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

Eduard van der Merwe*

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Abstract

Researchers and policymakers increasingly recognize the importance of cultural and traditional practices in shaping economic development outcomes. In this paper, I examine how ethnic characteristics may shape child poverty and malnutrition in Ethiopia, Ghana, Malawi and Nigeria. I show that children's intrahousehold resource allocation, poverty rates and nutrition outcomes vary significantly across ethnic groups. Using a supervised machine learning technique, I identify six key ethnic characteristics that drive these differences and analyze how these traits influence child poverty and malnutrition outcomes. I demonstrate that differences in intrahousehold resource distribution (rather than differences in other socioeconomic traits) serve as an important mechanism. This study provides empirical evidence that effective policies for alleviating child poverty and malnutrition must account for the specific cultural context.

Keywords: Culture, Intrahousehold Resources, Individual Poverty, Child Malnutrition

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

*Department of Economics, Rice University, Houston, Texas, United States. E-mail: e.vdmerwe@rice.edu.
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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 three 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 poverty and malnutrition alleviation policies 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, 2015). This consideration is especially relevant in developing countries, where diverse ethnic groups maintain distinct religious practices, norms and customs (Baland & Ziparo, 2018; Bau & Fernandez, 2021).

In addition, poverty and malnutrition 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 (Alesina & La Ferrara, 2005; La Ferrara, 2007; Rasul, 2008). Therefore, these cultural and ethnic factors can affect poverty and malnutrition alleviation efforts on multiple levels. Evidence that culture and ethnicity shape outcomes and identifying which specific characteristics matter can enhance our understanding of how a society's and a household's cultural context influence development policies. This understanding can, in turn, shed light on why some societies lag in addressing poverty and malnutrition effectively.

In this paper, I provide empirical evidence on how ethnic characteristics influence child poverty and malnutrition outcomes in Ethiopia, Ghana, Malawi and Nigeria. The analysis focuses on three main aspects. First, I investigate whether the intrahousehold distribution of resources and child malnutrition outcomes vary across ethnic groups. Second, using a supervised machine learning technique, I identify six ethnic characteristics that drive these differences. Third, I assess the influence of these characteristics on child poverty and malnutrition. Examining these aspects of child welfare is essential, as children's access to resources significantly impacts their long-term development and well-being (Campbell et al., 2014; Cunha et al., 2006; De Sanctis et al., 2021).

I measure 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 un-

derexplored.[1] My findings indicate that a few specific traditional characteristics of ethnic groups can shape children's resource shares, highlighting how these characteristics can indirectly exacerbate poverty and malnutrition among children by affecting their access to household resources. I substantiate this by matching households on spatial and socioeconomic factors, demonstrating that ethnic traits capture distinctions beyond those associated with these factors.

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 malnutrition prevalence. I estimate intrahousehold resource shares using the linearized version of Dunbar et al.'s (2013) (DLP) collective household model proposed by Lechene et al. (2022) (LPW). I calculate individual child poverty and malnutrition rates using these identified resource shares and anthropometric data. The results indicate significant differences in child welfare outcomes across ethnic groups. Furthermore, children with fewer resources allocated to them and lower levels of individual expenditure are more likely to be malnourished.

Households are linked to ethnic groups, as documented in Murdock's (1967) Ethnographic Atlas (EA), which results in nearly 60 distinct practices of ethnic characteristics that describe how different societies organize aspects of life. Using feature selection with a random forest regressor, I identify six key ethnic characteristics for child welfare outcomes.[2] The results suggest that ethnic groups with easy-harvestable principal crops allocate more resources to children, have lower child poverty rates and have fewer malnourished children. These results hold for non-nomadic societies, those with village-level local jurisdictional hierarchies and those that are more dependent on subsistence agriculture. Results for societies with bride price transactions are similar, albeit malnutrition rates are slightly higher. The results for societies in which male circumcision rituals occur at young ages are more complex. Children's resource shares are higher and poverty rates lower, but the prevalence rate of malnutrition is only lower for non-poor children.

My findings support empirical evidence that cultural practices and traditions are significant for development policies. This is even more true in developing nations with constrained resources, highlighting the need for optimal policy design that accounts for the local beliefs and practices. Moreover, ethnic characteristics may cultivate norms that disadvantage children, resulting in inadequate resources. This contains a wide variety of consequences for human capital formation,

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

[2] These are not the only characteristics important for child poverty and malnutrition. Others include high gods/religion, the jurisdictional hierarchy beyond the local community, class stratification, inheritance rules, sex differences in occupation and different slavery types. However, the analysis focuses on six main characteristics given sample restrictions and data limitations.

early-life behavioral development and adult productivity (Brooks-Gunn & Duncan, 1997; Gertler, 2004; Hoynes et al., 2016). Policies should address this shortcoming by motivating investments in children from infancy, which is critical (Aizer & Cunha, 2012; Cunha, 2021; Heckman & Mosso, 2014).

I contribute to several strands of literature. Barring Aminjonov et al. (2023) and Calvi and Keskar (2021), no related literature analyzes the influence of a household's intrinsic norms, traditions or ethnicity on intrahousehold resource allocations. These authors only explore differences due to patrilocal and matrilocal traits as well as dowry payments. I identify six ethnic characteristics from all the traits found in the EA and ensure that other socioeconomic or spatial factors do not drive these differences. I also contribute to the literature exploring nutrition outcomes in children (Beltramo et al., 2023; Brown et al., 2019, 2021, 2023; Dunbar et al., 2013; Durevall & Isaksson, 2024; Penglase, 2021). I corroborate the evidence that malnourished children are not only found in poor households and provide evidence that differences in intrahousehold resource distribution act as a mechanism. There is also limited evidence on how ethnic traits influence child nutrition outcomes, a gap I aim to fill.

Furthermore, this paper is among the early studies utilizing the linear estimation technique for collective household models as proposed by LPW.[3] Bandyopadhyay and Maity (2023) and Travassos et al. (2023) use LPW's method in India and Brazil. I apply this to newer survey waves of the LSMS data in sub-Saharan Africa - emphasizing improvements made with data collection. Lastly, I contribute to the literature highlighting the importance of considering ethnic composition or social organization when considering development policy (Collier, 2017; Moscona & Seck, 2021). It has been shown that economic outcomes vary across different groups - be it social, ethnic or religious (Ashraf et al., 2020; Lowes et al., 2015; Michalopoulos & Papaioannou, 2015; Nunn, 2020). I focus on how child welfare outcomes are influenced by key ethnic traits, highlighting the importance of accounting for a society's historical cultural practices.

2 Importance, Background Information & Context

Researchers and policymakers increasingly recognize the importance of cultural and traditional practices in shaping economic development outcomes (Ashraf et al., 2020; Collier, 2017; World Bank, 2015). Growing evidence suggests that there are benefits to understanding a society's beliefs, norms and culture (Aminjonov et al., 2023; Ashraf et al., 2020; Rao & Walton, 2004; World Bank, 2015). Social norms are values, beliefs or attitudes shared by a group of people or society as

[3]The nonlinear models introduced by Browning et al. (2013) and DLP have been more prevalent. I do not follow this convention since it presents estimation challenges due to the non-linearities when applied to this paper's context with the currently available data. LPW also impose fewer restrictions and remove the complexity of nonlinear models, thus appealing more to policymakers.

a whole. They guide human behavior through perceived rules that define acceptable and appropriate actions (UNICEF, 2021). Under this definition, cultural traits, practices and characteristics all qualify as social norms within the ethnic communities (Bisin & Verdier, 2011; Guiso et al., 2006). Understanding how these "rules of society" may influence child welfare is the first step to designing policies tailored for specific contexts.

Social norms and cultural traits are transferred through generations and can significantly contribute to individual behavior that persists over time (Bisin & Verdier, 2011; Collier, 2017; Tabellini, 2008; Voigtländer & Voth, 2012). Bisin and Verdier (2001) show how children's preferences depend on their "parents' socialization actions and on the cultural and social environment in which children live." Doepke and Zilibotti (2008) provide a theory of preference formation - based on the belief that culture and religion are key driving forces. Local culture and practices - such as cultural and religious fragmentation - are also associated with long-term effects - such as civil wars, corruption and public good provision (Alesina & La Ferrara, 2005).

