	7
fishing	49392	48139.2399	0.7014311	0.7889732	0	4
education	49391	48138.6238	1.780999	1.573309	0	5
wealth	49392	48139.2399	3.320615	1.446567	1	5
christian	49322	48065.6843	0.5508559	0.4974121	0	1
muslim	49322	48065.6843	0.3871696	0.487108	0	1
other_no_religion	49322	48065.6843	0.0619745	0.2411118	0	1
ln_slavekm2	49392	48139.2399	3.79736	3.431199	0	10.53952
ln_missionskm2	49392	48139.2399	0.0772041	0.1504588	0	1.28684
polygyny	48785	47749.7507	0.5392824	0.4984597	0	1
clans	43500	41479.4608	0.1850361	0.3883315	0	1
settlements	46652	45496.1941	6.072716	1.696942	1	8
locjuris	46782	45606.3013	3.076224	0.7191286	2	4
v33	46782	45606.3013	2.787107	0.8599896	1	5
classdummy	44576	43700.0737	0.6645568	0.4721506	0	1
elections	36906	36517.2632	0.2590391	0.4381131	0	1
slavery	46257	45112.8063	0.7858156	0.4102599	0	1
property	44162	43951.6865	0.9466025	0.2248273	0	1

Appendix 3: Benchmark Regressions by Country

Benchmark Tables by Country

Table 1. Education, All Individuals

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
COUNTRIES	Burkina Faso	Benin	Congo, DR	Central African Republic	Cameroon	Ethiopia	Ghana	Guinea	Kenya	Mali
agriculture	0.441***	0.224**		0.0784	0.253***	0.129**	0.494***	0.182	0.174***	0.0795
	(0.0544)	(0.0777)		(0.108)	(0.0549)	(0.0563)	(0.108)	(0.139)	(0.0496)	(0.0629)
gather_hunt_fish	-0.0275	0.194	0.530***	0.116	0.270***	-0.334**	0.524***	-0.00438	-0.00821	0.000720
	(0.0386)	(0.102)	(0.00421)	(0.0815)	(0.0240)	(0.144)	(0.0538)	(0.0745)	(0.0422)	(0.0358)
Ethnic Homeland FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,020	2,620	726	1,673	4,480	12,650	4,034	3,092	3,171	3,807
R-squared	0.104	0.117	0.286	0.245	0.321	0.187	0.241	0.114	0.158	0.111

Standard errors in parentheses are clustered at Atlas and country levels
***p<0.01, **p<0.05, *p<0.1

Table 1. Education, All Individuals (Continued)

	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
COUNTRIES	Malawi	Mozambique	Nigeria	Niger	Namibia	Sierra Leone	Senegal	Togo	Uganda	Zambia
agriculture	-0.0967*	0.0617	0.477***	0.115**	-0.0254	0.574	-0.135	0.356*	0.210	0.175*
	(0.0446)	(0.0841)	(0.0261)	(0.0353)	(0.140)	(0.339)	(0.106)	(0.119)	(0.101)	(0.0892)
gather_hunt_fish	-0.178***	0.0125	0.406***	0.104***	-0.0614	0.537	0.169***	0.330	-0.245	0.0281
	(0.0464)	(0.100)	(0.0572)	(0.0248)	(0.265)	(0.285)	(0.0320)	(0.159)	(0.148)	(0.0502)
Ethnic Homeland FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,738	3,500	11,038	3,463	2,415	2,265	4,452	3,434	1,048	6,092
R-squared	0.054	0.155	0.393	0.127	0.087	0.087	0.147	0.205	0.092	0.090

Standard errors in parentheses are clustered at Atlas and country levels
***p<0.01, **p<0.05, *p<0.1

Table 2. Wealth, All Individuals

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
COUNTRIES	Burkina Faso	Benin	Congo, DR	Central African Republic	Cameroon	Ethiopia	Ghana	Guinea	Kenya	Mali
agriculture	0.236**	0.278*		-0.421***	0.0204	0.210***	0.357***	-0.200	0.162**	0.120**
	(0.0894)	(0.111)		(0.109)	(0.0674)	(0.0416)	(0.0788)	(0.147)	(0.0637)	(0.0493)
gather_hunt_fish	0.0907	0.335**	0.162***	-0.336***	-0.0481	-0.697***	0.317***	0.0649	-0.00544	-0.0278
	(0.0616)	(0.115)	(0.00565)	(0.0793)	(0.0493)	(0.0927)	(0.0557)	(0.101)	(0.0880)	(0.0511)
Ethnic Homeland FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,021	2,620	726	1,673	4,480	12,650	4,034	3,092	3,171	3,807
R-squared	0.168	0.195	0.528	0.387	0.355	0.299	0.396	0.289	0.320	0.088

Standard errors in parentheses are clustered at Atlas and country levels

***p<0.01, **p<0.05, *p<0.1

Table 2. Wealth, All Individuals (Continued)

