# Bargaining Power and Inheritance Norms: Evidence from Polygamous Households in Nigeria

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# Introduction

- Family decisions driven by individual decision-making power within the household.

- Power depends on individual characteristics and formal and informal institutions.

- Existing literature has looked into:
  - how social norms/culture matter/s for the position of women within the household (Lowes, 2020; Ashraf, 2020)
  - how child outcomes differ depending on who controls income within the household (Duflo, 2003; Armand, 2020)
  - Property rights expansion $\Rightarrow$ survival chances male children in families without a first born son (Bhalotra et al. 2019)
  - Improving inheritance rights of women $\Rightarrow$ increased human capital investments in daughters to compensate (Roy, 2015)
  - Land reform $\Rightarrow$ reduced schooling for boys who belong to the ethnic group most impacted by it (La Ferrara and Milazzo, 2017)

> We analyse the interaction between inheritance norms and bargaining power determining child labour supply within complex household structures

# This paper

- ✓ Develops a polygamous household model, where bargaining power varies across mothers, child labor contributes to the quality of land and inheritance shares depend on a system of norms;
- ✓ Tests predictions using data from Nigeria (polygamy widespread, first wives more powerful, multiple layers of inheritance norms coexists)

We find:

- ▶ Children of the first wife work longer hours than children of other mothers
- ▶ Result is driven by boys, landed households and is more likely to emerge when mothers have direct access to a (diminutive) share of inheritance

# Polygamous households and wife status

Cooperation in domestic production (e.g. Jacoby 1995; Akresh et al. 2016, 2011) ⇛ "wives cook or sweep and do domestic work in rotation" (Otite 1991, p.21)

Conflict over distribution of resources with negative externalities on children (e.g. Rossi 2019, Arthi and Fenske 2018) ⇛ "the senior wife is in command of her juniors, does less work, and her children will usually receive preferential treatment." (Ware 1979, p.189)

Nigeria: Women marry early losing out of labour opportunities ⇛ rely more on husband and children (Grossbard, 1980)

- ▶ Women heavily involved in agricultural production but have less access to resources and limited decision-making power over their plots (The World Bank, 2019);
- ▶ First wives more powerful (Munro et al. 2019, Arthi and Fenske 2018, Otite 1991, Ware 1979) and with a greater degree of autonomy in decision-making (driven by marriage-tenure).

# Inheritance setting

Multiple overlapping laws guiding inheritance such as English (colonial), Common (independence), Customary (indigenous) and Sharia (Islamic).

- Customary tradition: members of family/community right to portion of land but women limited rights (temporary members);
  - Women rarely inherit and mostly obtain use rights through their husbands or children.
  - Still "on the death of her husband a woman may continue to have a life interest in her husband's land and to hold it on behalf of his children" (Meek 1970b, p.294)
- Islamic law $\Rightarrow$ widows inherit their husbands' properties together with children, although their share is small.
- Women without son vulnerable and inheritance decreasing in # wives (Milazzo and van de Walle, 2021).
  - Even within tribe: "Land and inheritance-transfers proceed among Hausa under customary usages which may occasionally conflict with one another and with both Maliki and Statute law."

Gender-biased inheritance norms turn children into irreversible investments affecting wives' outside options in polygamous households

# Set up

- Polygamous household: 1 husband, 2 wives ($i = 1, 2$); each wife has one biological child from the husband;
- Wife's bargaining power in the household, $\mu_i$ depends on her rank;
- Child labour contributes to household by improving the land quality to farm $A = 1 + \gamma \Sigma_{i=1}^{2} L_i$, of which children inherit a fraction $\pi_i$;
- Household chooses the optimal amount of child labour ($L_i$) and children receive a fraction $\pi_i$ of inheritance according to inheritance norms.

# Theory Results

## Mother status and human capital investment

Consider mother $i$ and:

- **child i**: *if $\pi_i > \tilde{\pi}$, when the bargaining power of mother $i$ increases, the labour supply of her child increases too, regardless of mother $j$ power. The result is stronger if child $i$ is sole heir, i.e $\pi_i = 1$.*

- **child j**: *his labour supply increases if mother $j$ has lower bargaining power and father is not interested in child $j$ getting an education.*

## Endogenous norms: $\pi = \pi(\mu_i, \mu_j) = \frac{\mu_i}{\mu_i + \mu_j}$:

- *Child $i$'s labour supply is increasing in the bargaining power of the most powerful wife if $\beta > 1/2$.*

When the inheritance share a child is entitled to depends on the relative bargaining power of his biological mother, the labour supply of child $i$ increases in the bargaining power of the most powerful wife.

# Testable predictions

   (i) Children of the first wife provide more labour supply compared to the children of other mothers, especially when they are boys (indirect access);

  (ii) Children of the first wife provide more labour supply than children of other mothers when their mothers inherit (direct access);

 (iii) Without established inheritance rights, children of the first wife work longer hours than the children of other wives.

# Empirical framework

To test prediction (i):

$$y_{iht} = \delta w_{ih} + \boldsymbol{\gamma}\boldsymbol{x}_{iht} + \eta_{ht} + \varepsilon_{iht} \tag{1}$$

- ▶ where $y_{iht}$ is labour supply or educational outcome of child $i$ in household $h$ in wave $t$
- ▶ $w_{ih}$ is first wife indicator, $\boldsymbol{x}$ is a vector of child and mother characteristics, $\eta_{ht}$ household-wave fixed effect

To test prediction (ii), we estimate the above and add $g_{ih} \times w_{ih}$ and

$$\begin{aligned} y_{iht} =& \beta_1 w_{ih} + \beta_2 I_{ht} + \beta_3 g_{ih} + \delta_1 (I_{ht} \times w_{ih}) \\ &+ \delta_2 (g_{ih} \times w_{ih}) + \delta_3 (I_{ht} \times w_{ih} \times g_{ih}) + \boldsymbol{\gamma}\boldsymbol{x}_{iht} + \eta_{ht} + \varepsilon_{iht} \end{aligned} \tag{2}$$