Guiso et al. (2016) examine the impact of a positive historical shock on long-term persistence in development in Italy, showing how historical events can alter contemporary beliefs and norms in certain societies. Alesina et al. (2013) study the historical origins of norms that cause male-favoring outcomes by empirically testing the theory of Boserup (1970). Specifically, the authors find that descendants of societies that traditionally practiced plough agriculture today have less equal gender norms due to the physical requirements of plough agriculture. This strand of literature supports the notion that historical cultural practices, as documented in the Ethnographic Atlas, may be passed through generations, leading to a lasting impact on household decisions and bargaining power that may still persist today.

In the context of sub-Saharan Africa, ethnic characteristics remain prevalent and norms, customs or traditions within groups are not atypical. Literature has explored how marriage market institutions affect child marriage and a daughter's human capital (Corno, Hildebrandt, & Voena, 2020), its effect on school construction programs (Ashraf et al., 2020) and the role of slave trades in the origin and persistence of female genital cutting (Corno, La Ferrara, & Voena, 2020). Michalopoulos and Papaioannou (2015) explore the importance of ethnic traits in shaping development in Africa. Nunn and Wantchekon (2011) explain how contemporary differences in trust levels can be traced back to the transatlantic slave trades, showing that the causal mechanisms are individual-specific (i.e., cultural norms, beliefs and values). Therefore, evidence does not merely suggest that ethnic traits be considered in the fight against malnutrition and poverty but rather that development policies should be able to circumvent age-old traditions to benefit all societies.

3 Methodology and Data

In this section, I begin with a non-technical overview of the identification and estimation strategy of the intrahousehold allocation of resource shares using the collective household framework.[4] Following this, I outline the data utilized for the analysis and present descriptive statistics for the sample of countries included in the study.

3.1 Identification and Estimation

The unequal sharing of resources within households is widely acknowledged. Chiappori's (1992) seminal contribution proposed the collective household model that explicitly considers the different preferences of several members. Following the literature, I define the resource share of a household member as the fraction of household expenditure allocated to that household member, determining the intrahousehold resource allocation following the within-household bargaining process (Browning et al., 2013; Dunbar et al., 2013; Lechene et al., 2022). Data availability and quality make the identification and estimation of resource shares difficult. However, BCL and DLP develop non-linear structural models to estimate resource shares with routinely collected data. LPW propose a linear estimation strategy for DLP's model and corresponding identification tests, which I use in this paper.

DLP and LPW's methods rely on private-assignable goods and semi-parametric restrictions on preferences over these goods.[5] I follow previous works by using men's, women's and children's clothing and footwear as assignable goods for each household member (Aminjonov et al., 2023; Calvi, 2020; Dunbar et al., 2013; Lechene et al., 2022). As in LPW, letting $t = m, w, c$ denote men, women and children, $h = 1, 2, \ldots, H$ denote households and $\eta_t(z_h)$ represent member t's resource share, the individual assignable goods Engel curves for household members take the following forms:

$$W_h^t = a_h^t + b_h^t ln(y_h) + \varepsilon_h^t, \tag{1}$$

where

$$b_h^t = \eta_t(z_h)\beta(z_h) \tag{2}$$

and a_h^t are functions of the vector of conditioning variables z_h and underlying preference parameters α^t and β.

The covariate matrix can be represented as $z = \begin{bmatrix} \boldsymbol{N} & \tilde{z} \end{bmatrix}$ where $\boldsymbol{N} = \left\{N^t\right\}$ denotes the number of individuals of household member type t and $\tilde{z}$ accounts for all other regressors. One of the goals

[4] I provide a detailed formulation of the methodology and identification strategy in Appendix A.

[5] LPW details further reframings and approximations for the linear strategy.

of this paper is to investigate how resource shares are influenced by different ethnic characteristics and which ethnic characteristics matter most. Therefore, I utilize a two-step procedure. First, I estimate the model without ethnic characteristics and use the baseline results to identify six ethnic characteristics that are important for child welfare outcomes. Second, I denote these ethnic characteristics by θ and decompose the covariate matrix as

$$z = \begin{bmatrix} \boldsymbol{N} & \tilde{z}_{-\theta} & \theta \end{bmatrix}. \tag{3}$$

Using the covariate matrix defined in (3), I re-estimate the model to analyze the influence of θ. Like LPW, I estimate resource shares separately for each country and each household composition in both steps.

As advised by LPW, I perform two linear tests of model identification and one sanity check (with results in Table C1). First, from (2), it is clear that resource shares cannot be identified if $\beta(z_h) = 0$. Hence, I use ordinary least squares to estimate the overall household assignable goods Engel curve to ensure that the estimate for $\beta(z_h)$ is not zero. This is the primary benchmark and I only include Ethiopia (89.33%), Ghana (99.37%), Malawi (97.27%) and Nigeria (80.77%) since the fraction of households with upward or downward-sloping Engel curves exceeds 80%. I also perform hypothesis testing to determine whether the slope of this Engel curve is non-zero at the mean value of z_h. Lastly, the model assumes resource shares across member types should sum to one. Hence, I check the fraction of households where the sum of linearly estimated resource shares falls outside $[0, 1]$, which may indicate that the sample is inappropriate for the methodology.

3.2 Data

I rely on two primary data sources: The LSMS and the EA (Murdock, 1967). I also use Giuliano and Nunn's (2018) database for precise historical locations of ethnic groups based on languages spoken. The LSMS data contains information on household expenditure and child anthropometrics used to estimate resource shares and calculate child poverty and malnutrition indicators. The EA describes cultural traits for 1291 societies worldwide with sound coverage of African ethnic groups and has been used in several studies (Aminjonov et al., 2023; Ashraf et al., 2020; Corno, La Ferrara, & Voena, 2020; Enke, 2019; Nunn & Wantchekon, 2011). From these sources, I identify seven countries from Africa with the required expenditure data, child anthropometric data and information to match households to the ethnic data: Ethiopia, Ghana, Malawi, Niger, Nigeria, Tanzania and Uganda.

I use each country's latest wave of the LSMS data, occurring 2014-2022.[6] After performing iden-

[6] Data for the fifth wave of the Ethiopian LSMS (2021-2022) is available. However, I use the previous wave since the latest excludes the Tigray region due to security issues.

tification tests, I include 5250 households from Ethiopia, 9736 from Ghana, 10092 from Malawi and 3833 from Nigeria. All these samples include expenditure on clothing - to a variable degree - that is used as assignable goods. To keep information uniform across samples, I aggregate expenditure on clothes, footwear, materials and repairs for adult men, adult women and children. I exploit GPS coordinates of households in Ethiopia, Malawi and Nigeria to match households to ethnic groups found in the EA. For Ghana, I use the directly reported ethnic groups. I can match around 95% of each country's sample to ethnic groups and end up with 28, 23, 8 and 54 ethnic groups in the sample for Ethiopia, Ghana, Malawi and Nigeria, respectively.

3.3 Descriptive Statistics

I account for the mean age of men, women and children, the minimum age of children, the mean education of men and women and whether the household is in a rural area as covariates in the baseline results. After identifying important ethnic characteristics for child welfare, I also account for these (θ) and the regions in the structural model. On average, women are older than men and the average child is six. Households contain about one man with slightly more women and two or more children. Men have slightly more education, but the average number of years of education is less than six (primary school). Around 50%, 60%, 83% and 68% of households in Ethiopia, Ghana, Malawi and Nigeria are located in rural areas. Malawi's average expenditure (2017 US$ PPP) per household is around $3321.8 while Ethiopia's is $5484. Ghana and Nigeria's expenditure is higher at around $6700. On average, clothing expenditure is less than 5% of the household's budget.[7] Lastly, on average, children under five years of age have a height-for-age z-score 1.86 standard deviations below the mean, indicating concerns about stunting. Detailed descriptive statistics are in Tables B3, B4 and B5.

4 Results

The main focus of this section is highlighting the influence of ethnic characteristics on child poverty. I start by mentioning baseline results, the correlations between malnutrition, poverty and resource shares as well as differences across ethnic groups. Next, I discuss the supervised machine learning technique used to identify six ethnic characteristics that influence child welfare outcomes most. Lastly, I use non-parametric regressions of child poverty on household per-capita expenditure to highlight differences in poverty rates due to the influence of ethnic characteristics.

[7] Resource shares do not conform to the consumption ratios of the assignable good but measure household members' access to the total household budget.

