

Heritage of Hunger: Ethnicity, Resource Allocation, and Child Poverty

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Abstract

Researchers and policymakers increasingly recognize that cultural and traditional practices matter for economic development outcomes. In this paper, I examine the relationships among ancestral ethnic characteristics, household resource sharing, child poverty, and child nutrition outcomes in Ethiopia, Ghana, Malawi, Nigeria, and Uganda. Using a collective household model to estimate the fraction of household resources children receive, I show that child welfare outcomes differ across ethnic groups within every country. To identify the ethnic traits that are most associated with these differences, I apply random forest regressions to screen the Ethnographic Atlas. I find that children in societies with ancestral independent-family or clan-barrio structures receive a larger share of household resources. Children in societies with historically low dependence on agriculture or with early-age male circumcision rituals receive a smaller share. Several traits also correlate with household composition, potentially reversing the association between resource shares and child poverty. I also show that differences in resource allocation do not primarily drive the nutritional gaps between trait groups, and that ancestral practices and location are partially entangled. These descriptive results suggest that policies aimed at alleviating child poverty and undernutrition should account for how cultural context shapes both household formation and within-household resource sharing.

Keywords: culture, intrahousehold resources, individual poverty, social norms

JEL Classification: D13, I32, J12, O15, Z13

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1 Introduction

Progress on the first two Sustainable Development Goals (SDGs)—no poverty and zero hunger—has regressed over the past several years (United Nations, 2023b). This setback is primarily due to the COVID-19 pandemic and the war in Ukraine, which have destabilized food and energy security across many countries (United Nations, 2023a). As a result, designing effective policies to alleviate poverty and undernutrition has become even more critical. However, adopting a uniform approach across countries and societies may be suboptimal, as it overlooks the significant role that culture and tradition play in shaping outcomes (Alesina & Giuliano, 2015; Ashraf et al., 2020; Rao & Walton, 2004; World Bank, 2014). This consideration is especially relevant in developing countries, where diverse ethnic groups maintain distinct religious practices, norms, and customs (Baland & Ziparo, 2018; Bau & Fernández, 2023).

In addition, poverty and undernutrition are closely tied to how resources are distributed within households (Brown et al., 2021). Policies that fail to address these intrahousehold dynamics may overestimate their impact. Ethnic characteristics may influence within-household bargaining power—a key determinant of resource allocation (La Ferrara, 2007; Rasul, 2008). Ethnic norms may also shape how households are formed, and in particular how many children share the household’s resources (Caldwell, 1976; Enke, 2019). These cultural and ethnic factors can affect poverty and undernutrition alleviation efforts on multiple levels. Identifying which ethnic characteristics matter, and through which channels they operate, may help explain how a society’s context shapes the reach of development policies. This understanding can, in turn, shed light on why some societies lag in addressing poverty and undernutrition effectively.

In this paper, I provide a detailed descriptive account of how ethnic characteristics are associated with child poverty and undernutrition in Ethiopia, Ghana, Malawi, Nigeria, and Uganda. The analysis proceeds in four steps. First, I investigate whether the intrahousehold distribution of resources and child undernutrition vary across ethnic groups. Second, using a supervised machine learning technique, I screen the Ethnographic Atlas for six ancestral characteristics most consistently associated with child welfare. Third, I document how these characteristics are associated with children’s resource shares and nutrition. Fourth, I decompose the gaps in children’s resource shares and poverty between trait groups, separating each trait’s own association from differences in household formation, education, rural residence, and household budgets. I also explore household size and gender as channels. This documentation is important, as it shows that ancestral cultural traits are associated with intrahousehold inequality, which may help explain why household resources do not always translate into child welfare.

I use data from the World Bank’s Living Standards Measurement Study (LSMS) to measure children’s welfare in terms of their access to resources, poverty rates, and undernutrition preva-

lence. I capture children's access to resources using resource shares, which are defined as the fraction of household expenditure allocated to each household member (Browning et al., 2013; Dunbar et al., 2013; Lechene et al., 2022). Resource shares have proven valuable in various public and development policy contexts, yet the factors driving inequality in these shares remain mostly underexplored.¹ I estimate intrahousehold resource shares using the collective household model of Dunbar et al. (2013). I calculate individual child poverty using these identified resource shares, and undernutrition rates from the available anthropometric data, using the World Health Organization's child growth standards (WHO & UNICEF, 2019). The results indicate that children's intrahousehold resource allocation and nutrition outcomes vary significantly across ethnic groups in all five countries. Furthermore, children with fewer resources allocated to them and lower levels of individual expenditure are modestly more likely to be undernourished, although the nutrition gaps between ethnic trait groups largely do not run through the resource shares.

Households are linked to ethnic groups as documented in Murdock's (1967) *Ethnographic Atlas* (EA). In the resulting sample, the EA provides nearly 60 distinct ancestral practices, each describing how different societies organized aspects of life. These ethnic traits may continue to influence contemporary behaviors through cultural persistence and historical transmission (Alesina et al., 2013). Using feature selection with a random forest regressor, I screen these characteristics for the six most consistently associated with child welfare outcomes.² The six ancestral ethnic characteristics I study are jurisdictional hierarchy of the local community, principal crop type, dependence on agriculture, age of male circumcision rituals, marriage transactions, and settlement patterns.

The findings indicate that a few ethnic characteristics are associated with children's resource shares, and that these differences raise or lower child poverty, particularly in households near the poverty line. Children in groups with ancestral independent family structures receive a 0.67 percentage point (pp) larger per-child share than those in extended families and are 15 pp less likely to be stunted, a gap that holds among close neighbors near ethnic borders. Children in historically pastoral groups—low dependence on agriculture and nomadic settlement pattern—receive a per-child share that is 2.4 pp less than that of children in sedentary farming groups. In groups with early male circumcision, children receive a 0.72 pp smaller per-child share.

Beyond how resources are shared, household composition also matters. Several traits go along

¹Intrahousehold resource shares provide insights into how cash transfers should be distributed (Attanasio & Lechene, 2014; Banerjee & Klasen, 2022; Haushofer & Shapiro, 2016; Tommasi, 2019), help explain how divorce laws affect the outside options and behavior of married couples (Castilla & Walker, 2013; Cherchye et al., 2012, 2017; Chiappori et al., 2018), are linked to child health outcomes and educational investment (Björkman Nyqvist & Jayachandran, 2017; Brown et al., 2021; Jayachandran & Kuziemko, 2011), provide measures of individual poverty (Dunbar et al., 2013; Lechene et al., 2022) and gender inequality (Calvi, 2020), and allow food programs to target the nutritionally vulnerable (Harris-Fry et al., 2022).

²These are not the only characteristics associated with child poverty and undernutrition. Others that rank highly include the jurisdictional hierarchy beyond the local community, animal husbandry, the size of local communities, and sex differences in agricultural work.

with the number of children in a household, from 0.93 fewer children in clan-barrio groups to about half a child more in pastoral groups. Decomposing the gaps between trait groups shows that household composition can reverse the link between resource shares and child poverty. Children in early-circumcision groups receive smaller shares but are less likely to be poor, because their households have fewer children. Principal crop type and high dependence on agriculture mainly track a development gradient in household budgets, education, and rural residence, and bride price shows no association. Comparing close neighbors on either side of ethnic borders, households within the same district, and households living outside their ancestral homeland, I show that several of the nutrition gaps hold among close neighbors, while ancestral practices and location remain partially entangled.

The findings add to empirical evidence that cultural practices are significant for development policies. However, as these ancestral traits are immutable and likely capture broader dimensions of social organization (such as institutional norms), the policy implication is not to alter culture, but to tailor interventions—especially in developing countries facing constrained resources. This paper highlights how historical ethnic characteristics may have cultivated norms that disadvantage children or favor particular household compositions, resulting in fewer resources per child today. These shortfalls in daily consumption are a critical barrier to long-term development, particularly for young children, as resource deprivation often precedes and compounds negative consequences for human capital formation and adult productivity (Brooks-Gunn & Duncan, 1997; Gertler, 2004; Hoynes et al., 2016). Therefore, acknowledging and understanding these ancestral roots allows policymakers to use historical data to identify structural contexts where standard household targeting may fail. This approach can help design policies that ensure resources effectively reach children within existing cultural frameworks, rather than imposing external norms.

This paper contributes to three strands of literature. First, it advances the literature on how culture influences the distribution of resources within households. Recent studies have examined specific traits such as patrilocality or dowry payments (Aminjonov et al., 2024; Calvi & Keskar, 2021), but the influence of a broader set of ancestral norms on resource shares remains largely unexplored. I contribute by screening the EA for six ancestral practices most consistently associated with child welfare outcomes. I also analyze how these traits correlate with children's resource shares, and decompose the gaps between trait groups into how resource shares differ and differences in household composition, education, rural residence, and household budgets.

Second, I contribute to the literature on child nutrition and poverty (Beltramo et al., 2023; Brown et al., 2023; Durevall & Isaksson, 2024). While existing work documents that undernourished children often reside in non-poor households, I show that ethnic traits are associated with child poverty through both children's resource shares and household size, whereas the nutrition gaps between trait groups largely do not run through the resources that reach children. This suggests that diet and the disease environment, rather than resources alone, account for part of this puzzle.

Lastly, I contribute to the literature highlighting the importance of ethnic composition and social organization in development policy (Ashraf et al., 2020; Collier, 2017; Moscona & Seck, 2024). While previous research demonstrates that economic outcomes vary across social, ethnic, or religious groups, it has primarily focused on aggregate outcomes such as conflict, trust, and growth (Lowes et al., 2015; Michalopoulos & Papaioannou, 2015; Nunn, 2020). I shift this focus to the micro-level, highlighting how historical ethnic practices correlate with the allocation of resources to children and child welfare.

2 Importance, Background Information & Context

There is a growing consensus among researchers and policymakers that cultural and traditional traits directly influence economic development (Ashraf et al., 2020; Collier, 2017; World Bank, 2014). Growing evidence suggests that there are benefits to understanding a society's beliefs, norms, and culture (Aminjonov et al., 2024; Ashraf et al., 2020; Rao & Walton, 2004; World Bank, 2014). Social norms are defined as values, beliefs, or attitudes shared by a group of people or society as a whole (UNICEF, 2021). They guide human behavior through perceived rules that define acceptable and appropriate actions. Under this framework, cultural traits, practices, and characteristics all qualify as social norms within ethnic communities (Bisin & Verdier, 2011; Guiso et al., 2006). Understanding how these "rules of society" influence child welfare is important for designing policies that account for the cultural context.

Social norms and cultural traits are often transmitted across generations, resulting in behaviors that persist long after their initial environmental or economic drivers have changed (Collier, 2017; Tabellini, 2008; Voigtländer & Voth, 2012). Bisin and Verdier (2001) show that children's preferences depend on their "parents' socialization actions and on the cultural and social environment in which children live." Doepke and Zilibotti (2008) model how parents shape their children's preferences through culture, with lasting consequences for occupational choice and economic development. Ethnic and religious fragmentation are also associated with long-term effects—such as civil wars, corruption, and lower public good provision (Alesina & La Ferrara, 2005).

Furthermore, historical shocks can leave a lasting imprint on a society's "cultural memory." Guiso et al. (2016) show that Italian cities that became self-governing communes in the Middle Ages have higher civic capital today. This indicates how historical events can alter contemporary beliefs and norms in certain societies. Most notably, Alesina et al. (2013) study the historical origins of norms that lead to male-favoring outcomes by empirically testing the theory of Boserup (1970). Specifically, the authors find that descendants of societies that traditionally practiced plough agriculture exhibit less equal contemporary gender norms due to the physical demands of plough agriculture, regardless of their current occupation. This strand of literature supports the premise

that historical cultural practices, as documented in the EA, represent ancestral blueprints that may continue to shape household bargaining power and resource allocation today.