- ▶ Where $I_{ht}$ is an inheritance indicator and $g_{ih}$ is gender indicator
- ▶ To test prediction (iii), we use Sharia division to identify settings in which $\pi$ is exogenous

# Data

The main data we use is drawn from the Nigeria General Household Panel Survey (GHS) 2010-11, 2012-13, 2015-16 and 2018-19

- ✓ GHS contains community information about women's access to land inheritance ($I_{ht}$)
- ✓ Also use the 2018 Nigeria Demographic and Health Survey (NDHS) to access validly of our data in terms of wife characteristics
- ✓ We link the GHPS to Soviet Atlas Narodov Mira (GREG) data, Murdock's *Ethnographic Atlas* and use plot-level inheritance data to corroborate our results

- ▶ We define a household as polygamous if multiple spouses
  - ▶ Impossible to match poly union members across households
  - ▶ Our unit of analysis consists of children aged 5 to 17 for whom information of human capital outcomes is collected
- ▶ We restrict sample to households with children from multiple wives

# Sample characteristics
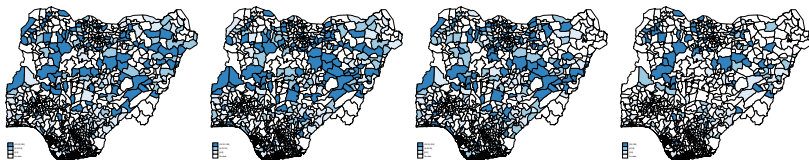


(a) 2010/2011    (b) 2011/2012    (c) 2015/2016    (d) 2018/2019

Fraction of households residing with multiple spouses by GHS wave

▶ Poly hhs more likely to be in the Sharia region, in rural area and head of hh to be Muslim compared to full children sample

▶ Poly hhs 2.8 additional members, and hhs with multiple children add 1.4 members, but sample similar to full poly sample

▶ Contrary to common beliefs, 52 percent of households live in a community in which women are reported to inherit land

▶ Girls work less than boys in settings in which mothers are entitled to inheritance compared to when not

# Do children of the first wife work longer hours than children of other mothers, especially when they are boys?

**Panel A: Wife Status and Gender (Prediction 1)**

| | H'rs (OLS) | H'rs (extensive) | | | H'rs (intensive) | | | Any labour | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Wife 1 | 2.4372*** | 3.2180*** | 1.4923*** | 1.5392*** | 2.3163*** | 0.9829** | 0.9035* | 0.0172* | 0.0547*** | 0.0506*** |
| | (0.3782) | (0.3034) | (0.3088) | (0.3856) | (0.4051) | (0.4176) | (0.5449) | (0.0103) | (0.0099) | (0.0124) |
| Wife 1 | | | | 2.3394*** | | | 1.6183** | | | 0.0636*** |
| | | | | (0.4647) | | | (0.6575) | | | (0.0156) |
| Wife 1 × Daughter | | | | -1.7509*** | | | -1.5835** | | | -0.0285 |
| | | | | (0.5233) | | | (0.7531) | | | (0.0195) |
| Daughter | | | | -1.4359*** | | | -2.2066*** | | | -0.0098 |
| | | | | (0.4088) | | | (0.6095) | | | (0.0144) |
| N | 7,401 | 7,401 | 7,401 | 7,401 | 4,030 | 4,030 | 4,030 | 7,401 | 7,401 | 7,401 |
| # fixed effects | 793 | 1,468 | 1,468 | 1,468 | 1,187 | 1,187 | 1,187 | 1,468 | 1,468 | 1,468 |

**Panel B: Wife Status and Inheritance (Prediction 2)**

| | H'rs (OLS) | H'rs (extensive) | | | H'rs (intensive) | | | Any labour | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Wife 1 | | | | 1.0030* | | | 0.6388 | | | 0.0135 |
| | | | | (0.5690) | | | (0.7568) | | | (0.0181) |
| Wife 1 × Women inherit | | | | 0.7866 | | | 0.3157 | | | 0.0585*** |
| | | | | (0.5908) | | | (0.8147) | | | (0.0190) |
| Wife 1 ($\beta_1$) | | | | 0.9309 | | | 0.4346 | | | 0.0078 |
| | | | | (0.6949) | | | (0.9197) | | | (0.0221) |
| Wife 1 × Women inherit ($\delta_1$) | | | | 2.0818*** | | | 1.6088 | | | 0.0870*** |
| | | | | (0.7653) | | | (1.0171) | | | (0.0238) |
| Wife 1 × Daughter ($\delta_2$) | | | | 0.1880 | | | 0.4503 | | | 0.0130 |
| | | | | (0.7664) | | | (1.0638) | | | (0.0270) |
| Wife 1 × Women inherit × Daughter ($\delta_3$) | | | | -2.8865*** | | | -2.9197** | | | -0.0632** |
| | | | | (0.9386) | | | (1.3148) | | | (0.0299) |
| Daughter ($\beta_3$) | | | | -1.4764*** | | | -2.2734*** | | | -0.0097 |
| | | | | (0.4109) | | | (0.6114) | | | (0.0145) |
| Child controls | ✓ | | | ✓ | ✓ | | | ✓ | | ✓ |
| Mother controls | | | | ✓ | | | ✓ | | | ✓ |
| N | | | | 7,324 | | | 3,987 | | | 7,324 |
| #fixed effects | | | | 1,451 | | | 1,174 | | | 1,451 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Household-wave fixed-effects estimates reported of Equation 8.

Standard errors in parentheses are adjusted for clustering at the household-level. OLS estimates control for wave and zone fixed effects.