4.1 Baseline Results

The first step involves estimating the resource shares without accounting for ethnic characteristics, i.e., excluding θ from (3). I display detailed baseline resource share and poverty estimates in Tables C2 and C3. Children's resource shares vary across samples, with children, on average, receiving 18%, 22%, 16% and 21% of per-household resources in Ethiopia, Ghana, Malawi and Nigeria. Using these estimated shares, household expenditure and a rough adjustment of the children's poverty line ($1.29), 37%, 24%, 64% and 16% of children in Ethiopia, Ghana, Malawi and Nigeria live in extreme poverty. In both Ghana and Nigeria, children are on the border of extreme poverty. Using the adjusted societal poverty line ($2.19) for lower-middle-income countries increases the number of poor children by 19.3 and 23.4 percentage points, respectively.

Baseline results indicate a correlation between access to household resources and child malnutrition. The World Health Organization classifies malnutrition in children according to their z-score outcomes. These categories are healthy (z-score > -1), marginal ($-3 <$ z-score < -2), moderate ($-2 <$ z-score < -1) and severe (z-score < -3). Both boys and girls with lower resource shares are more likely to be classified as severely stunted or underweight. Figure C1 highlights that limited access to resource shares is associated with adverse long-term consequences of malnutrition in children. I also explore malnutrition prevalence across per-capita and individual child expenditure percentiles in Figures C2a and C2b. In both cases, there is a clear income effect on stunting and underweight, with a 14 and 8 percentage point difference between the highest and lowest expenditure percentiles.

Regardless of this income effect, a 24% and 12% prevalence rate for stunting and underweight at the top expenditure percentile is still significantly high. There could be two explanations for this. First, the countries in my analysis are all relatively poor and being in the top expenditure percentile does not imply high expenditure levels. Second, children predominantly live in rural communities where sanitary and health conditions can contribute to more diseases, directly impacting nutrition outcomes. Therefore, the income effect is not as significant as one would expect. Concentration curves[8] further highlight that malnutrition is prevalent across income levels - corroborating the findings by Brown et al. (2019).

Lastly, I investigate whether differences exist across ethnic groups in my sample with ANOVA tests and kernel densities. For every country, the ANOVA tests (shown in Table C4) reject that the means of per-individual resource shares for every household member type across ethnic groups are equal. Similarly, ANOVA tests (shown in Table C5) for whether the means of children's HAZ, WAZ and WHZ, as well as the prevalence rate of stunting, underweight and wasting across ethnic groups are equal, are also rejected. Visual inspections across densities also predispose one to reject

[8] Available on request.

the notion that resource shares and malnutrition outcomes are equal across societies.

4.2 Feature Selection

Identifying ethnic characteristics that matter for child poverty and nutrition outcomes can be complex. The EA contains 94 variables, of which 84 are categorical, with almost every category representing an ethnic characteristic.[9] Manually identifying the most important ethnic characteristics from over 250 options is infeasible. Therefore, I utilize a supervised machine learning technique. First, I select a subset of variables from the EA by removing alternative forms and variables with little to no variation in my sample (shown in Table C6). Second, as is standard practice, I create indicator variables for each characteristic and normalize ordinal variables between $[0, 1]$. Third, I create four outcome variables indicating child welfare - poverty, stunting, underweight and wasting.[10] Lastly, I utilize feature selection on each country's sample and the combined total sample, leading to 20 feature selection runs.

Detailed results for the feature selection with a random forest algorithm are in Table C7. I identify ethnic traits based on their combined importance scores as well as their presence in the top 10 across feature selection runs. Using these results, along with sample sizes and heterogeneity across households, I identify six ethnic characteristics that are important in explaining child welfare outcomes: the jurisdictional hierarchy at the local community; the principal crop; the dependence on agriculture as a subsistence economy; the practice of male circumcision or any of its variants; the settlement patterns of societies; and different types of marriage transactions.

I divide the jurisdictional hierarchy at the local community into three levels - nuclear family, extended family and clan-barrios or village-level families. Cereal grains can be stored year-round and require specialized harvesting, while tree fruits, roots and tubers are perishable and easily harvestable (Mayshar et al., 2022). Therefore, for the principal crop type, ethnicities are divided into those with easy-harvestable crops and those requiring more specialized methods. The dependence on agriculture as a subsistence economy is divided into three levels - $0-25\%$, $26-75\%$ and $76-100\%$ - of dependency compared to four other subsistence activities (gathering, hunting, fishing and animal husbandry).

For the practice of genital circumcision, I characterize my sample into those where circumcision rituals occur at young ages ($0-5$ years) and those where it is absent or occurring at older ages. Furthermore, I divide ethnic groups into two distinct settlement patterns - nomadic-type and non-

[9] For example, the "prevailing type of transfer or exchange at marriage" is a variable in the EA. However, it contains seven categories - bride price, bride service, token bride price, female relative exchange, absence of consideration and dowry payments - all individual characteristics.

[10] A child is poor based on estimated resource shares and the calorie-based adjustments on the assumption that US$2.15/day is the average threshold for adults aged 15 to 45 (Brown et al., 2021).

nomadic-type societies. I define nomadic-type societies as those that are nomadic/fully migratory or seminomadic. Seven types of marriage transactions are prevalent: bride price or bride wealth, bride service, token bride price, gift exchange, female relative exchange, dowry payments or absence of marriage transactions. I focus on societies that practice bride price/wealth or token bride price.

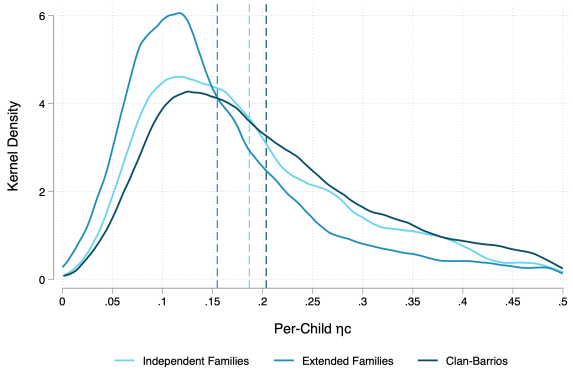
4.3 The Role of Ethnic Characteristics

Table C10 displays detailed summary statistics across ethnic characteristics. On average, children living in households with village-level structures (clan-barrios) have higher average resource share outcomes (0.254), a lower child poverty rate (22.6%) and lower prevalence of stunting and underweight (24.9% and 13.84%). Children in societies with higher dependence rates on agriculture are less poor and malnourished. Only 10.7% of children are poor in the highest dependence category, while 55.7% of children in the lowest dependence category are poor. For societies where male circumcision occurs at young ages, resource shares are higher and poverty rates are about 38 percentage points lower. Lastly, children in societies with bride/token bride price marriage transactions, non-nomadic settlement patterns and easy-harvestable principal crops have better child welfare outcomes.

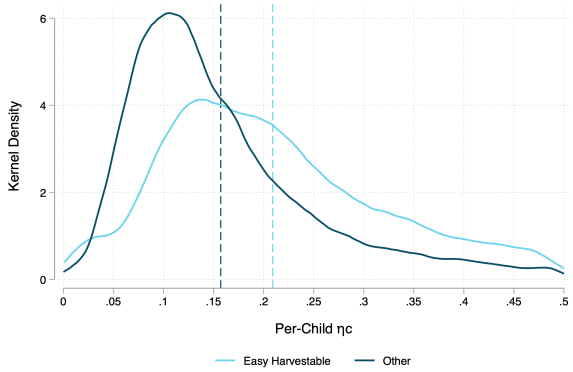
To provide empirical evidence of the influence of these characteristics on child welfare outcomes, I include indicator variables for each of the following characteristics - defined as θ - into the structural model: extended families, clan-barrios, easy-harvestable principal crop, 26 – 75% and 76 – 100% dependence on agriculture, male circumcision at young ages (0 – 5 years), bride/token bride price transactions and nomadic-type societies. I also control for the region of a household on top of all other controls used in the baseline results. I display the estimated resource shares results in Table C11 and the estimated poverty rates in Table C12. There are no qualitative changes, but on average, children have slightly less access to resources within the household (14%, 22%, 13% and 22% in Ethiopia, Ghana, Malawi and Nigeria) and are slightly poorer (40%, 28%, 64% and 18%).