Ancestral norms may also matter for children through how households are formed, especially through the number of children. Kinship and family systems are linked to fertility and household structure (Becker, 1981; Caldwell, 1976; Enke, 2019; Tertilt, 2005), and the number of children determines how far a household's resources must stretch. Ethnic institutions are also associated with contemporary development across Africa (Michalopoulos & Papaioannou, 2013, 2015). This suggests that certain ancestral traits may partly indicate where groups or societies sit along a development gradient.

In sub-Saharan Africa (SSA), ethnic identity is still a salient feature of social organization and these ancestral norms remain particularly relevant. The literature has explored how marriage market institutions affect child marriage and daughters' human capital (Corno et al., 2020), how bride price shapes the response of girls' schooling to school construction (Ashraf et al., 2020), and the role of the slave trades in the origin and persistence of female genital cutting (Corno et al., 2025). Michalopoulos and Papaioannou (2015) emphasize the importance of ethnic traits in understanding the African development path. Nunn and Wantchekon (2011) trace contemporary differences in trust levels back to the transatlantic slave trade, showing that the effect runs mainly through internalized cultural norms. Taken together, this evidence suggests that development policies should not ignore ethnic traits, but rather account for these age-old traditions to ensure that interventions effectively reach and benefit children across diverse social structures.

3 Data and Methodology

In this section, I describe the data and strategy for estimating intrahousehold resource shares using the collective household framework proposed by Dunbar et al. (2013) (henceforth, DLP). I start by detailing the structural model, the necessary identifying assumptions, and the two-phase empirical estimation procedure, including the decomposition of the gaps between trait groups. I then describe the primary data sources and the integration of household surveys with historical ethnographic data from the Ethnographic Atlas (EA). Finally, I test the identifying assumptions and present brief descriptive statistics of the estimation sample.

3.1 The Model and Identifying Assumptions

The unequal sharing of resources within households is widely acknowledged. Chiappori's (1992) seminal contribution proposed the collective household model that explicitly considers the differ-

ent preferences of several members, accounting for the bargaining process underlying household decisions. While collective models traditionally assume Pareto efficiency (leading to a sharing rule interpretation), this assumption has been scrutinized, particularly in poor-country contexts where coordination failures may occur (Baland & Ziparo, 2018; De Mel et al., 2009; Deschênes et al., 2020; Udry, 1996). However, following recent methodological advances, I interpret the sharing rule not necessarily as a condition of Pareto optimality, but as a stable equilibrium resulting from repeated intrahousehold bargaining. Under this interpretation, identification of the sharing rule remains valid as long as a consistent rule exists to govern resource allocation (Bargain & Donni, 2012; Bargain, Donni, & Hentati, 2022; Browning et al., 2013; Dunbar et al., 2013).

Following the literature, I define the resource share of a household member as the fraction of household expenditure allocated to that household member (Browning et al., 2013; Dunbar et al., 2013; Lechene et al., 2022). While data limitations often make the identification and estimation of resource shares difficult, Browning et al. (2013) (henceforth, BCL) and DLP developed structural models that provide a framework for estimating the resource shares using routinely collected survey data. Lechene et al. (2022) (henceforth, LPW) proposed a linear estimation strategy for the DLP model with corresponding identification tests. Here, I follow the DLP structure, perform the linear identification test proposed by LPW, and draw insights from Aminjonov et al. (2026).

Let t denote the type of member in the household: m for an adult male, f for an adult female, and c for a child. The model allows for multiple members of any type and complex household structures, such as multigenerational, multifamily, and single-parent households, all of which are prevalent in developing countries. Let a household consist of N^t members of each type, where $\sum_t N^t = N$ represents the total number of household members. Let y denote the observed household consumption (budget). In a similar spirit to Aminjonov et al. (2026), I let resource shares depend on sharing rule determinants z^{sr} and denote preference shifters (influencing the Engel curve slope and intercept) as z^p .

Let $\eta_t(z^{sr})$ denote the collective resource share of all household members of type t , such that $\sum_t \eta_t(z^{sr}) = 1$. I assume that all members of the same type receive the same resource share.³ Consequently, η_t/N^t represents the per-individual resource share. This implies that each individual of type t consumes a private expenditure given by

$$y_t = \frac{y \eta_t(z^{sr})}{N^t}. \quad (1)$$

This assumption of equal intra-type shares is primarily driven by data limitations. However, since the focus of this paper is on how child welfare correlates with ethnic characteristics, it does not restrict the primary conclusions. Furthermore, I include the proportion of boys as a covariate in the sharing rule, so that the children's share can vary with the sex composition of the children

³This assumption naturally holds for households with only one member of a given type.

(Bargain et al., 2018; Deaton, 1997; Dunbar et al., 2013). Because the model cannot distinguish the shares of individual girls and boys, I examine gender differences separately, using spending, schooling, and nutrition outcomes measured by sex.

Key Identifying Assumption: Independence of Base. This assumption states that $\eta_t(z^{sr})$ is independent of the household's total expenditure. Intuitively, if a household experiences a shock, such as a good harvest, the proportional slices of total expenditure allocated to men, women, and children remain fixed, even though the absolute size of their allocation grows. Mathematically, this implies $\partial \eta_t(z^{sr}) / \partial y = 0$. This assumption allows the model to disentangle changes in the household's total budget from shifts in the intrahousehold sharing rule, thereby making the resource shares non-parametrically identifiable from the Engel curves of the assignable goods.

In the countries analyzed, which are low-income, near-subsistence settings, the vast majority of expenditures are allocated to basic necessities. Hence, the sharing rule is likely to remain stable since households are not moving across massive wealth gradients. Furthermore, as this paper explores, persistent cultural and gender norms may shape how the sharing rule is determined. These structural determinants likely keep intrahousehold bargaining power stable regardless of marginal income fluctuations. However, it is important to acknowledge the potential impact of severe negative shocks, such as extreme floods or droughts. In such survival scenarios, women often buffer their children's consumption (Christian et al., 2019), suggesting that the independence assumption may be restrictive at the extreme lower tails of the income distribution.

Functional Form Assumption: PIGLOG Preferences. This semi-parametric restriction on preferences assumes PIGLOG indirect utility functions for each individual (Deaton & Muellbauer, 1980). This assumption implies that individual Engel curve functions are linear in $\ln y_t$, taking the form

$$w_t^{g_t}(y_t) = \alpha_t(z^p) + \beta_t(z^p) \ln y_t. \quad (2)$$

For this assumption to be empirically useful, one relies on private assignable goods. Following previous literature, I use men's, women's, and children's clothing and footwear as assignable goods for each household member type (Aminjonov et al., 2024, 2026; Calvi, 2020; Dunbar et al., 2013; Lechene et al., 2022). I index these assignable goods by g_t for each member type t . Here, $w_t^{g_t}(y_t)$ denotes the proportion of their private budget the member allocates to clothing. Using the structure imposed by (2) and substituting the private expenditure from (1), the combined expenditure on assignable goods for all members of type t as a fraction of total household expenditure, $W_t^{g_t}$, is given by

$$W_t^{g_t}(y) = \eta_t(z^{sr}) [\alpha_t(z^p) + \beta_t(z^p) (\ln y + \ln \eta_t(z^{sr}) - \ln N^t)]. \quad (3)$$

Next, I focus on the restrictions to ensure the resource shares in (3) are identifiable. First, $W_t^{g_t}(y)$

is observed in the data. Second, since $\sum_t \eta_t(z^{sr}) = 1$, men's resource share can be written as the residual, i.e., $\eta_m(z^{sr}) = 1 - \eta_f(z^{sr}) - \eta_c(z^{sr})$. Invoking the Independence of Base assumption and taking the partial derivative of (3) with respect to the log of total expenditure yields

$$\frac{\partial W_t^{gt}(y)}{\partial \ln y} = \eta_t(z^{sr}) \beta_t(z^p). \quad (4)$$

The term $\partial W_t^{gt}(y)/\partial \ln y$ provides the empirical implication that household Engel curves for these assignable goods must not be flat.

Key Identifying Assumption: Similarity Across People (SAP). This assumption restricts preferences such that $\beta_t = \beta \forall t$ (Dunbar et al., 2013). Hence, a man and a woman might have different “baseline” levels of clothing consumption ($\alpha_m \neq \alpha_f$), but they react similarly to marginal changes in their own private expenditure. Although this is a relatively strict assumption, it has been tested, validated, and utilized in several recent studies (Bargain, Lacroix, & Tiberti, 2022; Brown et al., 2021; Dunbar et al., 2021). In the context of SSA, clothing is largely viewed as a necessity and thus should exhibit similar income elasticities across household members (Lechene et al., 2022). Along with the SAP assumption, (3) is exactly identified, and the structural parameters can be estimated.

3.2 Estimation Strategy

Similar to Aminjonov et al. (2026), I model resource shares using logistic functions to ensure they fall within the unit interval and sum up to one. Using Non-Linear Seemingly Unrelated Regressions (NLSUR), I estimate the system of equations

$$W_t^{gt}(y) = \eta_t(z^{sr}) [\alpha_t(z^p) + \beta(z^p) (\ln y + \ln \eta_t(z^{sr}) - \ln N^t)] + \varepsilon_t \quad \forall t = m, f, c \quad (5)$$

where

$$\eta_f = \frac{\exp(\gamma_f z^{sr})}{D} \quad \eta_c = \frac{\exp(\gamma_c z^{sr})}{D} \quad \eta_m = \frac{1}{D}$$

and

$$D = 1 + \exp(\gamma_f z^{sr}) + \exp(\gamma_c z^{sr}).$$

To address the potential endogeneity of total household expenditure, I utilize a control function approach. I augment each equation with the residual from a first-stage regression of $\ln y$ on all regressors of the system and instruments for disposable income, estimated separately by household composition (Banks et al., 1997; Blundell & Robin, 1999). As in Aminjonov et al. (2026), these instruments are strong predictors of $\ln y$ for households with men, women, and children, with first-stage F-statistics between 28.8 and 133.1, as shown in Appendix Table E3. They are

weaker for the smaller household compositions in Nigeria and Uganda, with F-statistics of about 6.⁴ The preference shifters (z^p) include household composition (N^m, N^f, N^c), the average age of the member type, an indicator for rural residence, and regional fixed effects. The sharing rule determinants (z^{sr}) include the number of men and women, indicators for the number of children, the average age of each member type, the proportion of children who are boys, the education gap between women and men, and rural residence. Regional fixed effects enter the Engel curves but not the sharing rule, so the comparisons of ethnic characteristics below are within country rather than within region.