The inheritance variable is an indicator whether women in the village in which the child resides can inherit land as an indication of mothers' access to inheritance.

Child characteristics include age fixed effects, birth rankings, gender indicator, # bio. brothers and sisters.

Mother covariates include age, education, labor market status and assets (see Section 5.3).

# Women's inheritance rights and children's labour supply

**Panel A: Wife Status and Gender (Prediction 1)**

| | H'rs (OLS) | H'rs (extensive) | | | H'rs (intensive) | | | Any labour | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Wife 1 | 2.4372*** | 3.2180*** | 1.4923*** | 1.5392*** | 2.3163*** | 0.9829** | 0.9035* | 0.0172* | 0.0547*** | 0.0506*** |
| | (0.3782) | (0.3034) | (0.3088) | (0.3856) | (0.4051) | (0.4176) | (0.5449) | (0.0103) | (0.0099) | (0.0124) |
| Wife 1 | | | | 2.3394*** | | | 1.6183** | | | 0.0636*** |
| | | | | (0.4647) | | | (0.6575) | | | (0.0156) |
| Wife 1 × Daughter | | | | -1.7509*** | | | -1.5835** | | | -0.0285 |
| | | | | (0.5233) | | | (0.7531) | | | (0.0195) |
| Daughter | | | | -1.4359*** | | | -2.2066*** | | | -0.0098 |
| | | | | (0.4088) | | | (0.6095) | | | (0.0144) |
| N | 7,401 | 7,401 | 7,401 | 7,401 | 4,030 | 4,030 | 4,030 | 7,401 | 7,401 | 7,401 |
| # fixed effects | 793 | 1,468 | 1,468 | 1,468 | 1,187 | 1,187 | 1,187 | 1,468 | 1,468 | 1,468 |

**Panel B: Wife Status and Inheritance (Prediction 2)**

| | H'rs (OLS) | H'rs (extensive) | | | H'rs (intensive) | | | Any labour | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Wife 1 | | | | 1.0030* | | | 0.6388 | | | 0.0135 |
| | | | | (0.5690) | | | (0.7568) | | | (0.0181) |
| Wife 1 × Women inherit | | | | 0.7866 | | | 0.3157 | | | 0.0585*** |
| | | | | (0.5908) | | | (0.8147) | | | (0.0190) |
| Wife 1 ($\beta_1$) | | | | 0.9309 | | | 0.4346 | | | 0.0078 |
| | | | | (0.6949) | | | (0.9197) | | | (0.0221) |
| Wife 1 × Women inherit ($\delta_1$) | | | | 2.0818*** | | | 1.6088 | | | 0.0870*** |
| | | | | (0.7653) | | | (1.0171) | | | (0.0238) |
| Wife 1 × Daughter ($\delta_2$) | | | | 0.1880 | | | 0.4503 | | | 0.0130 |
| | | | | (0.7664) | | | (1.0638) | | | (0.0270) |
| Wife 1 × Women inherit × Daughter ($\delta_3$) | | | | -2.8865*** | | | -2.9197** | | | -0.0632** |
| | | | | (0.9386) | | | (1.3148) | | | (0.0299) |
| Daughter ($\beta_3$) | | | | -1.4764*** | | | -2.2734*** | | | -0.0097 |
| | | | | (0.4109) | | | (0.6114) | | | (0.0145) |
| Child controls | ✓ | | | ✓ | | | ✓ | | | ✓ |
| Mother controls | | | | ✓ | | | ✓ | | | ✓ |
| N | | | | 7,324 | | | 3,987 | | | 7,324 |
| #fixed effects | | | | 1,451 | | | 1,174 | | | 1,451 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Household-wave fixed-effects estimates reported of Equation 8.

Standard errors in parentheses are adjusted for clustering at the household-level. OLS estimates control for wave and zone fixed effects.

The inheritance variable is an indicator whether women in the village in which the child resides can inherit land as an indication of mothers' access to inheritance.

Child characteristics include age fixed effects, birth rankings, gender indicator, # bio. brothers and sisters.

Mother covariates include age, education, labor market status and assets (see Section 5.3).

# Is bargaining power less relevant for child labour supply when female rights are written in law?

| | H'rs (extensive) | | H'rs (intensive) | | Any labour | |
|---|---|---|---|---|---|---|
| | Sharia | Non-sharia | Sharia | Non-sharia | Sharia | Non-sharia |
| Wife 1 ($\beta_1$) | 0.4806 | 1.9500** | -0.4900 | 1.4781 | -0.0366 | 0.0601* |
| | (0.9289) | (0.9518) | (1.1363) | (1.3863) | (0.0309) | (0.0317) |
| Wife 1 × Women inherit ($\delta_1$) | 2.7336*** | -1.2740 | 2.6009** | -1.6298 | 0.1231*** | 0.0254 |
| | (0.9539) | (1.0451) | (1.2012) | (1.5350) | (0.0310) | (0.0399) |
| Wife 1 × Daughter ($\delta_2$) | 0.6276 | -0.9756 | 1.1039 | -0.3430 | 0.0601* | -0.0446 |
| | (1.1169) | (1.0149) | (1.4580) | (1.5200) | (0.0359) | (0.0410) |
| Wife 1 × Women inherit × Daughter ($\delta_3$) | -3.9303*** | 2.3544 | -4.5037*** | 2.2914 | -0.1214*** | 0.0621 |
| | (1.2306) | (1.4456) | (1.6678) | (2.0983) | (0.0375) | (0.0537) |
| Daughter ($\beta_3$) | -2.1273*** | -0.0736 | -2.6165*** | -1.3831 | -0.0207 | 0.0096 |
| | (0.5593) | (0.5805) | (0.8473) | (0.8703) | (0.0186) | (0.0232) |
| $\beta_1 + \delta_1$ | 3.214 | 0.676 | 2.111 | -0.152 | 0.087 | 0.085 |
| SE($\beta_1 + \delta_1$) | 0.647 | 0.748 | 0.908 | 1.152 | 0.022 | 0.031 |
| $\beta_1 + \delta_2$ | 1.108 | 0.974 | 0.614 | 1.135 | 0.024 | 0.015 |
| SE($\beta_1 + \delta_2$) | 0.975 | 0.878 | 1.329 | 1.251 | 0.035 | 0.032 |
| $\beta_1 + \delta_1 + \delta_2 + \delta_3$ | -0.089 | 2.055 | -1.289 | 1.797 | 0.025 | 0.103 |
| SE($\beta_1 + \delta_1 + \delta_2 + \delta_3$) | 0.623 | 1.127 | 0.940 | 1.396 | 0.021 | 0.035 |
| N | 4,874 | 2,450 | 2,651 | 1,336 | 4,874 | 2,450 |
| #fixed effects | 954 | 497 | 770 | 404 | 954 | 497 |
| within-R squared | 0.165 | 0.106 | 0.171 | 0.093 | 0.232 | 0.241 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Household-wave fixed-effects estimates of Equation 9 reported. Standard errors in parentheses are adjusted for clustering at the household-level.