Figure 1a highlights that children in extended families have less access to resources, while those in village-level structures have higher resource shares. Figure 1b shows that societies with easy-harvestable principal crops devote more resources to children. Figure 1c displays that children in societies with greater dependence on agriculture receive more resources with per-child resource shares peaks of 0.08, 0.12 and around 0.2 for 0 – 25%, 26 – 75% and 76 – 100% dependence rates. From Figure 1d, it can be seen that in societies where boys undergo circumcision rituals at young ages, per-child resource shares are higher. Figure 1e highlights that bride price societies allocate slightly more resources per-child compared to other marriage transaction societies. Lastly, Figure

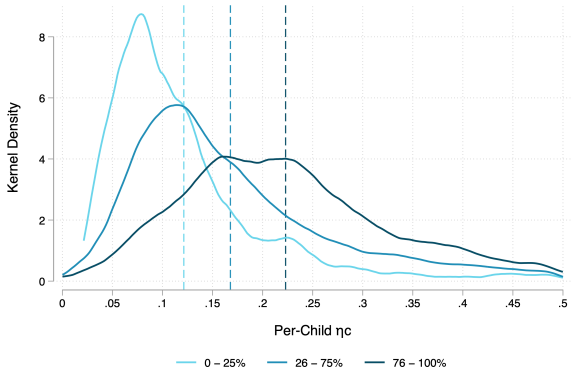
Figure 1: Per-Child Resource Shares



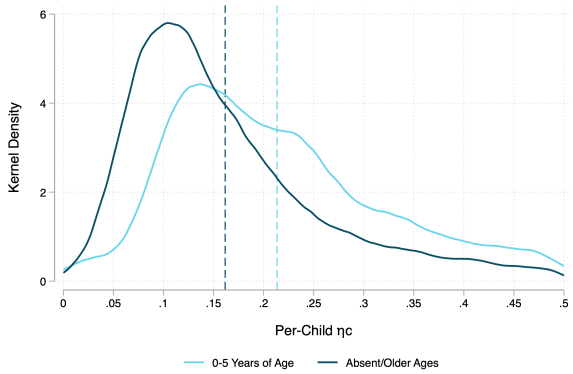
(a) Jurisdictional Hierarchy



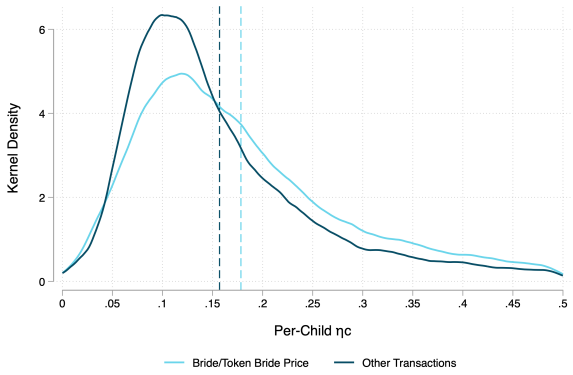
(b) Principal Type of Crop



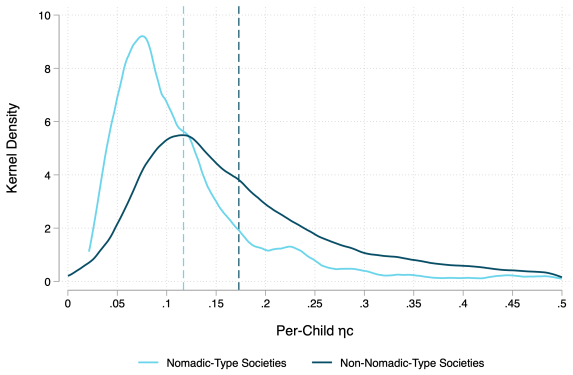
(c) Dependence on Agriculture



(d) Male Circumcision



(e) Transactions at Marriage



(f) Settlement Patterns

Note: This figure depicts kernel densities of the estimated per-child resource shares. The full sample is used, i.e., a combination of data from Ethiopia, Ghana, Malawi and Nigeria. Only children with per-child resource shares between $[0,1]$ are included. The vertical dashed lines represent the mean per-child resource share for each ethnic characteristic subgroup.

1f shows how nomadic-type societies allocate fewer resources to children with per child resource shares peaking at 0.08 compared to 0.12 for non-nomadic-type societies. Results are similar when comparing total intrahousehold resources allocated to children.

To showcase poverty differences due to ethnic traits, I plot the non-parametric regressions of child poverty on household per-capita per-capita expenditure percentile. I show these graphs in Figure 2. A child is poor based on estimated resource shares and the calorie-based adjustments on the assumption that US$2.15/day is the average threshold for adults aged 15 to 45 (Brown et al., 2021). The dashed grey vertical line represents the expenditure percentile of the rough estimate of the World Bank's extreme poverty line for children (US$1.29/day). As expected, the poverty rates compared between ethnic characteristics are associated with the differences in resource shares highlighted.

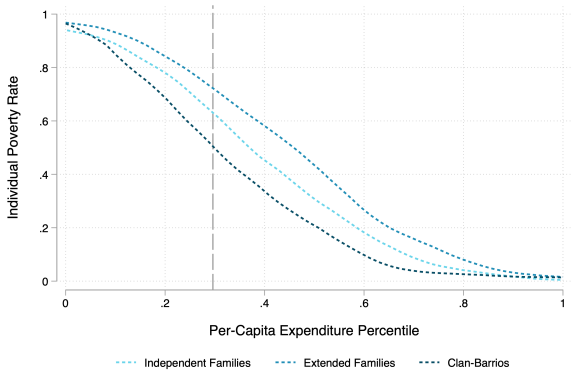
Figure 2a highlights how children in village-level societies have the lowest incidence of poverty from the 10^{th} to the 80^{th} per-capita expenditure percentiles. At the median percentile, clan-barrios societies have a child poverty rate about 75% lower than independent families and 125% lower than extended families. Figure 2b shows that societies with easy-harvestable principal crops have a child poverty rate about 30% less than societies with cereal grains from the 1^{st} to the 60^{th} percentile. Children in societies that rely heavily on subsistence agriculture are less poor than children in societies where agriculture plays a lesser role. From Figure 2c, for households in the bottom expenditure quintile, the child poverty rate for societies in the top quartile of agriculture dependence is about 70% lower than other rates of dependence. Between the 30^{th} and 80^{th} percentiles, there is also a distinction between societies with dependence rates of $0-25\%$ and $26-75\%$.

In societies where male circumcision rituals occur at young ages ($0-5$ years), children are less poor compared to children in other societies. This is true at all levels of per-capita expenditure and can be seen in Figure 2d. Similarly, Figure 2e showcases that in societies where bride price is the norm, there are fewer poor children up to the 60^{th} percentile. Figure 2f shows that nomadic-type societies have an individual child poverty rate above 80% up to the 40^{th} per-capita expenditure percentile. At the median percentile, non-nomadic-type societies have a child poverty rate of about 80% less than nomadic-type societies.

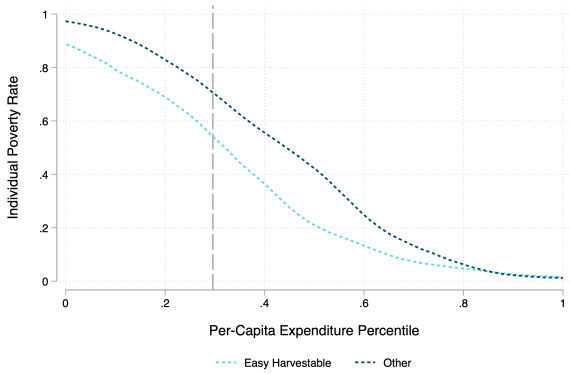
I also explore differences in nutrition outcomes (shown in Figure C8). Children in societies with clan-barrios characteristics are less malnourished, with the prevalence rate for stunting and underweight lower at all individual expenditure percentiles. Results are similar for children in non-nomadic societies and those with easy-harvestable principal crops. There is a concerningly high level of malnourishment in societies with a $0-25\%$ level of agriculture dependence, with more than half of the children living in extreme poverty being stunted. The percentage of underweight children in these communities is between $10-20$ percentage points higher than those societies

with higher levels of agriculture dependence.