A primary goal of this paper is to identify which ancestral ethnic traits from the EA are associated with child welfare outcomes and how these traits correlate with resource shares. To achieve this, my empirical strategy proceeds in two phases. In the first phase, I estimate a baseline model where the sharing rule determinants (z^{sr}) do not include any ethnic characteristics. Using these baseline estimates, I calculate the calorie-adjusted individual poverty rate for children (Brown et al., 2021). I then use supervised machine learning, with these child poverty rates and under-nutrition indicators (stunting, underweight, and wasting) as outcomes, to screen the EA for six ethnic characteristics.⁵

In the second phase, I denote by θ a vector of indicators for the categories of these six ethnic characteristics, relative to a reference category for each, and augment the sharing rule determinants such that

$$\tilde{z}^{sr} = \begin{bmatrix} z^{sr} & \theta \end{bmatrix}. \quad (6)$$

I then re-estimate the following structural system of equations using the augmented sharing rule determinants (6):

$$W_t^{gt}(y) = \eta_t(\tilde{z}^{sr}) [\alpha_t(z^p) + \beta(z^p) (\ln y + \ln \eta_t(\tilde{z}^{sr}) - \ln N^t)] + \varepsilon_t. \quad (7)$$

I estimate this second phase jointly for the five countries. Every parameter is country-specific except the coefficients on the ethnic characteristics, which are common across countries. A characteristic that does not vary within a country is absorbed by that country's sharing-rule intercept. Pooling identifies each characteristic from all countries in which it varies, which matters because most characteristics vary in only a few countries and, within them, across few ethnic groups. I also estimate the second phase separately for each country and use these estimates to test the robustness of this common coefficient.

⁴The instruments are log total income, its square, an indicator for zero reported income, survey-month indicators, and household wealth indicators (employment, electricity, financial assets, and ownership of a home, a bed, a television, a non-agricultural business, a phone, a plough, and livestock, as available in each survey). Households with men and children but no women are too few for their own first stage and are pooled with households with men, women, and children.

⁵I provide more detail on the machine learning technique in Section 4.2.

Resource shares are non-linear in the ethnic characteristics, so I summarize their association with resource shares using average marginal effects. That is, for each comparison (for example, independent against extended families), I compute every household's resource shares with the characteristic set to the category and to its reference, holding all other household characteristics as observed, and average the difference over households.

To explore where the differences between the children of two trait groups come from, I decompose the raw gap between them within each country. Consider a comparison between category k and reference r of one ethnic characteristic. Let $\bar{Y}_k$ and $\bar{Y}_r$ be the weighted mean outcomes of the children in the two groups, such as the children's resource share or child poverty, and let $\bar{Y}_k^r$ be the mean outcome of the children in category k when their characteristic is set to r and everything else about their households is kept constant. The raw gap is then

$$\underbrace{\bar{Y}_k - \bar{Y}_r}_{\text{raw gap}} = \underbrace{\bar{Y}_k - \bar{Y}_k^r}_{\text{own trait}} + \underbrace{\sum_g \sum_{m \in g} (\bar{x}_{mk} - \bar{x}_{mr}) \overline{\partial Y / \partial x_m}}_{\text{component } g} + \underbrace{\rho_{kr}}_{\text{remainder}}, \quad (8)$$

where $\bar{x}_{mk}$ and $\bar{x}_{mr}$ are the means of determinant x_m in the two groups, and $\overline{\partial Y / \partial x_m}$ is the derivative of the outcome with respect to x_m from the estimated sharing rule, evaluated with the characteristic set to r and averaged over the children of both groups.

The first term is the trait's own effect. Since both groups have the reference characteristic once it is removed, the rest of the gap comes from other differences between their households. I group these differences into components g : the other ethnic characteristics, household formation (the number, age, and sex of household members), the education gap, rural residence, and, for consumption and poverty, household expenditure. The remainder, ρ_{kr} , captures the part of the gap that this first-order approximation misses. Unlike the average marginal effects, which change the characteristic for all households, the own-trait term evaluates the trait for the households that have it, so that the terms add up to the raw gap.⁶

Finally, because the analysis spans geographic regions with spatially dispersed ethnic groups, regional price variation is a potential concern. If one ethnic group faces significantly higher prices for assignable goods (clothing), resource shares may be biased. To mitigate this, I include regional dummies in the preference shifters to absorb broad spatial differences in price levels. Furthermore, while absolute levels of welfare are sensitive to prices, the identification of resource shares remains robust provided household members face the same relative prices for assignable goods within their local markets (Dunbar et al., 2013). Since adult and children's clothing are highly tradable goods often sold in the same rural market stalls, this is a plausible assumption.

⁶I average each term across countries, weighting each country by its weighted number of children in category k , and compute 95% intervals from 500 replications that draw the sharing-rule coefficients and resample ethnic groups within countries.

3.3 Data

I rely on the World Bank’s Living Standards Measurement Study (LSMS) and the Ethnographic Atlas (EA) (Murdock, 1967) as the two primary data sources. I also utilize Giuliano and Nunn’s (2018) database to obtain the historical locations of ethnic groups based on ancestral languages. The LSMS data contain both the household-level expenditure and the child anthropometric information needed to estimate resource shares and calculate both poverty rates and undernutrition indicators.⁷ The EA describes cultural traits for 1,291 societies worldwide, with good coverage of African ethnic groups, and has been used in several studies (Aminjonov et al., 2024; Ashraf et al., 2020; Corno et al., 2025; Enke, 2019; Nunn & Wantchekon, 2011).

From these sources, I initially identify seven African countries with the required expenditure data, child anthropometric data, and information to match households to the EA (Ethiopia, Ghana, Malawi, Niger, Nigeria, Tanzania, and Uganda).⁸ However, the final analysis focuses on Ethiopia, Ghana, Malawi, Nigeria, and Uganda, as the identification tests outlined in Section 3.4 support estimation in these countries. I use the 2016/17 Ghana Living Standards Survey, the 2018/19 Ethiopia Socioeconomic Survey, the 2018/19 Nigeria General Household Survey–Panel, the 2019/20 Malawi Integrated Household Survey, and the 2019/20 Uganda National Panel Survey. For Ethiopia, I use the 2018/19 wave rather than the 2021/22 wave, as the latter excludes the Tigray region due to conflict. For Nigeria, I use the 2018/19 wave rather than the 2023/24 wave because the more recent wave does not disaggregate clothing expenditure between adult men and adult women.

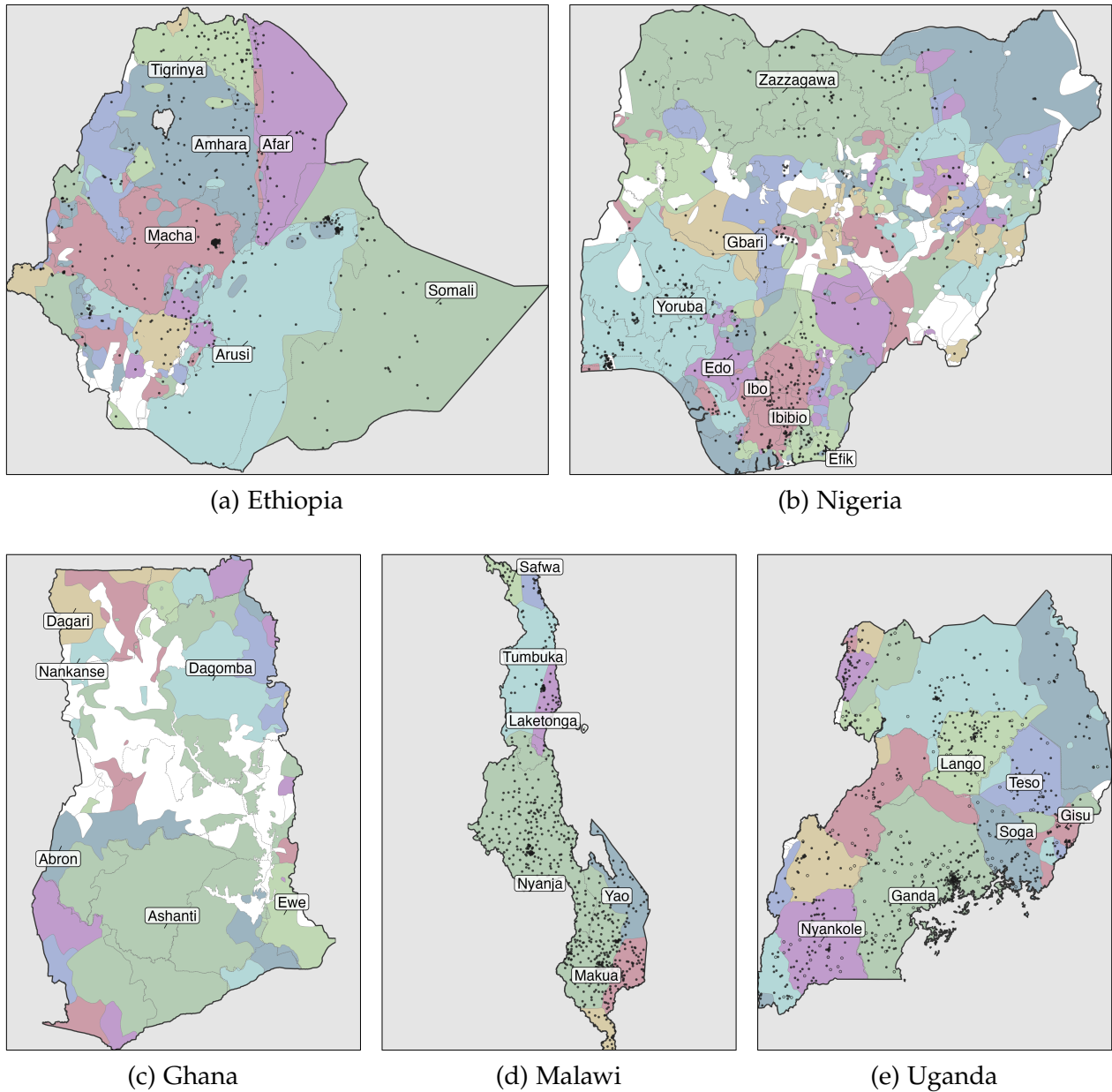
After removing households with missing location, expenditure, or demographic data, and applying the sample restrictions in Appendix Table B1, the estimation sample includes 5,248 households from Ethiopia, 7,723 from Ghana, 8,702 from Malawi, 3,299 from Nigeria, and 2,427 from Uganda. I aggregate purchases of clothing and footwear for adult men, adult women, and children, plus own-produced clothing in Ghana, to serve as the assignable goods.⁹ Households in Ethiopia, Malawi, and Nigeria are matched to their ancestral ethnic groups using GPS coordinates. In Ghana, where GPS data are unavailable, I use the household’s reported ethnicity. In Uganda, where neither GPS coordinates nor ethnicity are available, I place each household in its parish (or, where the parish is unknown, its sub-county or district) and assign the EA society that covers the largest share of that area. Between 96% and 100% of each country’s households

⁷Stunting, underweight, and wasting are defined using anthropometric measurements (height, weight) relative to the age and sex of the child, based on the 2006 WHO Child Growth Standards. Z-scores for length/height-for-age (HAZ), weight-for-age (WAZ), and weight-for-length/height (WHZ) are calculated. Children with Z-scores below -2 standard deviations from the reference median are classified as stunted (HAZ), underweight (WAZ), and wasted (WHZ).

⁸In Niger, Tanzania, and Uganda, GPS coordinates are restricted, but households can be located by administrative unit and matched to the EA by area.

⁹Table B2 in the Appendix shows detailed information on the assignable goods and children age.

Figure 1: Ethnic Groups



are matched to the EA. The households with complete data on the ethnic characteristics belong to 118 ethnic groups: 27 in Ethiopia, 21 in Ghana, 7 in Malawi, 43 in Nigeria, and 20 in Uganda. Figure 1 maps the matched homelands in the five countries retained after the identification tests in Section 3.4.