The inheritance variable is an indicator whether women in the village in which the child resides can inherit land.

Child characteristics include age fixed effects, birth rankings, gender indicator, # bio. brothers and sisters.

Mother covariates include age, education, labor market status and assets (see Section 5.3).

Child and mother characteristics are controlled for but estimates are not reported.

Sharia states are Sokoto, Zamfara, Katsina, Kano, Jigawa, Yobe, Borno, Kebbi, Niger, Kaduna, Bauchi and Gombe.

▶ Results driven by Sharia states ($\pi$ exogenous)
▶ In non-Sharia, no recognition of second marriages $\Rightarrow$ no inheritance rights. Increasing female bargaining power reduces sons' labor supply in societies with pro-female inheritance norms

# Endogenous wife status

- Several wife characteristics pre-marriage possibly affect wife sorting into the polygamous marriage market ⇒ wife status is not random
  - Along with a bunch of wife characteristics, we look into: education, previous marriages, working out of the house
  - Seniority captures the majority of the differences in wife's status
    `Wife characteristics`
  - Using the panel element of the data, we find positive assortative mating rather than selection according to comparative advantage
    `Switching households`
- We use precipitation data, compute deviation in average rainfall in 5 years prior to marriage from a long-run (30 year) average, its square and the years of the UPE (1976 to 1981) implementation in combination with the year of birth/age of wives to instrument for wife status `FE IV Estimates`
- Finally, we randomly assign first wife status across mothers within the household in a falsification exercise

# Alternative Inheritance Measures

- Using Plot-level labor supply and inheritance norms accounting for household-plot-wave-fixed-effects
  - Children entitled to inherit a plot of land supply more labor on it than children who do not, but it is children of the first wife, and in particular her sons, that work more on a piece of land when they are not entitled to inherit it
- Property rights vs inheritance norms
  - Contrary to inheritance findings, in settings without provision to property rights sons of the first wife work more
- Using GREG and Atlas data
  - in a setting in which the mother has access to a diminutive share of inheritance, it is her sons that work longer hours
- Ethnicity vs Inheritance

# Specification issues

- Alternative human capital outcomes , years of schooling, ever attended school, currently attending, literacy
- Zero hours of work (FE poisson model, a Mundlak/Chamberlain type of random effects; Tobit models and Honoré's trimmed least squares model)
- Outlier adjustments (log transform; inverse hyperbolic sin; winzorise and trim data)
- Sample children aged 5 to 15
- Cluster-bootstrapping standard errors to adjust for the intra-mother correlation of error terms across siblings

# Takeaways

▶ We show the importance of inheritance norms and female bargaining power for children's human capital investment where formal institutions and markets operate only with limited force

▶ Inheritance norms that favour a certain child gender incentivise mothers, if they have the power to do so, to prefer child labour over education when their child is the principal heir

▶ When competition across co-wives is fierce, access to inheritance is insecure, and maternal returns to child labor vary across siblings, increasing mothers' bargaining power without altering the incentive system does not necessarily improve children's outcomes

▶ Rather than access to the land, our results suggest it is possibly the insecurity of inheritance rights that incentivizes mothers to use their bargaining power to increase child labor supply. But much better data and an amended theoretical model would be needed to draw this conclusion

**Additional slides**

# Expected effect of inheritance by gender and wife status

$$y_{iht} = \beta_1 w_{ih} + \beta_3 g_{ih} + \delta_1 (I_{ht} \times w_{ih}) + \delta_2 (g_{ih} \times w_{ih})$$
$$+ \delta_3 (I_{ht} \times w_{ih} \times g_{ih}) + \boldsymbol{\gamma} \boldsymbol{x}_{iht} + \eta_{ht} + \varepsilon_{iht}$$

|  | Wife 1 | Other wives | Difference |
|---|---|---|---|
| *Boys* | | | |
| Inheritance $= 1$ | $\beta_1 + \delta_1$ | | $\beta_1 + \delta_1$ |
| Inheritance $= 0$ | $\beta_1$ | | $\beta_1$ |
| Difference | $\delta_1$ | | $\delta_1$ |
| *Girls* | | | |
| Inheritance $= 1$ | $\beta_1 + \beta_3 + \delta_1 + \delta_2 + \delta_3$ | $\beta_3$ | $\beta_1 + \delta_1 + \delta_2 + \delta_3$ |
| Inheritance $= 0$ | $\beta_1 + \beta_3 + \delta_2$ | $\beta_3$ | $\beta_1 + \delta_2$ |
| Difference | $\delta_1 + \delta_3$ | $0$ | $\delta_1 + \delta_3$ |