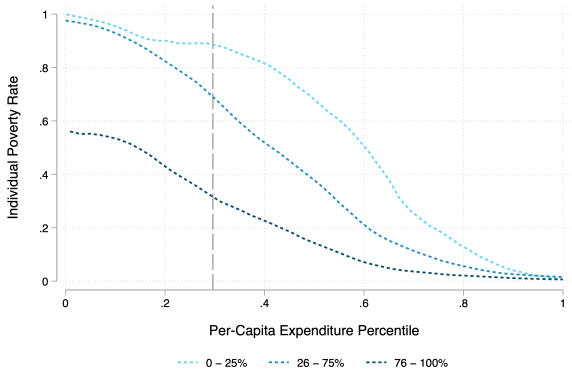
Figure 2: Poverty Prevalence by Expenditure Percentile



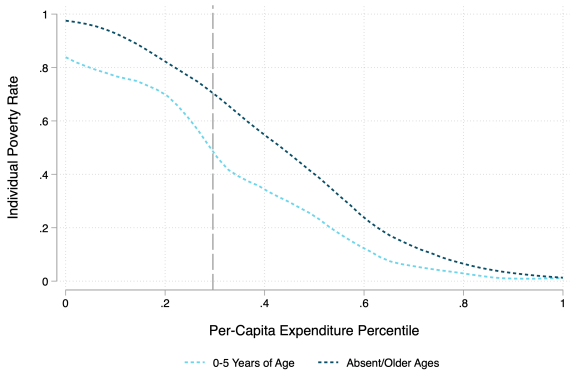
(a) Jurisdictional Hierarchy



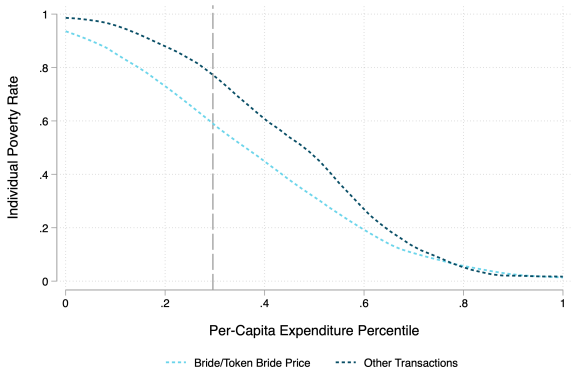
(b) Principal Type of Crop



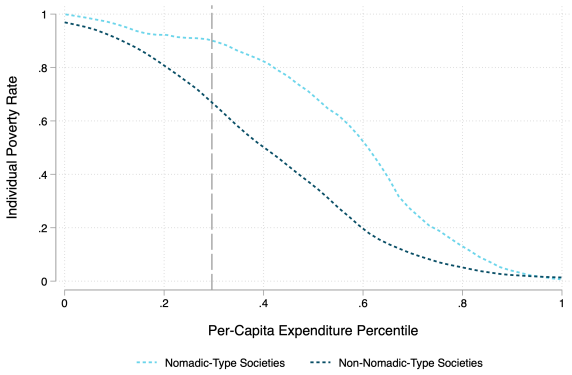
(c) Dependence on Agriculture



(d) Male Circumcision



(e) Transactions at Marriage



(f) Settlement Patterns

Note: These figures depict children's poverty rates at each household per-capita expenditure percentile by ethnic characteristic. A child is poor based on estimated resource shares and the calorie-based adjustments on the assumption that US$2.15/day is the average threshold for adults aged 15 to 45 (Brown et al., 2021). The dashed grey vertical line represents the rough estimate of the World Bank's extreme poverty line for children of US$1.29/day.

Although malnutrition outcomes across different marriage transition characteristics are similar, children in societies with bride price characteristics are slightly less stunted and slightly more underweight. Lastly, malnutrition patterns across male circumcision characteristics reveal intriguing results. Poor children in societies where male circumcision occurs at young ages are more likely to be stunted and underweight. This contrasts with the results that these children receive more resources and are less poor. However, at individual expenditure percentiles higher than the 60^{th}, these children are less stunted and slightly less underweight - corresponding more to what we expect. This could imply that the circumcision ritual itself, if not performed correctly, could cause health complications in boys.

4.4 Robustness

Two concerns need to be addressed. First, given the spatial nature of matching households to ethnic societies, other spatial factors - correlated with ethnicity - may drive these results. To address this, I test whether the distribution of per-child resource shares differs for children living close to the border with other ethnic groups. Hence, if other spatial characteristics drive these results, we should not expect to see any difference in per-child resource shares for children living in close proximity but exposed to different ethnic characteristics. I test this at seven distance levels from $1km$ to $50km$ and display the results in Table C13. The Kolmogorov-Smirnoff tests reject the hypothesis of similar distributions across all these distances.

Second, ethnic groups experience varying socioeconomic outcomes, resulting in disparities in resource allocation that are not solely attributable to ethnicity. To ensure this is not the case, I use various indicators of socioeconomic outcomes available in the LSMS. These range from employment outcomes to asset ownership. I analyze differences between each socioeconomic indicator and separate the sample into two groups based on the median of the principal component.[11] The Kolmogorov-Smirnoff tests reject the hypothesis that distributions are equal across all socioeconomic characteristics. Therefore, I conclude that differences in the distribution of per-child resource shares are due to ethnic characteristics.

Similarly, I test for the robustness of malnutrition results across distances from other ethnic groups and socioeconomic characteristics.[12] I test for equality in the distribution of children's HAZ. Kolmogorov-Smirnoff tests reject equality for all ethnic characteristics for societies within $20km$ of ethnic borders. Equal distributions across characteristics are also rejected over most socioeconomic indicators. When comparing two groups based on the median of the principal component from the socioeconomic indicators, the null is rejected for all characteristics except male circum-

[11] Results are shown in Table C14.

[12] Results for all border distances can be found in Table C16. Table C17 and Table C15 display the robustness concerning socioeconomic status.

Table 1: Robustness - Per-Child Resource Shares

	Kolmogorov-Smirnov Tests						
	Border Distances			Socioeconomic Status			
	$1km$	$10km$	$20km$	Electricity, Non-Agriculture Business, and Phone	Employed, Own a Home, and Phone	No Plough, Low Skilled, and No Financial Asset	PCA Groups
	D-Stat (p-value)	D-Stat (p-value)	D-Stat (p-value)	D-Stat (p-value)	D-Stat (p-value)	D-Stat (p-value)	D-Stat (p-value)
Jurisdictional Hierarchy							
Clan-Barrios	0.212*** (0.000)	0.123*** (0.000)	0.138*** (0.000)	0.139*** (0.000)	0.218*** (0.000)	0.172*** (0.000)	0.145*** (0.000)
Principal Type of Crop							
Easy-Harvestable	0.186*** (0.000)	0.122*** (0.000)	0.155*** (0.000)	0.222*** (0.000)	0.259*** (0.000)	0.374*** (0.000)	0.237*** (0.000)
Dependence on Agriculture							
76 – 100%	0.158*** (0.000)	0.151*** (0.000)	0.199*** (0.000)	0.256*** (0.000)	0.195*** (0.000)	0.414*** (0.000)	0.365*** (0.000)
Male Genital Mutilations							
0 – 5 Years of age	0.113*** (0.000)	0.131*** (0.000)	0.160*** (0.000)	0.320*** (0.000)	0.234*** (0.000)	0.433*** (0.000)	0.340*** (0.000)
Transactions at Marriage							
Bride/Token Bride Price	0.102*** (0.000)	0.053*** (0.000)	0.036*** (0.000)	0.313*** (0.000)	0.185*** (0.000)	0.260*** (0.000)	0.337*** (0.000)
Settlement Patterns							
Nomadic-Type Societies	0.298*** (0.000)	0.234*** (0.000)	0.238*** (0.000)	0.502*** (0.000)	0.447*** (0.000)	0.367*** (0.000)	0.608*** (0.000)

This table displays the D-Statistic and corresponding p-values (in parentheses) from the Kolmogorov-Smirnov test for equality of distribution for per-child resource shares across ethnic characteristics. Border distances include households within the specified distance from any ethnic group borders. For border distance robustness, only children from Ethiopia, Malawi, and Nigeria are included. Principal Component Analysis (PCA) groups are divided by the median of the prinicpal component. Only children with per-child resource shares in the interval $[0,1]$ are included in the sample. ***, **, * - indicates significance at a 1%, 5%, and 10% level.

cision and settlement patterns. The exception with circumcision rituals was mentioned before and the small sample size of nomadic-type societies can explain the failure to reject the null for this specific measure. Regardless, the results are robust when accounting for spatial and socioeconomic factors.

5 Discussion

Using the model, I perform back-of-the-envelope calculations to measure differences in poverty rates of children due to ethnic characteristics. Keeping everything constant, I expose all house-

holds to distinct ethnic traits and estimate child poverty rates. I display the results in Table 2.[13] Columns 2 and 4 display the estimated extreme and societal child poverty rate using the estimated resource shares calculated in Section 4.3. Columns 3 and 6 display the "back-of-the-envelope" extreme and societal poverty rates. Lastly, columns 4 and 7 display the difference between these poverty rates with the p-value of the associated t-tests. For all of the characteristics except male circumcision at young ages, there is a statistically significant difference in extreme poverty rates.