3.4 Tests of Identification

To test the empirical implication of non-flat Engel curves, I utilize the linear identification test proposed by LPW. In essence, this test uses ordinary least squares to verify whether the overall household-assignable-goods Engel curve has a non-zero slope with respect to total expenditure. For every observed household h , the linear overall household assignable goods Engel curve can be written as

$$W_h = a_h + b_h \ln y_h + \epsilon_h. \quad (9)$$

Therefore, estimating (9) provides a household-specific slope estimate $\hat{b}_h$. Hence, for each household in the sample, I test whether $\hat{b}_h$ equals zero and report the fraction of households for which it is statistically significant. The second test evaluates whether the overall assignable-goods Engel curve, evaluated at the mean of the covariates, is decreasing or increasing. That is, one can

Table 1: Budget and Identification

Country	Number of Households	Total Household Consumption (2017 US\$ PPP)	Budget Share of the Assignable Good	Z-Test of Slope (LPW)	Share of Sample Significant (LPW)	Share of Sample Significant (Non-Linear)
Ethiopia	5,248	4,863.5 (4,216.6)	0.044 (0.040)	-6.01	0.82	0.82
Ghana	7,723	7,716.5 (6,487.8)	0.061 (0.047)	-5.49	0.85	0.96
Malawi	8,702	3,119.0 (2,424.2)	0.021 (0.029)	10.77	0.96	0.97
Niger	2,944	6,402.1 (4,116.7)	0.026 (0.023)	1.18	0.24	0.41
Nigeria	3,299	6,664.1 (4,194.3)	0.031 (0.024)	-3.41	0.64	0.75
Tanzania	3,554	5,821.4 (5,111.9)	0.035 (0.032)	-2.29	0.34	0.61
Uganda	2,427	6,365.3 (5,634.4)	0.018 (0.017)	-3.06	0.79	0.80

Note: Household consumption and the budget share of the assignable good (clothing and footwear for men, women, and children) are means, with standard deviations in parentheses. The Z-test, following LPW, tests whether the aggregate assignable-goods Engel curve has a non-zero slope; as in LPW, the linear test excludes household compositions with fewer than 100 households. The last two columns give the share of households whose Engel-curve slope is significant at the 5% level in the linear (LPW) and the non-linear model.

perform a Z-test using $E[\hat{b}_h]$. Lastly, I calculate the post-estimation structural parameter β from the main system of equations given in (5). Similarly, I report the fraction of households in the sample for which this β is significantly different from zero.¹⁰

Table 1 summarizes the results of the LPW linear identification tests alongside the share of households with a significant Engel-curve slope in the non-linear model. I retain countries in which at least 70% of households have a significant slope in the non-linear model. Ethiopia, Ghana, Malawi, Uganda, and Nigeria meet this threshold. Niger (41%) and Tanzania (61%) fall well below the threshold and are excluded. All five retained countries also have an aggregate Engel curve with a significant non-zero slope in the LPW test, with absolute Z-statistics between 3.06 (Uganda) and 10.77 (Malawi). Ghana and Malawi are the most clearly identified, with 96% and 97% of households significant in the non-linear model. This selection process ensures that the structural estimates are derived from a foundation of clearly non-flat Engel curves, as theoretically required by the DLP framework.

3.5 Descriptive Statistics

Since the analysis focuses on countries in SSA, expenditure levels, as seen in Table 1, are relatively low. Specifically, the average annual household expenditure (2017 US\$ PPP) is \$3,119 in Malawi and \$4,864 in Ethiopia, and higher in Uganda (\$6,365), Nigeria (\$6,664), and Ghana (\$7,717). On average, men in the sample are 38 years old and women are 36. A typical household has one man, one woman, and about two children, with an even split between boys and girls. Men have more schooling than women in every country (6.7 against 5.0 years on average), and education levels are lowest in Ethiopia (4.3 and 2.7 years). Most households are rural (71% in Ethiopia, 84% in Malawi, 68% in Nigeria, and 70% in Uganda), except in Ghana (44%). For children under five, the average age is approximately 32 months. The mean height-for-age Z-score (HAZ) is -1.31 and the mean weight-for-age Z-score (WAZ) is -0.79 . These values reflect the expected prevalence of undernutrition in these contexts. Stunting is most common in Ethiopia (49%) and Nigeria (39%), followed by Malawi (32%), Uganda (26%), and Ghana (26%).¹¹

4 Results

The primary focus of this section is to examine how ancestral ethnic characteristics correlate with contemporary intrahousehold resource allocation, child poverty, and child undernutrition.

¹⁰I provide a brief overview of the linear reframing in Appendix Section A.

¹¹Detailed descriptive statistics are provided in Appendix Tables B3, B4, B5, and B6.

The results are presented in three progressive steps. First, I present the baseline results from the Phase 1 estimation, detailing the relationships between resource shares, child poverty, and under-nutrition, alongside observable differences across ethnic groups. Second, I outline the supervised machine learning procedure utilized to screen the Ethnographic Atlas (EA) for six ancestral ethnic traits. Third, I examine how these traits are associated with resource shares and child nutrition, decompose the gaps between trait groups, and explore the channels through which the traits may operate. The section concludes with an assessment of the robustness of the findings.

4.1 Baseline Results

The structural estimation of the baseline system of equations, given by (5), yields the predicted resource shares reported in Table 2. I present results for both households with men, women, and children and all family-type households (mfc , mf , mc , fc). Across these samples, per-child shares (η_c/N^c) range from 0.06 to 0.20. Notably, children in Nigeria receive the lowest per-child share of household resources, while children in Malawi receive the largest. Men have larger per-person shares than women in every country and sample, except in Ethiopian households with men, women, and children, where the two are equal. These results are broadly consistent with recent findings in the literature (Aminjonov et al., 2026).¹²

Using these estimated resource shares and total household expenditure, I calculate individual and calorie-adjusted poverty rates (Brown et al., 2021) for all household members, detailed in Appendix Table C1. Malawi exhibits the highest per-capita poverty headcount at 72%, followed by Ethiopia (48%), Uganda (38%), Nigeria (36%), and Ghana (24%). However, when using the calorie-adjusted individual poverty lines, 39% of children in Ethiopia, 37% in Ghana, 54% in Malawi, 66% in Nigeria, and 36% in Uganda are classified as poor. These results illustrate that traditional per-capita measures often mask the specific deprivation levels experienced by children within the household.

To explore the relationship between resource shares and child undernutrition, I utilize the following categories according to the WHO: not undernourished (Z-score > -2), moderately undernourished ($-3 \leq \text{Z-score} < -2$), and severely undernourished (Z-score < -3) for stunting (HAZ), underweight (WAZ), and wasting (WHZ). Appendix Figure C1 demonstrates that across all three indicators, for both boys and girls, there is a modest trend of children with lower resource shares being in the severely undernourished category. Logistic regressions in Appendix

¹²Previous estimates of per-child shares range from 0.10 to 0.32 in Ethiopia (Aminjonov et al., 2026; Belete et al., 2022), from 0.06 to 0.10 in Ghana (Aminjonov et al., 2024, 2026), and from 0.07 to 0.21 in Malawi (Aminjonov et al., 2024, 2026; Bose-Duker et al., 2021; Dunbar et al., 2013; Lechene et al., 2022; Penglase, 2021), depending on household composition. For households with men, women, and children, Aminjonov et al. (2026) find per-child shares of 0.05 in Nigeria and 0.07 in Uganda.

Figures C3a and C3b reveal an income effect, with a 15 and 10 percentage point difference in the predicted probability of stunting and underweight between the highest and lowest expenditure percentiles.

Table 2: Predicted Resource Shares

Country	Men, Women, Children Households				All Family-Type Households			
	Number of Households	Per-Man Share	Per-Woman Share	Per-Child Share	Number of Households	Per-Man Share	Per-Woman Share	Per-Child Share
Ethiopia	3,662	0.22 (0.08)	0.22 (0.07)	0.16 (0.07)	5,248	0.26 (0.13)	0.24 (0.10)	0.18 (0.09)
Ghana	4,802	0.32 (0.10)	0.25 (0.10)	0.10 (0.05)	7,723	0.35 (0.13)	0.30 (0.15)	0.11 (0.07)
Malawi	6,195	0.24 (0.07)	0.20 (0.08)	0.18 (0.08)	8,702	0.27 (0.10)	0.23 (0.11)	0.20 (0.10)
Nigeria	2,401	0.31 (0.10)	0.26 (0.12)	0.06 (0.03)	3,299	0.33 (0.12)	0.29 (0.15)	0.07 (0.03)
Uganda	1,780	0.25 (0.09)	0.23 (0.08)	0.13 (0.05)	2,427	0.27 (0.11)	0.26 (0.11)	0.14 (0.07)

Note: Means and standard deviations (in parentheses) of per-person resource shares, η_i/N^i , over men, women, and children, using household weights. Family-type households have men, women, and children; men and women; women and children; or men and children.

However, even at the top expenditure percentile, the prevalence rates remain high with 26% for stunting and 10% for underweight. This persistence is consistent with two factors. First, in these low-income settings, the top percentile does not necessarily represent a high absolute standard of living. Second, children in the sample reside predominantly in rural communities where poor sanitary infrastructure and recurrent disease environments can directly impact nutrition outcomes. Consequently, the income effect is more muted, corroborating the findings by Brown et al. (2019) and further supported by the concentration curves in Appendix Figure C2.

Finally, to establish that these outcomes vary meaningfully across ethnic lines within the same countries, I use ANOVA tests and kernel density estimates.¹³ The ANOVA tests reject equal mean per-person resource shares across ethnic groups in every country. Similarly, tests for child anthropometrics and undernutrition prevalence also reject equality across groups in nearly all cases. The kernel densities show the same pattern, with distinct distributional shifts between ethnic groups within the same country. Therefore, child welfare outcomes and intrahousehold allocations are ethnically heterogeneous, providing the necessary empirical basis for investigating the role of ancestral cultural traits.

¹³See Appendix Tables C2 and C3, as well as Appendix Figures C4 and C5.

4.2 Screening the Ethnographic Atlas

Identifying the ancestral ethnic characteristics associated with contemporary child poverty and nutrition outcomes is challenging. The EA contains 94 primary variables, most of which are categorical, and expanding these into indicator variables yields several hundred potential ethnic characteristics.¹⁴ Manually selecting the most relevant ethnic characteristics from this set would be arbitrary and subject to researcher bias. To address this, I use a supervised machine learning approach to screen the EA for the characteristics most consistently associated with child welfare.

The screening process follows four steps. First, I reduce the EA to a subset of 56 variables by removing alternative forms and traits with near-zero variation in the sample.¹⁵ Second, as is standard practice, I expand the categorical variables into indicators and normalize the ordinal variables to the $[0,1]$ interval. Third, I define four outcome variables indicating child welfare: poverty, stunting, underweight, and wasting.¹⁶ Lastly, I fit a random forest for each outcome in each of the five countries and in the pooled sample, giving 24 runs. Out of sample, the ethnic characteristics predict child outcomes only weakly, so I use the resulting ranking as a screen rather than as a predictive model.¹⁷

I rank the characteristics by how often they appear among the ten most important features across the 24 runs, using both impurity and permutation importance. Jurisdictional hierarchy of the local community and dependence on agriculture appear in the top ten far more often than chance would predict, and settlement patterns and male circumcision rituals appear more often. Principal crop type and marriage transactions appear only slightly more often. Several other characteristics also rank highly, most notably animal husbandry and jurisdictional hierarchy beyond the local community. Animal husbandry closely mirrors dependence on agriculture. Jurisdictional hierarchy beyond the local community measures political centralization above the village, such as the pre-colonial states studied by Michalopoulos and Papaioannou (2013). It does not measure the family, marriage, and production practices that plausibly shape how households share resources.