# Sample Characteristics

Table 1: Summary Statistics of Children 5 to 17 years old

| | All children | Polygamous households | Polygamous different mothers |
|---|---|---|---|
| Age (years) | 10.34 | 10.27 | 10.29 |
| Girl (=1) | 0.47 | 0.46 | 0.46 |
| Emp. outside (=1) | 0.00 | 0.00 | 0.00 |
| Emp. home (=1) | 0.16 | 0.19 | 0.21 |
| Emp. own (=1) | 0.03 | 0.04 | 0.05 |
| H'rs. worked | 6.83 | 8.05 | 8.45 |
| H'rs. lab. | 24.83 | 26.09 | 26.00 |
| H'rs. domestic | 4.09 | 4.43 | 4.41 |
| Emp. (=1) | 0.33 | 0.35 | 0.36 |
| Attends edu. | 0.84 | 0.79 | 0.79 |
| Ever att. edu. | 0.80 | 0.73 | 0.74 |
| Literate (=1) | 0.58 | 0.50 | 0.50 |
| Birth rank | 3.36 | 4.20 | 4.67 |
| # Biological brothers | 2.08 | 2.11 | 1.94 |
| # Biological sisters | 1.74 | 1.64 | 1.53 |
| # Child-wave obs. | 31,842 | 11,746 | 7,729 |
| *Mother characteristics* | | | |
| Mother age (years) | 37.54 | 36.97 | 36.83 |
| Mother att. edu. | 0.60 | 0.45 | 0.46 |
| Mother emp. outside | 0.06 | 0.03 | 0.03 |
| Mother emp. home | 0.33 | 0.25 | 0.26 |
| Mother emp. own | 0.47 | 0.48 | 0.49 |
| Asset val. ('000) | 9.38 | 8.90 | 7.64 |
| *Household characteristics* | | | |
| Sharia (=1) | 0.43 | 0.66 | 0.65 |
| Head islam (=1) | 0.52 | 0.79 | 0.80 |
| Women inherit (=1) | 0.52 | 0.59 | 0.59 |
| Rural (=1) | 0.72 | 0.85 | 0.85 |
| North (=1) | 0.63 | 0.87 | 0.87 |
| # Wives | 1.33 | 2.23 | 2.32 |
| Household size | 7.68 | 10.47 | 11.85 |
| Total land area (m$^2$) | 83.47 | 98.91 | 103.10 |
| Polygamous (=1) | 0.28 | | |
| # Household-wave obs. | 10,665 | 2,933 | 1,488 |

*Source:* Pooled GHPS Wave 1 (2010/11), Wave 2 (2011/12), Wave 3 (2015/16) and Wave 4 (2018/19).
*Notes:* The second column refers to all children aged 5 to 15 of the household head and his spouse(s).
Column (3) restricts the sample to children in polygamous households.
Columns (4) restricts the sample to polygamous households with children of different mothers.
Hours worked are hours worked in the primary and secondary job during the last 7 days.
Hours spent in domestic activities only include the time spent on water and firewood collection.
The birth rank is based on ranking all the biological children of the household head by their age.

# Labour supply and inheritance norms
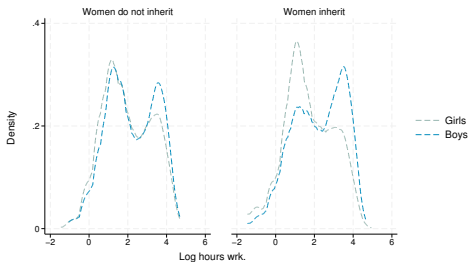


Logarithm of the hours worked during the last week by child gender and land inheritance in the community in which the child resides. The data is pooled across waves.