If all children grew up in societies with village-level local jurisdictional hierarchy, their extreme poverty rate would be 4.4 percentage points lower. This correlation is more significant if we focus on agricultural characteristics. If all households had 76 – 100% dependence levels on agriculture and had easy-harvestable principal crops, children would be 18.6% and 14.04% less poor, respectively. Bride price influences are moderate, with children only 5% less poor. Nomadic-type settlement patterns would cause children to be 4.6% more poor. I emphasize that these historical characteristics cannot be changed through policy. However, the back-of-the-envelope calculations quantify differences in child poverty rates caused by different ethnic traits - highlighting the importance of a society's historical and cultural context.

The question remains about possible mechanisms underlying these ethnic characteristics that cause them to matter for child poverty and malnutrition. The role of jurisdictional hierarchy at the local level is related to the local institutional structures. Enke (2019) notes that societies with village-level jurisdictional hierarchy are more likely tight kinship societies, described by moral systems that foster cooperation. Differences in these moral structures are vital to understanding varying outcomes in terms of development. Hence, moral structures underlying village societies may be one mechanism driving higher intrahousehold resource shares for children that cause better welfare outcomes. Enke (2019) also mentions that these relationships are amplified over time, a finding affirmed here since village-level jurisdictional hierarchy is still relevant today.

The practice of male circumcision is one of the oldest and most common procedures that occur. In most cases, it is performed on religious or cultural grounds. These rituals, accompanied by communal celebrations, fulfill multiple unspoken social and political needs (Pollack, 2011). It is often seen as children entering adulthood. The metaphorical importance of these rituals could act as a mechanism through which child-favoring norms are adopted. When occurring at young ages, boys are more likely to be seen as influential figures of society at an earlier life-cycle stage. When circumcision is absent or occurs at older ages, children do not have the same social stature. Therefore, they receive fewer resources and less care, worsening welfare outcomes.

With 60% of the world's arable land, agricultural practices should influence norms and development outcomes in Africa. Children are usually involved in farming activities that are techni-

[13] I estimate resource shares within countries and account for sample sizes when estimating average poverty rates. For country-specific back-of-the-envelope calculations, please contact the author.

Table 2: Back-of-the-Envelope Poverty Calculations

	Extreme Poverty			Societal Poverty		
	Estimated Child Poverty Rate	Characteristics Ever-Present	Difference	Estimated Child Poverty Rate	Characteristic Ever-Present	Difference
	Mean (SE)	Mean (SE)	Difference (p-value)	Mean (SE)	Mean (SE)	Difference (p-value)
Jurisdictional Hierarchy ($v32$)						
2 - Independent Families	0.413 (0.187)	0.471 (0.243)	-0.058^{***} (0.000)	0.482 (0.124)	0.529 (0.198)	-0.047^{***} (0.000)
3 - Extended families	0.413 (0.187)	0.417 (0.177)	-0.004^{***} (0.000)	0.482 (0.124)	0.482 (0.117)	-0.000 (0.904)
4 - Clan-Barrios	0.413 (0.187)	0.369 (0.210)	0.044^{***} (0.000)	0.482 (0.124)	0.438 (0.184)	0.044^{***} (0.000)
Principal Type of Crop ($v29$)						
Easy-Harvestable Crops	0.413 (0.187)	0.355 (0.122)	0.058^{***} (0.000)	0.482 (0.124)	0.420 (0.088)	0.062^{***} (0.000)
Dependence on Agriculture ($v5$)						
0 – 25%	0.413 (0.187)	0.475 (0.273)	-0.062^{***} (0.000)	0.482 (0.124)	0.540 (0.208)	-0.058^{***} (0.000)
26 – 75%	0.413 (0.187)	0.428 (0.183)	-0.015^{***} (0.000)	0.482 (0.124)	0.498 (0.114)	-0.015^{***} (0.000)
76 – 100%	0.413 (0.187)	0.336 (0.202)	0.077^{***} (0.000)	0.482 (0.124)	0.404 (0.148)	0.078^{***} (0.000)
Male Genital Mutilations ($v37$)						
0 – 5 Years of age	0.413 (0.187)	0.412 (0.197)	0.001 (0.272)	0.482 (0.124)	0.474 (0.144)	0.008^{***} (0.000)
Transactions at Marriage ($v6$)						
Bride/Token Bride Price	0.413 (0.187)	0.393 (0.186)	0.020^{***} (0.000)	0.482 (0.124)	0.463 (0.124)	0.019^{***} (0.000)
Settlement Patterns ($v30$)						
Nomadic-Type Societies	0.413 (0.187)	0.433 (0.194)	-0.020^{***} (0.000)	0.482 (0.124)	0.502 (0.124)	-0.020^{***} (0.000)

This table displays the mean poverty rates and bootstrapped standard errors (in parentheses) under different samples. Column 2 and Column 5 display the estimated poverty rate from the original sample. Column 3 and Column 6 display the estimated poverty rate when the whole sample has the given ethnic characteristic, ceteris paribus. Column 4 and Column 7 display the difference in mean and the p-value of a paired t-test. ***, **, * - indicates significance at a 1%, 5%, and 10% level. Due to the small sample size of Ethiopian households with households having 76 – 100% agriculture dependence, I do not include the children from Ethiopia when calculating the BOE poverty rate for that characteristic.

cally simple (Admassie, 2003). Harvesting cereal grains is more complicated than harvesting tree fruits or roots and tubers. Therefore, children in societies focusing on technically simple crops contribute more to the household's sustainability. Similarly, the more a society depends on agriculture, the more likely children are to contribute. Agriculture practices are also prone to shocks, which leads to an increase in the use of child labor (Beegle et al., 2006). Therefore, children are seen as necessary contributors to household welfare, giving them greater bargaining power within the household and instilling child-favoring norms. A similar notion to how plough agriculture may cause male-favoring norms (Alesina et al., 2013).

Ashraf et al. (2020) accentuate how bride price practices are related to higher investments in girls' human capital, driven by a preference for more education in marriage market outcomes. Hence, societies are likelier to invest in girls as they can get higher returns (Becker, 1980). Therefore, bride price practices instill girl-favoring norms, giving them access to more household resources. This may also explain why the influence is less extensive than other characteristics since the mechanism may only affect one gender. Lastly, nomadic-type societies are underpinned by a common theme of unequal authority in decision-making. The influence and role of men and women depend on which resources they control. For most sub-Saharan African nomadic societies, men make most of the decisions, settle arguments and allocate household resources (Dyson-Hudson & Dyson-Hudson, 1980). Therefore, children and women may have less access to resources, fostering norms that disadvantage children.

6 Conclusion

The empirical evidence I provide suggests that culture and ethnic characteristics matter for child poverty and malnutrition outcomes in sub-Saharan Africa. I address three main questions: (1) Do intrahousehold distribution of resource and child nutrition outcomes differ across ethnic groups? (2) What characteristics drive these differences? (3) How do these characteristics impact child poverty and nutrition outcomes? I use survey data from the World Bank's LSMS as well as ethnic data from Murdock's (1967) EA, combined with Giuliano and Nunn's (2018) database, to provide insights on these questions. Furthermore, I utilize a supervised machine learning technique to identify six ethnic characteristics that are important for child welfare outcomes.

The results showcase that ethnic groups with an easy-harvestable principal crop type, such as tree fruits or roots and tubers, allocate more resources to children, have lower child poverty rates and fewer malnourished children. These findings are similar for non-nomadic societies and those that practice bride price traditions. In communities where male circumcision rituals occur at young ages, children receive a higher share of household resources and have lower poverty rates. However, malnutrition prevalence is only less for non-poor children in these ethnic groups. Across the three local jurisdictional hierarchy levels, children in village-level societies are less poor and less malnourished than those in independent or extended family structures. Lastly, higher dependence on subsistence agriculture is associated with lower child poverty and malnutrition rates.

Differences in child welfare outcomes are driven by ethnic characteristics that instill child-favoring norms - passed through generations - that cause more resources to be allocated to children. I highlight that children with fewer resources are more likely to be poor and malnourished. I also alleviate concerns that ethnicity-related spatial and socioeconomic factors drive these results. The evidence I provide can form a base from which researchers and policymakers can improve their

understanding of how a society's and a household's cultural context influences development policies. Similar to Ashraf et al. (2020), the ethnic characteristics identified in this paper might not be those expected to influence child poverty and malnutrition outcomes - indeed, they are also not the only factors. Therefore, a society's context as a whole needs to be considered when developing poverty and malnutrition alleviation policies.