Therefore, I retain six ancestral traits for the analysis. First, the jurisdictional hierarchy of the local community (θ_1) is classified into three levels—*independent families*, *extended families*, and *clan-barrios* (village-level families)—to reflect the complexity of local social organization. Sec-

¹⁴For example, the “prevailing type of transfer or exchange at marriage” variable in the EA contains seven mutually exclusive categories: bride price or wealth, bride service, token bride price, gift exchange, exchange of female relatives, absence of consideration, and dowry.

¹⁵See Appendix Table D1.

¹⁶A child is poor based on estimated resource shares and the calorie-adjusted poverty line, assuming that US\$2.15/day is the average threshold for adults aged 15 to 45 (Brown et al., 2021).

¹⁷See Appendix Tables D2 and D3. To check the ranking, I also perform Recursive Feature Elimination with Cross-Validation (RFECV) and Group Lasso feature selection. See Appendix Tables D4 and D5.

ond, principal crop type (θ_2) distinguishes between “easy-harvestable” crops, such as tree fruits, roots, and tubers, and cereal grains, which require more specialized harvesting and are generally storable (Mayshar et al., 2022). Third, dependence on agriculture (θ_3) is defined as the percentage of subsistence derived from farming relative to gathering, hunting, fishing, and animal husbandry, categorized into low (0–25%), medium (26–75%), and high (76–100%) levels of dependence. Fourth, male circumcision (θ_4) differentiates between ethnic groups where rituals occur during early childhood (0–5 years) and those where the practice is either absent or performed at older ages, in later childhood, adolescence, or adulthood. Fifth, marriage transactions (θ_5) distinguish societies that practice bride price or bride wealth, including token bride price, from those with other transactions (bride service, gift exchange, exchange of female relatives, absence of consideration, or dowry), as bride price is the dominant transaction type in the sample. Finally, settlement patterns (θ_6) are classified into nomadic-type societies—fully migratory (nomadic), semi-nomadic, or semi-sedentary groups, or groups with compact but impermanent settlements—and non-nomadic societies.

4.3 Ethnic Characteristics, Resource Shares, and Nutrition

To explore the role of the ancestral ethnic characteristics identified in Section 4.2, I let θ in (6) consist of indicator variables for each of the ethnic characteristics and estimate the system of equations given by (7). The resulting resource shares and poverty rates are in Appendix Tables E1 and E2, respectively. Despite the added sharing rule determinants and the smaller samples due to missing ethnic data, the shares remain close to the baseline. Per-child shares are within 1 percentage point of the baseline results in every country, and per-man and per-woman shares within 3 percentage points. Using the calorie-adjusted individual poverty lines, 38% of children in Ethiopia, 38% in Ghana, 54% in Malawi, 70% in Nigeria, and 34% in Uganda are classified as poor. The largest change from the baseline is in Nigeria (66% to 70%), where the per-child share is the smallest.

Associations with Resource Shares. Table 3 shows the average marginal effects from the pooled second-phase estimation. These show the percentage point (pp) difference in moving from the reference group to the specific ethnic category. All six characteristics enter the sharing rule together, so each effect holds the other characteristics fixed. The first column is the per-child resource share. The other three columns are the shares of total household resources allocated to all children, all women, and all men. As these three shares sum to one, a change in the children’s share is matched by changes in the women’s and men’s shares, which shows who gains when children receive less. Lastly, I also show the number of ethnic groups with each of the reference and category characteristics.

Four associations stand out. Independent family structures allocate a 0.67 pp larger per-child share than extended family structures, and clan-barrio societies a 0.41 pp larger share. The four ethnic groups with low dependence on agriculture allocate 1.61 pp less per child than groups with medium dependence. Similarly, ethnic groups where circumcision rituals occurred at young ages allocate 0.72 pp less per child. These differences are sizable relative to the per-child shares of 6 to 20% in Table 2. For independent family structures, the shares of both men and women are lower, although neither is significant, while in clan-barrio societies it is mostly women who receive less (−1.27 pp). In societies with low dependence on agriculture, men are the main beneficiaries of the smaller children’s share, with a 4.88 pp larger men’s share. In societies with early circumcision, the smaller children’s share is instead matched by a 1.89 pp larger women’s share.

Nomadic societies show a similar shift toward women (3.72 pp), although the lower children’s share is imprecise and the result rests on only eight groups. However, three of the four low-agriculture groups, the Somali, Afar, and Bororo Fulani, are also nomadic, so the contrast between pastoral and farming societies is split across these two characteristics. Taken together, children in these pastoral groups receive a per-child share roughly 2.4 pp lower than in sedentary farming groups, the largest gap of any characteristic, with both men and women receiving

Table 3: Ethnic Characteristics and Resource Shares: Average Marginal Effects

	Per-Child Share	Children’s Share	Women’s Share	Men’s Share	Ethnic Groups (Category/Reference)
Independent vs. Extended Families	0.67*** (0.24)	1.81*** (0.66)	−0.84 (0.67)	−0.83 (0.80)	29/64
Clan-Barrios vs. Extended Families	0.41** (0.19)	1.10** (0.52)	−1.27** (0.51)	0.35 (0.58)	25/64
Easy-Harvestable vs. Other Crops	0.13 (0.20)	0.36 (0.53)	0.61 (0.55)	−1.04* (0.62)	36/82
Agriculture 0–25% vs. 26–75%	−1.61*** (0.53)	−4.35*** (1.43)	−0.56 (1.36)	4.88*** (1.52)	4/100
Agriculture 76–100% vs. 26–75%	0.01 (0.23)	0.01 (0.62)	0.37 (0.59)	−0.43 (0.66)	14/100
Circumcision at 0–5 vs. Absent/Older	−0.72*** (0.19)	−1.95*** (0.52)	1.89*** (0.51)	−0.21 (0.59)	22/95
Bride Price vs. Other Transactions	0.09 (0.23)	0.24 (0.61)	0.45 (0.58)	−0.73 (0.66)	97/21
Nomadic vs. Non-Nomadic	−0.77 (0.54)	−2.07 (1.47)	3.72*** (1.41)	−2.13 (1.49)	8/110

Note: Average marginal effects, in percentage points, of moving from the reference to the category, from the pooled Phase 2 estimation. Delta-method standard errors in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The last column gives the number of ethnic groups in the category and the reference.

more. Where crops are easily harvestable, the men's share is 1.04 pp lower, but children do not receive significantly more. Bride price, which is practiced by most societies in my sample, shows no significant differences in resource shares. Crop type and marriage transactions were also the weakest characteristics during the screen, so these results are consistent with that.

The pooled estimates impose one coefficient per characteristic across countries. Appendix Figures E1–E3 compare them with separate estimates for each country, and Appendix Table E10 tests whether the coefficients are equal. Equality is rejected only for independent families and bride price. For independent families, the country estimates for the children's share are all positive and differ mainly in size. For bride price, they differ in sign, so the pooled estimate close to zero averages over opposite country patterns rather than showing no association. Early circumcision is associated with a larger women's share in all three countries where it varies.

Associations with Undernutrition Prevalence. Table 4 shows the correlation between children's nutritional outcomes and the ethnic traits of interest. Panel A shows the estimates from a linear probability model on the indicator of whether a child is stunted or not and Panel B shows OLS estimates from a regression of their height-for-age Z-score (HAZ). The sample includes all children under 5 years of age and each regression is run separately, comparing the ethnic trait with the reference group. Column (1) compares children within countries. Columns (2) to (4) compare children within regions, each adding more controls.

Within countries, children in independent-family, clan-barrio, easy-harvestable, high-agriculture, and nomadic groups are less likely to be stunted. Within regions, the gaps for independent family structures, high-agriculture dependence, and nomadic societies remain. Children in independent-family groups are 15.08 pp less likely to be stunted than those in extended-family groups, children in nomadic groups 20.50 pp less likely than those in non-nomadic groups, and children in high-agriculture groups 8.70 pp less likely than those in medium-agriculture groups. Within regions, the HAZ results show the same pattern. The result for nomadic societies seems counterintuitive, since children in pastoral groups receive smaller per-child shares. However, pastoral diets are based on milk, which is low in energy but adequate in protein, and pastoralists tend to be tall and lean (Galvin, 1992).

Adding household expenditure and per-child consumption barely changes the remaining gaps. Hence, the nutrition differences between trait groups do not appear to run through the resources that reach children. This implies the link to the resource shares is partial. Children in independent families receive larger shares and are also less likely to be stunted. In contrast, children in nomadic groups are less likely to be stunted even though their resource shares are not larger, and children in early-circumcision groups receive smaller shares, while their stunting gap is imprecise and turns positive within regions. Other differences between these groups, such as diet or the disease environment, may matter as well.