Go back to ◄ data

# Wife characteristics

| | Age | # Boys | # Girls | No child | Ever school | Literate | No edu. | Primary[a] | Secondary[a] | Higher edu | Y'rs edu. | Y'rs marr. | Emp. out[b] | Emp. farm[b] | En |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Panel A: Observable differences in characteristics** | | | | | | | | | | | | | | | |
| Wife 1 | 7.474*** | 0.982*** | 0.610*** | -0.155*** | -0.026*** | -0.022*** | -0.002 | 0.049*** | -0.031** | -0.012* | -0.200** | 9.846*** | -0.001 | 0.013*** | |
| | (0.169) | (0.054) | (0.045) | (0.012) | (0.008) | (0.008) | (0.005) | (0.014) | (0.014) | (0.007) | (0.090) | (0.188) | (0.004) | (0.004) | |
| Constant | 33.366*** | 1.077*** | 0.920*** | 0.272*** | 0.438*** | 0.392*** | 0.019*** | 0.707*** | 0.218*** | 0.047*** | 7.154*** | 14.790*** | 0.030*** | 0.246*** | |
| | (0.077) | (0.024) | (0.020) | (0.005) | (0.003) | (0.003) | (0.002) | (0.006) | (0.006) | (0.003) | (0.040) | (0.085) | (0.002) | (0.002) | |
| N | 7,389 | 7,642 | 7,642 | 7,642 | 7,517 | 7,535 | 3,985 | 3,985 | 3,985 | 3,985 | 6,782 | 7,138 | 7,131 | | |
| #fixed effects | 3,467 | 3,477 | 3,477 | 3,477 | 3,425 | 3,430 | 2,146 | 2,146 | 2,146 | 2,146 | 3,127 | 3,442 | 3,440 | | |
| within-R squared | 0.430 | 0.171 | 0.097 | 0.070 | 0.004 | 0.004 | 0.000 | 0.012 | 0.005 | 0.002 | 0.005 | 0.514 | 0.000 | 0.003 | |
| **Panel B: Observable differences in characteristics controlling for age** | | | | | | | | | | | | | | | |
| Wife 1 | | 0.803*** | 0.505*** | -0.142*** | -0.003 | -0.007 | -0.000 | 0.020 | -0.003 | -0.016* | -0.113 | 5.578*** | -0.003 | 0.014** | |
| | | (0.065) | (0.054) | (0.015) | (0.010) | (0.010) | (0.007) | (0.017) | (0.017) | (0.009) | (0.110) | (0.261) | (0.006) | (0.006) | |
| Constant | | -2.636*** | -1.997*** | 0.939*** | 0.497*** | 0.451*** | 0.015 | 0.611*** | 0.221** | 0.110 | 7.348*** | -2.974** | 0.249*** | | |
| | | (0.293) | (0.272) | (0.082) | (0.059) | (0.057) | (0.060) | (0.112) | (0.107) | (0.073) | (0.972) | (1.387) | (0.031) | (0.040) | |
| N | | 7,389 | 7,389 | 7,389 | 7,269 | 7,285 | 3,839 | 3,839 | 3,839 | 3,839 | 6,772 | 7,137 | 7,130 | | |
| #fixed effects | | 3,467 | 3,467 | 3,467 | 3,414 | 3,419 | 2,120 | 2,120 | 2,120 | 2,120 | 3,125 | 3,442 | 3,440 | | |
| within-R squared | | 0.236 | 0.156 | 0.115 | 0.014 | 0.010 | 0.002 | 0.024 | 0.015 | 0.007 | 0.006 | 0.639 | 0.003 | 0.003 | |
| **Panel C: Observable differences in characteristics controlling for age and cohort effects** | | | | | | | | | | | | | | | |
| Wife 1 | | 0.789*** | 0.492*** | -0.136*** | 0.001 | -0.006 | -0.002 | 0.025 | -0.004 | -0.019* | -0.143 | 5.519*** | -0.002 | 0.019*** | |
| | | (0.069) | (0.056) | (0.016) | (0.010) | (0.011) | (0.007) | (0.017) | (0.017) | (0.010) | (0.116) | (0.266) | (0.006) | (0.006) | |
| Constant | | -0.502 | -1.152* | 0.638*** | 0.650*** | 0.511*** | -0.143 | 0.809*** | 0.052 | 0.269 | 8.399*** | 11.379*** | -0.029 | 0.062 | |
| | | (0.626) | (0.614) | (0.182) | (0.158) | (0.145) | (0.139) | (0.261) | (0.283) | (0.184) | (2.256) | (3.392) | (0.081) | (0.084) | |
| N | | 7,099 | 7,099 | 7,099 | 7,000 | 7,015 | 3,714 | 3,714 | 3,714 | 3,714 | 6,552 | 6,917 | 6,911 | | |
| #fixed effects | | 3,391 | 3,391 | 3,391 | 3,347 | 3,352 | 2,073 | 2,073 | 2,073 | 2,073 | 3,060 | 3,361 | 3,359 | | |
| within-R squared | | 0.246 | 0.171 | 0.122 | 0.018 | 0.013 | 0.013 | 0.038 | 0.030 | 0.011 | 0.017 | 0.648 | 0.008 | 0.006 | |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Household-wave fixed-effects estimates report. Standard errors in parentheses are adjusted for clustering at the household-level.

[a] The educational categories include some up to competed primary and secondary education.

[b] The employment categories are based on a set of screening questions referring to the activity undertaken in the past 7 days. In particular, they comprise whether an individual aged 5 or above has worked for someone who is not a member of your household, whether any work was undertaken on a farm owned or rented by a member of the household or whether the person worked on their own account or in a business belonging to the person or someone in the household.

Go back to

# Marital Matching

| | Age | # Boys | # Girls | No child | Ever school | Literate | No edu. | Primary* | Secondary* | Higher edu | Y'rs edu. | Y'rs marr. | Emp. out | Emp. farm | Emp. Own. | H'rs domestic | H'rs W'kd. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | 0.427*** | | | | | | | | | | | | | | | | |
| | (0.031) | | | | | | | | | | | | | | | | |
| # Boys | | 0.226*** | | | | | | | | | | | | | | | |
| | | (0.040) | | | | | | | | | | | | | | | |
| # Girls | | | 0.116*** | | | | | | | | | | | | | | |
| | | | (0.030) | | | | | | | | | | | | | | |
| No child | | | | 0.054 | | | | | | | | | | | | | |
| | | | | (0.045) | | | | | | | | | | | | | |
| Ever school | | | | | 0.330*** | | | | | | | | | | | | |
| | | | | | (0.034) | | | | | | | | | | | | |
| Literate | | | | | | 0.334*** | | | | | | | | | | | |
| | | | | | | (0.036) | | | | | | | | | | | |
| No edu. | | | | | | | 0.186*** | | | | | | | | | | |
| | | | | | | | (0.059) | | | | | | | | | | |
| Primary | | | | | | | | 0.306*** | | | | | | | | | |
| | | | | | | | | (0.049) | | | | | | | | | |
| Secondary | | | | | | | | | 0.303*** | | | | | | | | |
| | | | | | | | | | (0.058) | | | | | | | | |
| Higher edu | | | | | | | | | | 0.512*** | | | | | | | |
| | | | | | | | | | | (0.064) | | | | | | | |
| Y'rs edu. | | | | | | | | | | | 0.182*** | | | | | | |
| | | | | | | | | | | | (0.036) | | | | | | |
| Y'rs marr. | | | | | | | | | | | | 0.403*** | | | | | |
| | | | | | | | | | | | | (0.069) | | | | | |
| Emp. out | | | | | | | | | | | | | 0.254*** | | | | |
| | | | | | | | | | | | | | (0.049) | | | | |
| Emp. farm | | | | | | | | | | | | | | 0.440*** | | | |
| | | | | | | | | | | | | | | (0.048) | | | |
| Emp. Own. | | | | | | | | | | | | | | | 0.229*** | | |
| | | | | | | | | | | | | | | | (0.053) | | |
| H'rs domestic | | | | | | | | | | | | | | | | 0.319*** | |
| | | | | | | | | | | | | | | | | (0.072) | |
| H'rs W'kd. | | | | | | | | | | | | | | | | | 0.175*** |
| | | | | | | | | | | | | | | | | | (0.034) |
| Constant | 13.114*** | 0.343*** | 0.332*** | 0.475*** | 0.322*** | 0.273*** | 0.014 | 0.413*** | 0.197*** | 0.033** | 6.153*** | 7.925*** | 0.019* | 0.097*** | 0.207*** | 4.763*** | 9.688*** |
| | (1.302) | (0.090) | (0.063) | (0.029) | (0.031) | (0.031) | (0.009) | (0.044) | (0.032) | (0.014) | (0.338) | (0.601) | (0.010) | (0.024) | (0.034) | (0.631) | (1.522) |
| N | 317 | 393 | 393 | 393 | 380 | 380 | 221 | 221 | 221 | 221 | 221 | 252 | 277 | 277 | 277 | 125 | 393 |