Although this paper is descriptive in nature, I hope it motivates causal studies exploring the role of cultural traits and norms in shaping children's welfare in low-income settings. It remains clear that the importance of these societal norms cannot be downplayed - especially in developing countries. These results also improve our understanding of why certain societies lag in addressing poverty and malnutrition effectively, regardless of interventions. Therefore, this study highlights that the SDGs of zero poverty and zero hunger cannot be achieved with uniform policy interventions.

References

Admassie, A. (2003). Child labour and schooling in the context of a subsistence rural economy: can they be compatible? *International Journal of Educational Development*, *23*(2), 167–185. https://doi.org/10.1016/S0738-0593(02)00012-3

Aizer, A., & Cunha, F. (2012, September). *The Production of Human Capital: Endowments, Investments and Fertility* (w18429). National Bureau of Economic Research. Cambridge, MA. https://doi.org/10.3386/w18429

Alesina, A., & Giuliano, P. (2015). Culture and Institutions. *Journal of Economic Literature*, *53*(4), 898–944. https://doi.org/10.1257/jel.53.4.898

Alesina, A., Giuliano, P., & Nunn, N. (2013). On the Origins of Gender Roles: Women and the Plough. *The Quarterly Journal of Economics*, *128*(2), 469–530. https://doi.org/10.1093/qje/qjt005

Alesina, A., & La Ferrara, E. (2005). Ethnic Diversity and Economic Performance. *Journal of Economic Literature*, *43*(3), 762–800. https://doi.org/10.1257/002205105774431243

Aminjonov, U., Bargain, O., Colacce, M., & Tiberti, L. (2023). Culture, Intra-household Distribution and Individual Poverty. *Economic Development and Cultural Change*, 726656. https://doi.org/10.1086/726656

Ashraf, N., Bau, N., Nunn, N., & Voena, A. (2020). Bride Price and Female Education. *Journal of Political Economy*, *128*(2), 591–641. https://doi.org/10.1086/704572

Attanasio, O. P., & Lechene, V. (2014). Efficient Responses to Targeted Cash Transfers. *Journal of Political Economy*, *122*(1), 178–222. https://doi.org/10.1086/674968

Baland, J.-M., & Ziparo, R. (2018, October 18). Intra-Household Bargaining in Poor Countries. In S. Anderson, L. Beaman, & J.-P. Platteau (Eds.), *Towards Gender Equity in Development* (1st ed.,

pp. 69–96). Oxford University PressOxford. https://doi.org/10.1093/oso/9780198829591.003.0004

Bandyopadhyay, S., & Maity, B. (2023). Soil Endowments and Intra-Household Distribution of Consumption in India: A Structural Approach. *Working Paper*. Retrieved February 22, 2024, from https://drive.google.com/file/d/1QA7lC4jS-3KgsSKLMeN9kL0K4HllwN2f/view?usp=sharing&usp=embed_facebook

Banerjee, D., & Klasen, S. (2022). Conditional cash transfers to mothers, intrahousehold allocations: the role of unobservability. *International Journal of Economic Policy Studies*, *16*(1), 275–296. https://doi.org/10.1007/s42495-021-00078-x

Bau, N., & Fernandez, R. (2021). The family as a social institution. https://ssrn.com/abstract=3886732

Becker, G. S. (1980). *A treatise on the family: Enlarged edition*. Harvard university press.

Beegle, K., Dehejia, R. H., & Gatti, R. (2006). Child labor and agricultural shocks. *Journal of Development Economics*, *81*(1), 80–96. https://doi.org/https://doi.org/10.1016/j.jdeveco.2005.05.003

Beltramo, T. P., Calvi, R., De Giorgi, G., & Sarr, I. (2023). Child poverty among refugees. *World Development*, *171*, 106340. https://doi.org/10.1016/j.worlddev.2023.106340

Bisin, A., & Verdier, T. (2001). The Economics of Cultural Transmission and the Dynamics of Preferences. *Journal of Economic Theory*, *97*(2), 298–319. https://doi.org/10.1006/jeth.2000.2678

Bisin, A., & Verdier, T. (2011). The Economics of Cultural Transmission and Socialization. In *Handbook of Social Economics* (pp. 339–416, Vol. 1). Elsevier. https://doi.org/10.1016/B978-0-444-53187-2.00009-7

Boserup, E. (1970). *Woman's Role in Economic Development*. George Allen; Unwin Ltd.

Brooks-Gunn, J., & Duncan, G. J. (1997). The Effects of Poverty on Children. *The Future of Children*, *7*(2), 55. https://doi.org/10.2307/1602387

Brown, C., Calvi, R., & Penglase, J. (2021). Sharing the pie: An analysis of undernutrition and individual consumption in Bangladesh. *Journal of Public Economics*, *200*, 104460. https://doi.org/10.1016/j.jpubeco.2021.104460

Brown, C., Ravallion, M., & Van De Walle, D. (2019). Most of Africa's Nutritionally Deprived Women and Children Are Not Found in Poor Households. *The Review of Economics and Statistics*, *101*(4), 631–644. https://doi.org/10.1162/rest_a_00800

Brown, C., Ravallion, M., & Van De Walle, D. (2023). Child health and the housing environment. *World Development*, *168*, 106265. https://doi.org/10.1016/j.worlddev.2023.106265

Browning, M., Chiappori, P.-A., & Lewbel, A. (2013). Estimating Consumption Economies of Scale, Adult Equivalence Scales, and Household Bargaining Power [Publisher: Oxford University Press / USA]. *Review of Economic Studies*, *80*(4), 1267–1303. https://doi.org/10.1093/restud/rdt019

Calvi, R. (2020). Why Are Older Women Missing in India? The Age Profile of Bargaining Power and Poverty. *Journal of Political Economy*, *128*(7), 2453–2501. https://doi.org/10.1086/706983

Calvi, R., & Keskar, A. (2021). Dowries, resource allocation, and poverty. *Journal of Economic Behavior & Organization*, *192*, 268–303. https://doi.org/10.1016/j.jebo.2021.10.008

Campbell, F., Conti, G., Heckman, J. J., Moon, S. H., Pinto, R., Pungello, E., & Pan, Y. (2014). Early Childhood Investments Substantially Boost Adult Health. *Science*, *343*(6178), 1478–1485. https://doi.org/10.1126/science.1248429

Castilla, C., & Walker, T. (2013). Is Ignorance Bliss? The Effect of Asymmetric Information between Spouses on Intra-Household Allocations. *American Economic Review*, *103*(3), 263–268. https://doi.org/10.1257/aer.103.3.263

Cherchye, L., Demuynck, T., De Rock, B., & Vermeulen, F. (2017). Household Consumption When the Marriage Is Stable. *American Economic Review*, *107*(6), 1507–1534. https://doi.org/10.1257/aer.20151413

Cherchye, L., Rock, B. D., & Vermeulen, F. (2012). Married with Children: A Collective Labor Supply Model with Detailed Time Use and Intrahousehold Expenditure Information. *American Economic Review*, *102*(7), 3377–3405. https://doi.org/10.1257/aer.102.7.3377

Chiappori, P.-A. (1992). Collective Labor Supply and Welfare. *Journal of Political Economy*, *100*(3), 437–467. https://doi.org/10.1086/261825

Chiappori, P.-A., Dias, M. C., & Meghir, C. (2018). The Marriage Market, Labor Supply, and Education Choice. *Journal of Political Economy*, *126*, S26–S72. https://doi.org/10.1086/698748

Collier, P. (2017). Culture, Politics, and Economic Development. *Annual Review of Political Science*, *20*(1), 111–125. https://doi.org/10.1146/annurev-polisci-051215-024720

Corno, L., Hildebrandt, N., & Voena, A. (2020). Age of Marriage, Weather Shocks, and the Direction of Marriage Payments. *Econometrica*, *88*(3), 879–915. https://doi.org/10.3982/ECTA15505

Corno, L., La Ferrara, E., & Voena, A. (2020). Female Genital Cutting and the Slave Trade. *CEPR Discussion Paper No. DP15577*. Available%20at%20SSRN:%20https://ssrn.com/abstract=3753982

Cunha, F. (2021, February 18). Parental information and human capital formation. In D. Neumark, Y.-s. Kim, & S.-H. Lee (Eds.), *Human Capital Policy*. Edward Elgar Publishing. https://doi.org/10.4337/9781800377806.00015

Cunha, F., Heckman, J. J., Lochner, L., & Masterov, D. V. (2006). Interpreting the Evidence on Life Cycle Skill Formation. In *Handbook of the Economics of Education* (pp. 697–812, Vol. 1). Elsevier. https://doi.org/10.1016/S1574-0692(06)01012-9