Table 4: Ethnic Characteristics and Child Undernutrition

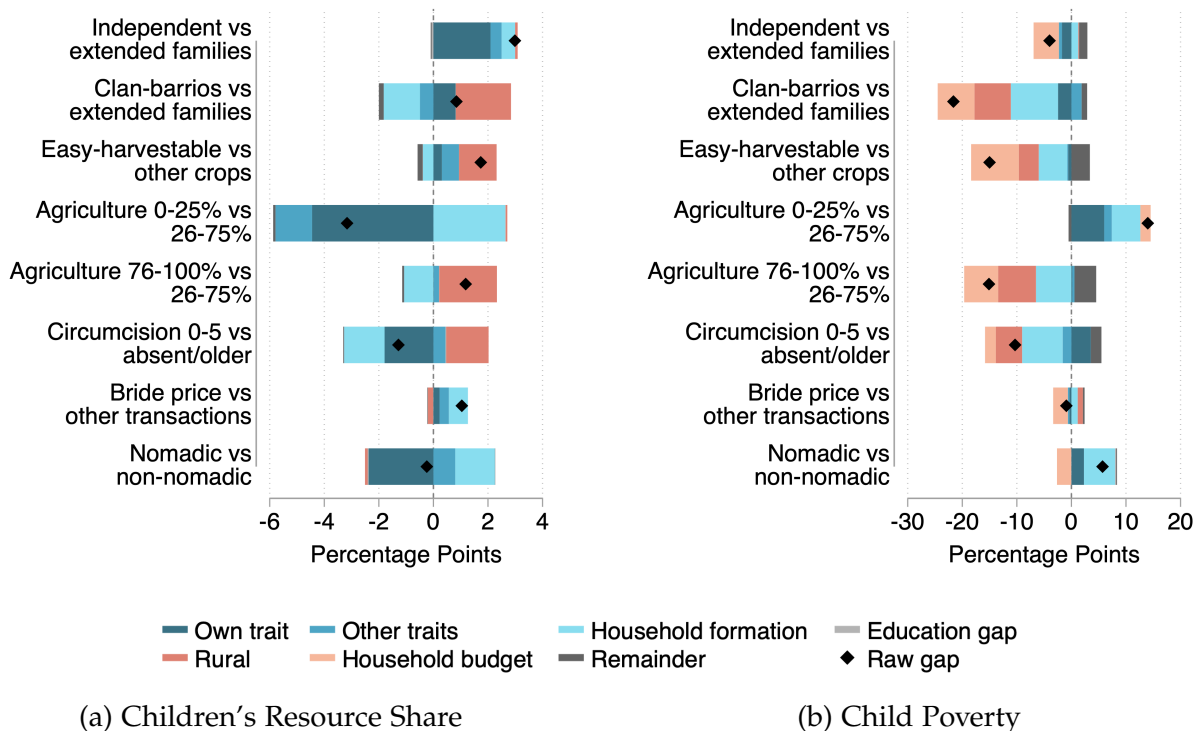
	(1)	(2)	(3)	(4)	Ethnic Groups	Children
<i>Panel A: Stunted (Percentage Points)</i>						
Independent vs.	-8.70**	-15.08***	-15.25***	-15.12***	90	10,234
Extended Families	(3.99)	(4.77)	(4.76)	(4.81)		
Clan-Barrios vs.	-20.78***	-0.17	-0.63	-0.60	87	11,533
Extended Families	(6.09)	(5.39)	(5.47)	(5.49)		
Easy-Harvestable vs.	-15.05***	3.22	3.92	4.05	115	13,316
Other Crops	(4.68)	(4.63)	(4.67)	(4.76)		
Agriculture 0–25% vs.	-10.76	-8.52	-8.43	-9.13	101	12,211
26–75%	(10.09)	(9.33)	(9.55)	(9.58)		
Agriculture 76–100% vs.	-20.09***	-8.70**	-8.51*	-8.49*	111	12,745
26–75%	(5.11)	(4.27)	(4.40)	(4.40)		
Circumcision at 0–5 vs.	-11.10	8.75	8.71	8.69	114	13,037
Absent/Older	(7.74)	(8.62)	(8.69)	(8.72)		
Bride Price vs.	-1.97	-5.12	-5.20	-5.20	115	13,316
Other Transactions	(6.15)	(7.51)	(7.57)	(7.57)		
Nomadic vs.	-10.17*	-20.50***	-20.81***	-20.87***	115	13,316
Non-Nomadic	(5.77)	(4.81)	(4.83)	(4.79)		
<i>Panel B: Height-for-Age Z-Score</i>						
Independent vs.	0.14	0.38***	0.39***	0.38***	90	10,234
Extended Families	(0.12)	(0.15)	(0.15)	(0.15)		
Clan-Barrios vs.	0.64***	0.16	0.18	0.16	87	11,533
Extended Families	(0.19)	(0.20)	(0.20)	(0.20)		
Easy-Harvestable vs.	0.46***	-0.06	-0.09	-0.10	115	13,316
Other Crops	(0.14)	(0.18)	(0.18)	(0.18)		
Agriculture 0–25% vs.	0.55	0.34	0.34	0.39	101	12,211
26–75%	(0.35)	(0.32)	(0.33)	(0.34)		
Agriculture 76–100% vs.	0.61***	0.35**	0.35**	0.34*	111	12,745
26–75%	(0.17)	(0.17)	(0.18)	(0.18)		
Circumcision at 0–5 vs.	0.37	-0.19	-0.19	-0.19	114	13,037
Absent/Older	(0.23)	(0.30)	(0.30)	(0.30)		
Bride Price vs.	0.06	0.17	0.17	0.17	115	13,316
Other Transactions	(0.18)	(0.24)	(0.24)	(0.24)		
Nomadic vs.	0.19	0.51***	0.52***	0.53***	115	13,316
Non-Nomadic	(0.18)	(0.15)	(0.15)	(0.15)		
Country, Age, Sex FE	Yes	–	–	–		
Region, Age, Sex FE	–	Yes	Yes	Yes		
Household Controls	–	Yes	Yes	Yes		
Log Per-Capita Expenditure	–	–	Yes	Yes		
Log Per-Child Consumption	–	–	–	Yes		

Note: Each cell is the coefficient on an indicator for the category from a separate regression among children under five in the two trait groups, with household weights; the controls in each column are listed at the bottom, with age in months and household controls for composition, the education gap, and rural residence. Stunting is in percentage points and HAZ in standard deviations. Standard errors clustered by ethnic group in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

4.4 Poverty and Decomposition

Decomposition of Gaps between Trait Groups. Households also differ in their number of children, and certain societies tend to have more children than others. Differences in children's outcomes can come from household composition as well as from how resources are shared. To explore where the gaps between trait groups in resource shares and child poverty come from, Figure 2 shows the terms of (8), averaged across countries. The own-trait component, the first term, is the difference between the outcome of the category group and its outcome when its characteristic is set to the reference. The other components show how much of the gap comes from other differences between the two groups' households. *Other traits* reflect that the groups also differ in their other ancestral traits. *Household formation* reflects differences in the number, age, and sex of household members, which affect both how resources are shared and how many children share them. *Education gap* and *rural* reflect differences in the education gap between men and women and in rural residence, and *household budget* reflects differences in total household expenditure. Under the Independence of Base assumption, resource shares do not depend on total expenditure, so the household budget component is zero for the children's share.

Figure 2: Decomposition of the Gaps between Trait Groups



Note: Components of the gap between the children of the two trait groups in the children's resource share (a) and in child poverty (b), in percentage points, averaged across countries. Values and 95% intervals are in Appendix Table E11.

For the children's share, the own trait accounts for most of the raw gap in independent-family

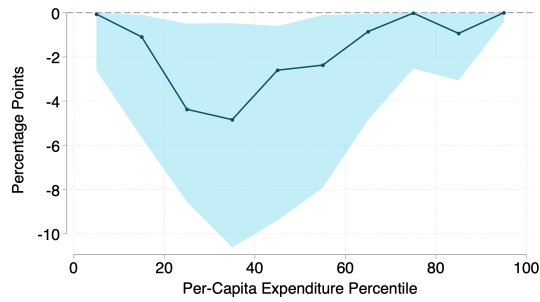
groups (2.09 of 2.99 pp) and clan-barrio groups (0.82 of 0.84 pp). In low-agriculture groups, it exceeds the raw gap (-4.45 against -3.17 pp), as differences in household formation partly offset it. In early-circumcision groups, the own trait (-1.79 pp) and household formation (-1.48 pp) both lower the children's share, while rural residence raises it (1.55 pp). For crop type and high dependence on agriculture, the raw gaps come mostly from rural residence (1.38 and 2.11 pp) rather than from the traits themselves. In nomadic groups, the own trait (-2.37 pp) is offset by household formation and the other traits, leaving a raw gap close to zero.

The poverty gaps are larger and depend more on other differences between households. Household budgets, household formation, and rural residence account for much of the lower child poverty in clan-barrio, easy-harvestable, and high-agriculture groups. The own trait still raises child poverty by 6.01 pp in low-agriculture groups and by 3.56 pp in early-circumcision groups, and lowers it by 1.74 pp in independent-family groups and 2.46 pp in clan-barrio groups. In early-circumcision groups, the own trait and the raw gap point in opposite directions. Their children are 10.33 pp less likely to be poor despite a smaller children's share, because their households have fewer children and differ in rural residence. Therefore, the other components show which differences between households go along with each trait, and why the raw gaps alone can be misleading about the role of how resources are shared.

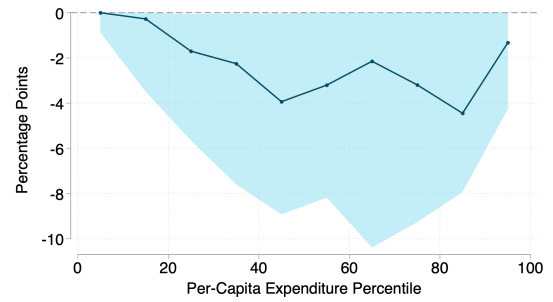
Associations with Poverty Rates. Figure 3 shows the own-trait effect on child poverty within each decile of within-country per-capita expenditure. That is, it shows how much the ethnic trait changes the poverty rate of children in the category group at different levels of household expenditure. For easy-harvestable crops, high dependence on agriculture, and bride price, the effects are small across all percentiles. For independent-family groups, child poverty is lower between the 10th and 70th percentiles, with the largest reductions, of 4 to 5 pp, between the 20th and 40th percentiles. For clan-barrio groups, the reduction is clearest between the 20th and 50th percentiles, with a peak at -3.9 pp. Above these percentiles, the effect is similar but more imprecise.

In contrast, child poverty is higher in low-agriculture groups, specifically between the 30th and 60th percentiles with a peak of about 11.5 pp. In early-circumcision groups, with a peak at 6.3 pp, child poverty is higher across the 10th to 80th percentiles. In nomadic societies, the increase is concentrated below the 40th percentile but is imprecise. Therefore, the effects are largest around the lower-middle of the distribution, where children's consumption is close to the poverty line. A change in per-child resource shares matters little for poverty status when households are very poor or very rich, but matters a lot for the households in between. This implies that the differences in resource shares associated with these ethnic characteristics matter most for children in households near the poverty line.

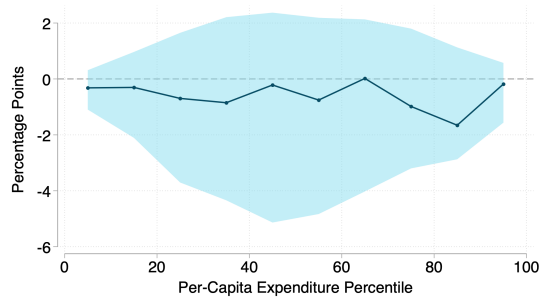
Figure 3: The Trait's Own Effect on Child Poverty by Expenditure Decile



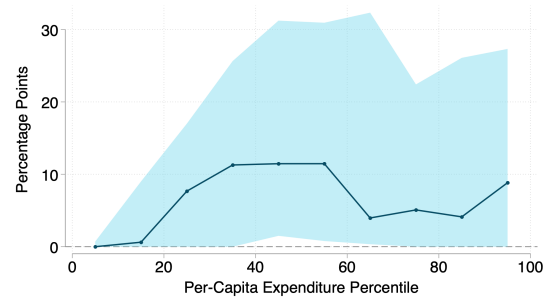
(a) Independent vs. Extended Families



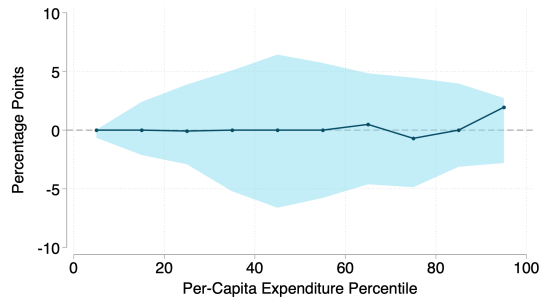
(b) Clan-Barrios vs. Extended Families



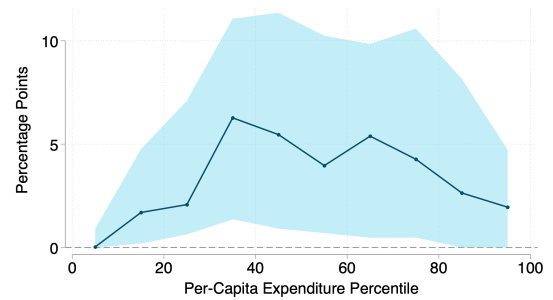
(c) Easy-Harvestable vs. Other Crops



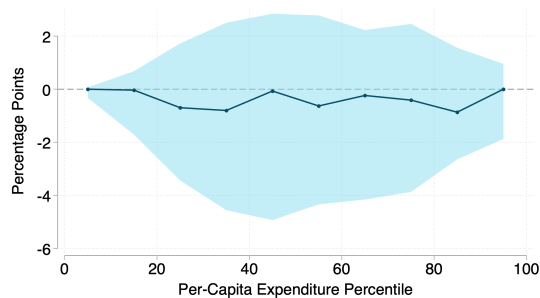
(d) Agriculture 0–25% vs. 26–75%



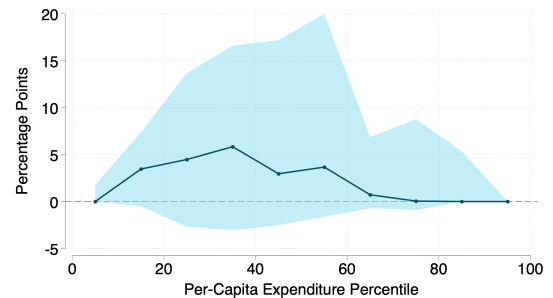
(e) Agriculture 76–100% vs. 26–75%



(f) Circumcision at 0–5 vs. Absent/Older



(g) Bride Price vs. Other Transactions



(h) Nomadic vs. Non-Nomadic

Note: Difference in child poverty, in percentage points, between the trait group's children and the same children with the reference characteristic, by decile of within-country per-capita expenditure, with 95% intervals from 500 replications.