Sample is restricted to households who increase the number of wives from one wave to the next.
Only switching waves are included. First wife characteristics are measured in the wave before an additional wife joins the household.

Go back to

# FE IV estimates

**Panel A: IV estimates**

| | H'rs (extensive) | | | H'rs (intensive) | | | Any labour | | |
|---|---|---|---|---|---|---|---|---|---|
| Wife 1 | 4.2984*** | 3.1609*** | 16.4447 | 2.6097** | 2.3803* | 12.0442 | 0.0468 | 0.1165*** | 0.3287 |
| | (0.8630) | (0.9973) | (11.1534) | (1.1552) | (1.3246) | (9.3173) | (0.0293) | (0.0322) | (0.2759) |

**Panel B: First stage estimates**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| UPE (1976-1981) | 0.4495*** | 0.3370*** | 0.0184 | 0.4567*** | 0.3881*** | 0.0133 | 0.4495*** | 0.3370*** | 0.0184 |
| | (0.0515) | (0.0515) | (0.0412) | (0.0629) | (0.0616) | (0.0478) | (0.0515) | (0.0515) | (0.0412) |
| Rainfall deviation at marriage | -0.0019*** | -0.0017*** | -0.0004 | -0.0020*** | -0.0018*** | -0.0005* | -0.0019*** | -0.0017*** | -0.0004 |
| | (0.0003) | (0.0003) | (0.0002) | (0.0005) | (0.0004) | (0.0003) | (0.0003) | (0.0003) | (0.0002) |
| Rainfall deviation squared | -0.0000 | -0.0000** | -0.0000 | -0.0000* | -0.0000* | -0.0000 | -0.0000 | -0.0000** | -0.0000 |
| | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) |
| Child controls | | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ |
| Mother controls | | | ✓ | | | ✓ | | | ✓ |
| N | 7,154 | 7,154 | 7,154 | 3,731 | 3,731 | 3,731 | 7,154 | 7,154 | 7,154 |
| # fixed effects | 1,394 | 1,394 | 1,394 | 966 | 966 | 966 | 1,394 | 1,394 | 1,394 |
| First stage F | 69.184 | 38.874 | 1.098 | 39.227 | 29.470 | 1.287 | 69.184 | 38.874 | 1.098 |
| Kleibergen-Paap LM | 79.548 | 57.766 | 2.945 | 60.292 | 53.307 | 3.545 | 79.548 | 57.766 | 2.945 |
| Hansen's J | 2.992 | 2.246 | 0.104 | 5.303 | 2.461 | 0.517 | 0.199 | 0.468 | 2.050 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Household-wave fixed-effects estimates report. Standard errors in parentheses are adjusted for clustering at the household-level.

Go back to

# Plot-level Estimates

| | Log h'rs | H'rs | Share h'rs |
|---|---|---|---|
| Wife 1 | 0.1572*** | 37.0596*** | 0.0155*** |
| | (0.0459) | (11.9456) | (0.0044) |
| Wife 1 | 0.1775*** | 50.7421*** | 0.0199*** |
| | (0.0512) | (13.5745) | (0.0051) |
| Wife 1 × Daughter | -0.0678 | -45.8976*** | -0.0145** |
| | (0.0727) | (15.9537) | (0.0066) |
| Daughter | -0.5063*** | -10.6595 | -0.0351*** |
| | (0.0704) | (13.0687) | (0.0058) |
| Child inherits | 0.0383 | 32.8179*** | 0.0093* |
| | (0.0487) | (12.4890) | (0.0053) |
| Child inherits | 0.0839* | 27.7316** | 0.0141*** |
| | (0.0498) | (13.1966) | (0.0054) |
| Child inherits × Daughter | -0.2687*** | 29.9727** | -0.0285*** |
| | (0.0937) | (15.2257) | (0.0087) |
| Daughter | -0.4561*** | -45.2155*** | -0.0338*** |
| | (0.0627) | (14.8930) | (0.0054) |
| Child inherits | 0.0397 | 32.7155** | 0.0030 |
| | (0.0686) | (14.9826) | (0.0067) |
| Wife 1 | 0.1613*** | 36.0777** | 0.0123** |
| | (0.0556) | (14.6182) | (0.0054) |
| Wife 1 × Child inherits | -0.0158 | -3.0012 | 0.0071 |
| | (0.0641) | (12.4956) | (0.0060) |
| Child inherits | 0.0313 | 35.5976** | 0.0021 |
| | (0.0691) | (14.9343) | (0.0068) |
| Wife 1 | 0.1663*** | 54.8650*** | 0.0147** |
| | (0.0636) | (16.8407) | (0.0063) |
| Wife 1 × Child inherits | 0.0151 | -15.1285 | 0.0103 |
| | (0.0695) | (13.7925) | (0.0069) |
| Wife 1 × Daughter | -0.0186 | -56.8843*** | -0.0078 |
| | (0.0854) | (19.7802) | (0.0077) |
| Wife 1 × Child inherits × Daughter | -0.1425 | 37.4194** | -0.0166* |
| | (0.0994) | (18.0630) | (0.0099) |
| Daughter | -0.5057*** | -7.3318 | -0.0350*** |
| | (0.0709) | (13.2873) | (0.0058) |
| N | 5,228 | 5,228 | 5,228 |
| # fixed effects | 2,412 | 2,412 | 2,412 |