De Sanctis, V., Soliman, A., Alaaraj, N., Ahmed, S., Alyafei, F., & Hamed, N. (2021). Early and Long-term Consequences of Nutritional Stunting: From Childhood to Adulthood: Early and Long-term Consequences of Nutritional Stunting. *Acta Bio Medica Atenei Parmensis*, *92*(1), 11346. https://doi.org/10.23750/abm.v92i1.11346

Doepke, M., & Zilibotti, F. (2008). Occupational Choice and the Spirit of Capitalism. *Quarterly Journal of Economics*, *123*(2), 747–793. https://doi.org/10.1162/qjec.2008.123.2.747

Dunbar, G. R., Lewbel, A., & Pendakur, K. (2013). Children's Resources in Collective Households: Identification, Estimation, and an Application to Child Poverty in Malawi. *American Economic Review*, *103*(1), 438–471. https://doi.org/10.1257/aer.103.1.438

Durevall, D., & Isaksson, A.-S. (2024). Aid and child health: A disaggregated analysis of the effects of aid on impaired growth. *World Development*, *182*, 106689. https://doi.org/10.1016/j.worlddev.2024.106689

Dyson-Hudson, R., & Dyson-Hudson, N. (1980). Nomadic Pastoralism. *Annual Review of Anthropology*, *9*, 15–61. Retrieved October 22, 2024, from http://www.jstor.org/stable/2155728

Enke, B. (2019). Kinship, Cooperation, and the Evolution of Moral Systems. *The Quarterly Journal of Economics*, *134*(2), 953–1019. https://doi.org/10.1093/qje/qjz001

Gertler, P. (2004). Do Conditional Cash Transfers Improve Child Health? Evidence from PROGRESA's Control Randomized Experiment. *American Economic Review*, *94*(2), 336–341. https://doi.org/10.1257/0002828041302109

Giuliano, P., & Nunn, N. (2018). Ancestral Characteristics of Modern Populations. *Economic History of Developing Regions*, *33*(1), 1–17. https://doi.org/10.1080/20780389.2018.1435267

Guiso, L., Sapienza, P., & Zingales, L. (2006). Does Culture Affect Economic Outcomes? *Journal of Economic Perspectives*, *20*(2), 23–48. https://doi.org/10.1257/jep.20.2.23

Guiso, L., Sapienza, P., & Zingales, L. (2016). Long-Term Persistence. *Journal of the European Economic Association*, *14*(6), 1401–1436. https://doi.org/10.1111/jeea.12177

Harris-Fry, H., Lamson, L., Roett, K., & Katz, E. (2022). Reducing gender bias in household consumption data: Implications for food fortification policy. *Food Policy*, *110*, 102279. https://doi.org/10.1016/j.foodpol.2022.102279

Haushofer, J., & Shapiro, J. (2016). The Short-term Impact of Unconditional Cash Transfers to the Poor: Experimental Evidence from Kenya. *The Quarterly Journal of Economics*, *131*(4), 1973–2042. https://doi.org/10.1093/qje/qjw025

Heckman, J. J., & Mosso, S. (2014). The Economics of Human Development and Social Mobility. *Annual Review of Economics*, *6*(1), 689–733. https://doi.org/10.1146/annurev-economics-080213-040753

Hoynes, H., Schanzenbach, D. W., & Almond, D. (2016). Long-Run Impacts of Childhood Access to the Safety Net. *American Economic Review*, *106*(4), 903–934. https://doi.org/10.1257/aer.20130375

Jayachandran, S., & Kuziemko, I. (2011). Why Do Mothers Breastfeed Girls Less than Boys? Evidence and Implications for Child Health in India. *The Quarterly Journal of Economics*, *126*(3), 1485–1538. https://doi.org/10.1093/qje/qjr029

La Ferrara, E. (2007). Descent rules and strategic transfers. Evidence from matrilineal groups in Ghana. *Journal of Development Economics*, *83*(2), 280–301. https://doi.org/10.1016/j.jdeveco.2006.09.001

Lechene, V., Pendakur, K., & Wolf, A. (2022). Ordinary Least Squares Estimation of the Intrahousehold Distribution of Expenditure. *Journal of Political Economy*, *130*(3), 681–731. https://doi.org/10.1086/717892

Lowes, S., Nunn, N., Robinson, J. A., & Weigel, J. (2015). Understanding Ethnic Identity in Africa: Evidence from the Implicit Association Test (IAT). *American Economic Review*, *105*(5), 340–345. https://doi.org/10.1257/aer.p20151075

Mayshar, J., Moav, O., & Pascali, L. (2022). The Origin of the State: Land Productivity or Appropriability? *Journal of Political Economy*, *130*(4), 1091–1144. https://doi.org/10.1086/718372

Michalopoulos, S., & Papaioannou, E. (2015). On the Ethnic Origins of African Development: Chiefs and Precolonial Political Centralization. *Academy of Management Perspectives*, *29*(1), 32–71. https://doi.org/10.5465/amp.2012.0162

Moscona, J., & Seck, A. A. (2021). Age Set vs. Kin: Culture and Financial Ties in East Africa. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3956141

Murdock, G. P. (1967). Ethnographic Atlas: A Summary [Publisher: University of Pittsburgh- Of the Commonwealth System of Higher Education]. *Ethnology*, *6*(2), 109–236. https://doi.org/10.2307/3772751

Nunn, N. (2020). The historical roots of economic development. *Science.*, *367*(6485).

Nunn, N., & Wantchekon, L. (2011). The Slave Trade and the Origins of Mistrust in Africa. *American Economic Review*, *101*(7), 3221–3252. https://doi.org/10.1257/aer.101.7.3221

Nyqvist, M. B., & Jayachandran, S. (2017). Mothers Care More, But Fathers Decide: Educating Parents about Child Health in Uganda. *American Economic Review*, *107*(5), 496–500. https://doi.org/10.1257/aer.p20171103

Penglase, J. (2021). Consumption Inequality Among Children: Evidence from Child Fostering in Malawi. *The Economic Journal*, *131*(634), 1000–1025. https://doi.org/10.1093/ej/ueaa104

Pollack, M. (2011). Circumcision: Identity, Gender, and Power. *Tikkun.*, *26*(3).

Rao, V., & Walton, M. (Eds.). (2004). *Culture and public action*. Stanford University Press : Stanford Social Sciences.

Rasul, I. (2008). Household bargaining over fertility: Theory and evidence from Malaysia. *Journal of Development Economics*, *86*(2), 215–241. https://doi.org/10.1016/j.jdeveco.2007.02.005

Tabellini, G. (2008). The Scope of Cooperation: Values and Incentives. *Quarterly Journal of Economics*, *123*(3), 905–950. https://doi.org/10.1162/qjec.2008.123.3.905

Travassos, G., Arends-Kuenning, M. P., & Coelho, A. B. (2023). What happened to intrahousehold poverty and inequality in Brazil between 2003 and 2018? [Publisher: [object Object]]. *Preprint*. https://doi.org/10.13140/RG.2.2.32274.73927

UNICEF. (2021). *Defining Social Norms and Related Concepts*. Child Protection Programme Team, Social, and Behavior Change Team. New York, NY. https://www.unicef.org/media/111061/file/Social-norms-definitions-2021.pdf

United Nations. (2023a). *Implementation of the Third United Nations Decade for the Eradication of Poverty (2018–2027)* (Report of the Secretary-General No. 18-12871). United Nations. New York. https://documents.un.org/doc/undoc/gen/n18/250/39/pdf/n1825039.pdf?token=zRe2Wpd0S0Lkdvbw4j&fe=true

United Nations. (2023b). *Times of Crisis, Times of Change: Science for Accelerating Transformations to Sustainable Development* (No. 2). Department of Economic and Social Affairs. Retrieved April 16, 2024, from https://sdgs.un.org/gsdr/gsdr2023

Voigtländer, N., & Voth, H.-J. (2012). Persecution Perpetuated: The Medieval Origins of Anti-Semitic Violence in Nazi Germany. *The Quarterly Journal of Economics*, *127*(3), 1339–1392. https://doi.org/10.1093/qje/qjs019

World Bank. (2015). *Mind, Society, and Behavior* (World Development Report 2015). Washington, DC. Retrieved June 8, 2024, from https://www.worldbank.org/content/dam/Worldbank/Publications/WDR/WDR%202015/WDR-2015-Full-Report.pdf