4.5 Channels

The decomposition shows that household formation matters. However, the model gives every child the same share, regardless of sex, and it takes the number of children as given. These are exactly the channels through which ethnic characteristics may operate. To explore them, I regress observed household characteristics on an indicator for each trait separately, comparing households of the two trait groups within countries. These results are descriptive and shown in Tables 5 and 6.

First, households in clan-barrio groups are associated with 0.93 fewer children than those in extended-family groups. Early-circumcision, high-agriculture, and easy-harvestable crop groups also have fewer children. Nomadic, low-agriculture, and independent-family groups have more children. The number of women differs little between trait groups, while independent-family,

Table 5: Household Composition by Ethnic Characteristic

	Number of Children	Number of Women	Number of Men	Reference Children	Ethnic Groups	Households
Independent vs. Extended Families	0.21* (0.12)	−0.01 (0.03)	−0.05** (0.02)	2.45	29/64	18,714
Clan-Barrios vs. Extended Families	−0.93*** (0.18)	−0.05 (0.05)	−0.15** (0.06)	2.45	25/64	22,066
Easy-Harvestable vs. Other Crops	−0.39* (0.20)	−0.03 (0.04)	−0.12*** (0.04)	2.47	36/82	25,416
Agriculture 0–25% vs. 26–75%	0.45** (0.22)	−0.05 (0.06)	−0.01 (0.05)	2.40	4/100	23,094
Agriculture 76–100% vs. 26–75%	−0.55** (0.27)	−0.09 (0.06)	−0.09 (0.07)	2.40	14/100	24,257
Circumcision at 0–5 vs. Absent/Older	−0.67*** (0.17)	−0.07* (0.03)	−0.10** (0.04)	2.53	22/95	24,926
Bride Price vs. Other Transactions	0.18 (0.15)	−0.01 (0.03)	−0.01 (0.03)	2.21	97/21	25,416
Nomadic vs. Non-Nomadic	0.51*** (0.10)	−0.06 (0.04)	0.01 (0.03)	2.28	8/110	25,416

Note: Within-country differences between the category and the reference in the number of household members, with country fixed effects and household weights. Reference Children is the mean number of children in the reference group. Standard errors clustered by ethnic group in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

clan-barrio, easy-harvestable crop, and early-circumcision groups have slightly fewer men.

This explains the contrast for early-circumcision groups. The trait's own effect raises child poverty, as Figure 3 shows, but their households have fewer children to share the children's resources, so their children are less likely to be poor overall. In contrast, in low-agriculture and nomadic groups, children receive smaller shares and live in households with more children, so both raise child poverty.

Table 6: Adult Education and Marriage

	Women's Education (Years)	Men's Education (Years)	Polygynous Household	Female Head	Spouses' Age Gap (Years)
Independent vs. Extended Families	0.46 (0.39)	0.62 (0.39)	0.06 (1.03)	0.74 (1.70)	−0.18 (0.37)
Clan-Barrios vs. Extended Families	4.25*** (1.06)	3.54*** (0.99)	−13.60*** (4.33)	12.19*** (2.12)	−2.20*** (0.59)
Easy-Harvestable vs. Other Crops	2.78*** (0.85)	2.57*** (0.73)	−6.76** (3.17)	8.71*** (2.00)	−1.14** (0.52)
Agriculture 0–25% vs. 26–75%	0.19 (1.39)	0.18 (1.40)	−0.09 (4.87)	8.24** (3.92)	−0.18 (0.64)
Agriculture 76–100% vs. 26–75%	2.62** (1.16)	2.00* (1.02)	−6.91 (4.85)	6.13** (3.03)	−1.13 (0.69)
Circumcision at 0–5 vs. Absent/Older	2.41** (1.07)	1.85* (1.03)	−8.02** (3.25)	6.74** (2.71)	−0.72 (0.62)
Bride Price vs. Other Transactions	−0.01 (0.56)	−0.09 (0.67)	0.62 (1.43)	0.83 (1.82)	0.27 (0.45)
Nomadic vs. Non-Nomadic	−0.76* (0.45)	−0.23 (0.55)	2.67 (2.01)	2.07 (2.90)	0.06 (0.29)

Note: Within-country differences between the category and the reference, with country fixed effects and household weights. Education is mean years of schooling; polygynous household and female head are in percentage points, and polygyny is not recorded separately in Ghana. The spouses' age gap is the male head's age minus his wives' mean age. Standard errors clustered by ethnic group in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Turning to gender, Appendix Tables E14 and E15 show that the number of boys and girls in a household move together for every trait, so the household-size channel concerns children overall rather than one sex. The only exception is high dependence on agriculture, where the share of boys is slightly lower. Only in low-agriculture and nomadic groups do girls and boys differ on every measure. There, girls receive a larger share of children's clothing spending but a smaller share of education spending than boys, are less likely to be enrolled in school, and are less likely

to be stunted. The two characteristics most directly tied to gender norms show little. Bride price shows no gender difference on any measure, and in early-circumcision groups, only girls' school enrollment is slightly higher than boys'.

Differences between trait groups are larger among adults. In clan-barrio, easy-harvestable crop, high-agriculture, and early-circumcision groups, both women and men have more years of education, and households are more often headed by women. Except in high-agriculture groups, they are also less likely to be polygynous. Because these differences apply to women and men alike, they point to a development gradient rather than to gender norms alone. As Appendix Table F1 shows, much of the variation in these characteristics lies between regions, so this gradient likely reflects partly where these groups live today.

4.6 Robustness

The ethnic characteristics vary only between ethnic groups and, outside Ghana, are assigned by where households live. A main concern is that they pick up differences between places, such as infrastructure, climate, or markets, rather than ancestral practices. Appendix F reports six checks. The checks on location use outcomes that do not come from the model, namely the number of children, stunting, and HAZ, since the estimated resource shares contain the ethnic characteristics by construction and comparing them across nearby places cannot separate the characteristic from the place.¹⁸

First, location and ancestry are partially entangled. For clan-barrios, crop type, dependence on agriculture, and male circumcision, only 22 to 31% of the within-country variation remains within regions. Region fixed effects in the sharing rule would remove most of the variation that identifies these characteristics, so the main estimates compare ethnic groups within countries. Second, I compare close neighbors on either side of the same ethnic border in Ethiopia, Malawi, and Nigeria. The stunting gaps that hold within regions also hold near borders. Within 25 km, children in independent-family groups are 15.0 pp and children in nomadic groups 12.0 pp less likely to be stunted. The gaps in the number of children are less stable, and the large clan-barrio gap does not remain near borders. Third, in Ghana, where ethnicity is reported by the household rather than assigned by location, I compare households within the same district. Bride-price households have 0.52 fewer children, and their children are 11.9 pp less likely to be stunted. Fourth, in Malawi, 16% of households report an ethnicity other than that of the homeland they live in. Their children's HAZ follows the homeland rather than the reported group, so the nutrition gaps stay largely with the place rather than travel with the people.

¹⁸The checks are in Appendix Tables F1–F6.

The remaining checks concern the estimation. Because the characteristics vary only between ethnic groups, I also compare groups directly, with one observation per ethnic group. The per-child share gaps for clan-barrios and low dependence on agriculture remain, and those for crop type and nomadic groups become larger and significant. The gaps for independent families and early circumcision are no longer significant, and the latter changes sign. Averaged over households without weights rather than over children with household weights, the average marginal effects are about 50% larger, with the same signs, and adding the ethnic characteristics barely changes the estimated per-child shares, which correlate with the baseline estimates at 0.975 or more in every country.

Taken together, the associations between the ethnic characteristics and child nutrition largely hold among close neighbors, while the differences in household size are more sensitive to where households live. Therefore, ancestral practices and location are partially entangled, and the results should be read as differences between ethnic groups within countries rather than as the effect of ancestral practices alone.

5 Discussion

A central question remains regarding the mechanisms through which ancestral ethnic characteristics correlate with contemporary child welfare. One explanation is cultural persistence—the historical transmission of social norms, contracts, and values across generations (Bisin & Verdier, 2001; Giuliano & Nunn, 2021). In this view, ancestral traits may have shaped gender- and child-specific traditions that endure over generations. The historical economic or social utility of a child within an ethnic group may then persist in culture, shaping how modern households associated with these lineages value children and how they allocate finite resources. However, the results also show that these traits go along with differences in household size and with a development gradient, and that ancestral practices and location are partially entangled. Therefore, the mechanisms discussed below should be read as possible explanations for the patterns found that merit further empirical exploration.

Jurisdictional Hierarchy. The resource advantage found in historically independent families over extended families is consistent with Caldwell’s (1976) Intergenerational Wealth Flows Theory. Traditional extended family systems are often organized around “upward flows”, in which resources flow from the young to the old to secure the status and safety of elders. Conversely, independent families are more frequently associated with “downward flows”, concentrating investment in the health and development of their own children. In line with this, the larger children’s share in independent families comes at the expense of both women and men, and their children are 15 pp less likely to be stunted, a gap that holds among close neighbors. Notably,

independent families do not have fewer children, so this advantage reflects how resources are shared rather than fewer children to share them. The presence of mothers-in-law or senior male patriarchs in an extended household may also shift resource control and decision-making away from the mother (Fikadu et al., 2024; Ickes et al., 2018). Extended lineages may further face a “kinship tax”, a social pressure that compels successful individuals to redistribute surplus resources to the wider clan rather than their own children (Jakiela & Ozier, 2016; Squires, 2024; Vollan et al., 2023), which would lower the resources available to the household as a whole.

Beyond the immediate family unit, village-level jurisdictional hierarchy (clan-barrios) is also associated with a larger children’s share than extended families. As noted by Enke (2019), such village-level structures often foster “tight” kinship systems governed by moral frameworks that emphasize localized cooperation and trust. These arrangements may create a predictable and supportive environment where communal expectations prioritize the collective health of the next generation. However, the larger children’s share comes mainly at the expense of women, and the lower child poverty in clan-barrio groups comes largely from differences between households. Clan-barrio households have fewer children, higher household expenditure, more educated adults, and fewer polygynous marriages, and their children’s nutrition advantage disappears within regions. Therefore, ancestral village-level hierarchy is associated with how resources are shared today, while much of its link with child welfare reflects a development gradient tied to where these groups live.

Principal Crop Type and Agriculture Dependence. The association between ancestral agricultural practices and contemporary child welfare can be understood through the historical economic value of children in the household production unit. A potential concern is that ancestral characteristics, such as principal crop type and agricultural dependence, are simply proxies for contemporary geography. The EA records the group’s specialization and institutional knowledge (Murdock, 1967), and such practices can become internalized as cultural norms that persist across generations (Alesina et al., 2013; Nunn, 2012). In this view, while geography determines what could grow, ethnic culture shapes what is grown and how society is organized around those crops. Nevertheless, these characteristics also vary mostly between regions, so ancestral practices and contemporary location are difficult to separate.