	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
COUNTRIES	Malawi	Mozambique	Nigeria	Niger	Namibia	Sierra Leone	Senegal	Togo	Uganda	Zambia
agriculture	0.116	0.0485	0.379***	0.0850	0.0602	0.281	0.230	0.600**	0.0909	0.309***
	(0.174)	(0.0867)	(0.0470)	(0.0517)	(0.0675)	(0.385)	(0.124)	(0.146)	(0.147)	(0.0810)
gather_hunt_fish	0.00822	-0.161	0.148*	-0.0285	-0.0194	0.604	-0.00568	0.457	0.0975	0.125*
	(0.189)	(0.0877)	(0.0679)	(0.0382)	(0.134)	(0.375)	(0.0560)	(0.211)	(0.321)	(0.0645)
Ethnic Homeland FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,738	3,500	11,038	3,463	2,415	2,265	4,452	3,435	1,048	6,092
R-squared	0.031	0.390	0.421	0.089	0.310	0.168	0.259	0.261	0.235	0.285

Standard errors in parentheses are clustered at Atlas and country levels

***p<0.01, **p<0.05, *p<0.1

Table 3. Education, Movers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
COUNTRIES	Burkina Faso	Benin	Congo, DR	Central African Republic	Cameroon	Ethiopia	Ghana	Guinea	Kenya	Mali
agriculture	0.522***	0.269**	-0.578***	0.202*	0.287***	0.153**	0.501***	0.437***	0.187***	-0.000109
	(0.0806)	(0.0800)	(0.00731)	(0.101)	(0.0679)	(0.0568)	(0.0885)	(0.0823)	(0.0482)	(0.0918)
gather_hunt_fish	0.0768	0.511***		0.165	0.300***	-0.263*	0.560***	-0.0167	-0.0620**	0.172***
	(0.0746)	(0.103)		(0.101)	(0.0379)	(0.143)	(0.0795)	(0.0327)	(0.0271)	(0.0502)
Ethnic Homeland FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,474	681	495	899	3,149	9,274	2,369	1,938	1,357	1,581
R-squared	0.165	0.214	0.312	0.301	0.324	0.164	0.263	0.169	0.224	0.138

Standard errors in parentheses are clustered at Atlas and country levels
***p<0.01, **p<0.05, *p<0.1

Table 3. Education, Movers (Continued)

	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
COUNTRIES	Malawi	Mozambique	Nigeria	Niger	Namibia	Sierra Leone	Senegal	Togo	Uganda	Zambia
agriculture	-0.199	0.0827	0.496***	0.117***	-0.0643	0.571	-0.000575	0.677**	0.903***	0.201***
	(0.164)	(0.0860)	(0.0406)	(0.0349)	(0.341)	(0.368)	(0.183)	(0.187)	(0.113)	(0.0703)
gather_hunt_fish	-0.142	0.130	0.387***	0.107***	-0.135	0.220	0.165*	0.791**	-0.942**	0.0844**
	(0.136)	(0.127)	(0.0590)	(0.0306)	(0.579)	(0.168)	(0.0737)	(0.233)	(0.205)	(0.0400)
Ethnic Homeland FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,883	2,274	5,139	2,671	1,190	522	2,430	1,727	302	4,437
R-squared	0.058	0.155	0.489	0.128	0.126	0.218	0.146	0.221	0.171	0.102

Standard errors in parentheses are clustered at Atlas and country levels
***p<0.01, **p<0.05, *p<0.1

Table 4. Wealth, Movers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
COUNTRIES	Burkina Faso	Benin	Congo, DR	Central African Republic	Cameroon	Ethiopia	Ghana	Guinea	Kenya	Mali
agriculture	0.253**	0.326*	-0.210***	-0.267***	0.0335	0.225***	0.361***	0.0207	0.179***	0.0126
	(0.0856)	(0.135)	(0.0106)	(0.0391)	(0.0564)	(0.0397)	(0.0757)	(0.0937)	(0.0525)	(0.0747)
gather_hunt_fish	0.239**	0.713***		-0.251***	0.00875	-0.665***	0.370***	0.0715	-0.123**	0.221***
	(0.0847)	(0.114)		(0.0316)	(0.0339)	(0.0968)	(0.0989)	(0.0553)	(0.0434)	(0.0626)
Ethnic Homeland FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,474	681	495	899	3,149	9,274	2,369	1,938	1,357	1,581
R-squared	0.249	0.335	0.630	0.521	0.425	0.317	0.493	0.365	0.486	0.186

Standard errors in parentheses are clustered at Atlas and country levels
***p<0.01, **p<0.05, *p<0.1

Table 4. Wealth, Movers (Continued)

	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
COUNTRIES	Malawi	Mozambique	Nigeria	Niger	Namibia	Sierra Leone	Senegal	Togo	Uganda	Zambia
agriculture	0.0312	0.0298	0.441***	0.0840	0.0894	0.702	0.149	1.094***	1.026***	0.332***
	(0.185)	(0.0957)	(0.0508)	(0.0489)	(0.180)	(0.416)	(0.177)	(0.110)	(0.158)	(0.0532)
gather_hunt_fish	0.0508	-0.155	0.119**	-0.0252	0.00998	0.352	0.0521	1.186***	-0.814*	0.212***
	(0.178)	(0.0949)	(0.0507)	(0.0462)	(0.297)	(0.208)	(0.0896)	(0.148)	(0.347)	(0.0477)
Ethnic Homeland FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,883	2,274	5,139	2,671	1,190	522	2,430	1,728	302	4,437
R-squared	0.036	0.460	0.581	0.106	0.271	0.432	0.240	0.291	0.232	0.319

Standard errors in parentheses are clustered at Atlas and country levels
***p<0.01, **p<0.05, *p<0.1