In many historical African contexts, children were integral to farming activities that were technically simple and physically accessible (Admassie, 2003). There are distinct differences in labor requirements between crop types. For instance, cereal grains often require synchronized, labor-intensive harvesting and complex processing, which may favor adult strength. Conversely, tree fruits, roots and tubers have lower physical entry barriers. In societies specialized in these “easy-harvestable” crops, children may have had a comparative advantage in labor, and these societies may have developed “child-favoring” norms to ensure the health and productivity of young contributors. However, the results in this paper provide little support for this channel. Children in

easy-harvestable crop groups do not receive significantly larger resource shares, and their lower poverty and stunting come mainly from differences in household expenditure, household size, and rural residence, with the stunting gap disappearing within regions. This suggests that any lasting advantage of these groups works through the resources households have rather than how they share them. Moreover, crop mixes have changed substantially since the EA was recorded, so a single principal crop may capture the historical labor requirements only coarsely.

Similarly, the degree of ancestral dependence on agriculture may shape the importance of child labor in a family's survival strategy. In societies where agriculture was the primary mode of subsistence, children were seen as necessary contributors to household welfare rather than mere dependents, a necessity often amplified during agricultural shocks (Beegle et al., 2006). Much like the argument that plough agriculture created persistent male-favoring norms by devaluing female labor (Alesina et al., 2013), a historical dependence on child-accessible agriculture may have instilled a persistent cultural "valuation" of children. The results are consistent with this at the low end of agricultural dependence. In the few groups that relied least on agriculture, mostly pastoralists, children receive a smaller share of household resources, while men receive a larger share. Among farming societies, by contrast, a high rather than medium dependence on agriculture is not associated with how resources are shared, although children in these groups are less likely to be stunted, even within regions. As nearly all rural households in these countries farm today, differences in the degree of ancestral agricultural dependence among farming societies may have faded, while the contrast between farming and pastoral societies remains.

Male Circumcision. Male circumcision rituals, often performed on religious or cultural grounds, fulfill deep-seated social and political needs beyond the procedure itself (Pollack, 2011). The characteristic used here distinguishes groups that circumcise boys in early childhood (0–5 years) from all other groups. The groups that circumcise early are mainly the Amhara and Tigrinya in Ethiopia, the Ewe, Ga, and Dagomba in Ghana, and the Yoruba, Igbo, and other southern groups in Nigeria. In several of these groups, early circumcision overlaps with religious practice, such as infant circumcision in the Ethiopian Orthodox Church and in Islam among the Dagomba, although it predates Christianity among the southern Nigerian groups. The reference category is mixed. It includes groups that do not circumcise at all, much of Ghana among them, groups that circumcise in later childhood, such as the Hausa, Kanuri, and Somali, and groups that circumcise as part of adolescent or adult initiation. The latter include age-grade societies such as the Oromo and Sidamo in Ethiopia, in which cohorts of men are bound by social mandates to share food, provide loans, and offer political backing to one another for life (Moscona & Seck, 2024). If such obligations drew men's resources away from their own children, children's shares would be lower in the reference category, not in the early-circumcision groups.

The results for this characteristic instead point to the position of women. In early-circumcision groups, the smaller children's share is matched by a larger women's share in all three countries

where the characteristic varies, while the men's share is unchanged. These households also have more educated women and men, fewer polygynous marriages, and more female heads, and girls are slightly more likely than boys to be enrolled in school. This is consistent with a stronger bargaining position of women. However, a stronger position of mothers is often expected to raise children's resources (Hoddinott & Haddad, 1995), whereas here it goes along with a larger share for women rather than for children.

Early-circumcision households also have fewer children. As a result, their children are less likely to be poor overall, even though the trait's own association with the children's share raises child poverty. Many of these groups are among the larger, more urban, and more educated groups in their countries, so this pattern partly reflects the development gradient discussed above. However, lower poverty does not translate into better nutrition. Within regions, the stunting gap is positive but imprecise, and near ethnic borders, the children of these groups are, if anything, more likely to be stunted.

Bride Price Transactions. Ancestral bride price practices could be expected to raise investment in girls. Ashraf et al. (2020) highlight how these practices create a direct link between a daughter's human capital and the "return" her family receives when she marries. Since healthy, well-nourished, and educated daughters may command a higher bride price in the marriage market, households in these societies have an incentive to prioritize their development (Becker, 1981). This may shift the perception of girls from a potential economic liability to a productive asset. These investments could be reinforced by maternal bargaining power. In societies where bride price is the norm, a mother's own "value" was established by a similar transaction, which often cements her status and security within her husband's family (Gaspart & Platteau, 2010; Mbaye & Wagner, 2017). Consistent with the "like mother, like daughter" patterns identified in the literature, mothers with more influence may direct resources toward the health and nutrition of their daughters (Thomas, 1990, 1994).

The results provide little support for these channels. Bride price is not associated with the children's or women's resource shares, and girls and boys in bride-price groups do not differ in clothing or education spending, school enrollment, or stunting. Three features of this characteristic may explain the absence of an association. First, the pooled estimate averages over opposite country patterns, with a positive association in Ghana, none in Malawi, and negative associations in Ethiopia and Nigeria. Second, bride price is the dominant practice in the sample, so the reference category is small and mixes very different practices, from dowry to the exchange of female relatives. Third, Ashraf et al. (2020) find that bride price raises investment in girls' education when the returns to education rise, rather than as a general girl-favoring norm. Interestingly, children in bride-price groups are less likely to be stunted among close neighbors near ethnic borders and within districts in Ghana, which suggests that the practice may be related to child welfare in ways that resource shares do not capture.

Settlement Patterns and Pastoralism. The nomadic groups in the sample are mostly the Somali, Afar, Arusi, and Nuer in Ethiopia and the Bororo Fulani in Nigeria. The Somali, Afar, and Bororo Fulani are also the groups with the lowest ancestral dependence on agriculture. Since both characteristics enter the sharing rule together, the contrast between pastoral and farming societies is split between them, and taken together, children in these pastoral groups face the largest gap in resource shares of any characteristic.

Pastoral societies are historically defined by a clear power gap between men and women. In these systems, a person's influence is usually linked to their control over livestock. Across most nomadic groups in SSA, men have near-exclusive ownership and management of the herds, giving them the final word on how household resources are used (Dyson-Hudson & Dyson-Hudson, 1980). Consistent with this, the smaller children's share in low-agriculture groups is matched by a larger men's share. Women and girls are often excluded from important roles and are confined to time-consuming, "traditionally female" household chores that prevent girls from attending school and women from social occasions where community-wide decisions are made (Onyima, 2021). Furthermore, they are often raised to submit to male leadership, may be subject to female genital mutilation, and are frequently married at young ages (Flintan, 2008; Flintan & Eba, 2023; Kipuri & Ridgewell, 2008). In line with this, girls in these groups receive a smaller share of education spending than boys and are less likely to be enrolled in school. However, women's resource shares are not smaller, and in nomadic groups they are larger, so the children's smaller share benefits both men and women. Women's lack of decision-making power over the herds does not appear to reduce their own consumption, even if it may limit their ability to advocate for their children (Hoddinott & Haddad, 1995).

Beyond these decision-making structures, the practical demands of a mobile lifestyle create unique economic pressures. In nomadic environments, young children are often viewed as a "mobility cost". They require significant food and assistance to move, but they cannot assist with the dangerous, high-stakes work of herding or protecting animals from predators (Galvin, 1992; Osman et al., 2020). This stands in sharp contrast to farming societies, where even young children can help with simple agricultural tasks. At the same time, maintaining large households is a common strategy among pastoralists (Galvin, 1992), and pastoral households in the sample have more children. Therefore, children in these groups receive a smaller share of household resources and share it with more siblings.

Nevertheless, children in nomadic groups are less likely to be stunted, even among close neighbors near ethnic borders. As pastoral diets are based on milk (Galvin, 1992), smaller resource shares may coexist with better growth in height when the household's food is rich in animal protein. This suggests that the resource shares capture children's command over household consumption, while the composition of the household's diet matters separately for their nutrition.

6 Conclusion

In many countries, diverse ethnic groups maintain distinct religious practices, norms, and customs. Within sub-Saharan Africa, societies with completely different characteristics often live in the same country. A uniform approach to development across countries often overlooks the significant role that culture and tradition play in shaping outcomes such as child poverty and nutrition. These outcomes are closely tied to how resources are distributed within households. Therefore, to understand why some societies lag in addressing poverty and undernutrition effectively, it may be beneficial to understand which ethnic traits and practices carry influence and through which channels they operate.

In this paper, I provide a descriptive overview of the role of ethnic characteristics in resource allocation, child poverty, and undernutrition. I address three primary questions: (1) Do the intrahousehold distribution of resources and child nutrition outcomes differ across ethnic groups? (2) Which ancestral ethnic characteristics are most strongly associated with these differences? and (3) How do these characteristics correlate with contemporary child welfare outcomes? By integrating survey data from the World Bank's LSMS with ancestral data from Murdock's (1967) *Ethnographic Atlas* and Giuliano and Nunn's (2018) database, this study provides a broad picture of these relationships. Methodologically, I use the collective household model of Dunbar et al. (2013) to estimate intrahousehold resource shares. To screen the *Ethnographic Atlas* for six ancestral traits associated with child welfare, I utilize a supervised machine learning technique.

The analysis highlights a few consistent associations between ancestral traits and the resources allocated to children. Children in ethnic groups with historical independent family structures receive larger resource shares than those in extended families, and are less likely to be stunted, a gap that holds within regions and among close neighbors near ethnic borders. Children in groups with ancestral clan-barrio structures also receive larger shares, but their lower poverty and better nutrition reflect differences between households rather than how resources are shared. Historically pastoral groups, those with low dependence on agriculture or a nomadic settlement pattern, give children a smaller share of resources than sedentary farming groups. These children also have more siblings, so both raise child poverty, but they are less likely to be stunted, consistent with diets based on milk. In groups with ancestral early male circumcision practices, children receive smaller shares. However, their households have fewer children, so their children are less likely to be poor overall. Principal crop type and high dependence on agriculture are not associated with how resources are shared, and their lower child poverty comes mainly from household budgets, household size, and rural residence. Bride price shows no association with resource shares or with differences between girls and boys.

These differences are consistent with ancestral norms, passed through generations, that still shape

how some households share resources between children and adults. However, the ethnic traits also go along with differences in the number of children and with a development gradient, and ancestral practices and location are partially entangled. Smaller resource shares translate into higher child poverty, especially for households near the poverty line, but not necessarily into worse nutrition, which also depends on diet and the disease environment. While these results do not imply a causal link, the associations between ethnic characteristics and child welfare suggest that a household's cultural history is relevant for the design of development strategies. As noted by Ashraf et al. (2020), these characteristics may not be the most intuitive (or only) predictors of welfare, but they demonstrate that a society's historical context is an important factor to consider in poverty and undernutrition alleviation policies.

Although this paper is descriptive in nature, it provides insights for causal studies seeking to explore the role of cultural traits in children's welfare in low-income settings. In particular, the overlap between ancestral traits and location, the role of household size, and the better nutrition of pastoral children despite their smaller shares each merit further study. For policy, the results suggest that resources given to a household do not reach its children in the same way across ethnic groups. Rather than attempting to alter culture, policies should be tailored to function within these existing norms, ensuring that resources reach children as intended. Ultimately, this study suggests that the Sustainable Development Goals (SDGs) of no poverty and zero hunger are unlikely to be met with uniform, "one-size-fits-all" policies that overlook the underlying social and ethnic context.

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