Go back to  <span>Alternative Inheritance Measures</span>

# Property vs Inheritance Rights

|  | H'rs (extensive) | H'rs (intensive) | Any labour |
|---|---|---|---|
| Wife 1 × prights ($\delta_1$) | -2.0498** | -2.3032** | -0.0335 |
|  | (0.7962) | (0.9987) | (0.0249) |
| Wife 1 × Daughter ($\delta_2$) | -2.8158*** | -3.3384*** | -0.0541* |
|  | (0.7935) | (1.0891) | (0.0277) |
| Wife 1 × prights × Daughter ($\delta_3$) | 1.9685** | 3.4227** | 0.0440 |
|  | (0.9724) | (1.3440) | (0.0316) |
| Wife 1 ($\beta_1$) | 3.4196*** | 2.7203*** | 0.0814*** |
|  | (0.6530) | (0.8739) | (0.0218) |
| Daughter ($\beta_3$) | -1.4418*** | -2.2138*** | -0.0088 |
|  | (0.4105) | (0.6091) | (0.0144) |
| N | 7,327 | 3,990 | 7,327 |
| #fixed effects | 1,452 | 1,175 | 1,452 |
| within-R squared | 0.138 | 0.134 | 0.230 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Go back to  Alternative Inheritance Measures

# GREG data and matched inheritance

| | Mother inherits | | | Children inherit | | | Patrilineal | | |
|---|---|---|---|---|---|---|---|---|---|
| | H'rs (extensive) | H'rs (intensive) | Any labour | H'rs (extensive) | H'rs (intensive) | Any labour | H'rs (extensive) | H'rs (intensive) | Any labour |
| Wife 1 ($\beta_1$) | 0.7454 | 0.4016 | 0.0490*** | 3.0875*** | 2.0160*** | 0.0694*** | 2.7790*** | 2.0089*** | 0.0637*** |
| | (0.5742) | (0.7843) | (0.0188) | (0.5531) | (0.7525) | (0.0184) | (0.4922) | (0.6873) | (0.0168) |
| Wife 1 × Inheritance × Daughter ($\delta_3$) | -3.8298*** | -3.6434*** | -0.0345 | 3.3035*** | 3.0661** | 0.0122 | 3.1723*** | 3.5545*** | -0.0007 |
| | (0.8920) | (1.2679) | (0.0289) | (0.9120) | (1.3137) | (0.0298) | (0.9732) | (1.2859) | (0.0340) |
| Wife 1 × Inheritance ($\delta_1$) | 2.9149*** | 2.0697** | 0.0267 | -2.0225*** | -1.2370 | -0.0149 | -1.8465** | -1.8961* | -0.0002 |
| | (0.7300) | (0.9425) | (0.0233) | (0.7379) | (0.9851) | (0.0235) | (0.8315) | (1.1408) | (0.0262) |
| Wife 1 × Daughter ($\delta_2$) | 0.4525 | 0.5682 | -0.0087 | -2.9143*** | -2.6265*** | -0.0328 | -2.4904*** | -2.3847*** | -0.0284 |
| | (0.6669) | (0.9820) | (0.0247) | (0.6397) | (0.8891) | (0.0225) | (0.5857) | (0.8520) | (0.0208) |
| Daughter ($\beta_3$) | -1.4504*** | -2.2401*** | -0.0100 | -1.4646*** | -2.2497*** | -0.0099 | -1.4453*** | -2.2195*** | -0.0099 |
| | (0.4081) | (0.6108) | (0.0144) | (0.4084) | (0.6115) | (0.0144) | (0.4089) | (0.6097) | (0.0144) |
| $\beta_1 + \delta_1$ | 3.660 | 2.471 | 0.076 | 1.065 | 0.779 | 0.054 | 0.932 | 0.113 | 0.063 |
| SE($\beta_1 + \delta_1$) | 0.607 | 0.829 | 0.020 | 0.640 | 0.904 | 0.021 | 0.815 | 1.143 | 0.025 |
| $\beta_1 + \delta_2$ | 1.198 | 0.970 | 0.040 | 0.173 | -0.610 | 0.037 | 0.289 | -0.376 | 0.035 |
| SE($\beta_1 + \delta_2$) | 0.586 | 0.823 | 0.020 | 0.512 | 0.772 | 0.018 | 0.477 | 0.737 | 0.017 |
| $\beta_1 + \delta_1 + \delta_2 + \delta_3$ | 0.283 | -0.604 | 0.033 | 1.454 | 1.219 | 0.034 | 1.614 | 1.283 | 0.034 |
| SE($\beta_1 + \delta_1 + \delta_2 + \delta_3$) | 0.559 | 0.854 | 0.019 | 0.831 | 1.025 | 0.025 | 0.831 | 1.025 | 0.025 |
| N | 7,401 | 4,030 | 7,401 | 7,401 | 4,030 | 7,401 | 7,401 | 4,030 | 7,401 |
| #fixed effects | 1,468 | 1,187 | 1,468 | 1,468 | 1,187 | 1,468 | 1,468 | 1,187 | 1,468 |
| within-R squared | 0.142 | 0.138 | 0.228 | 0.140 | 0.136 | 0.228 | 0.139 | 0.136 | 0.228 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Go back to  Alternative Inheritance Measures

# ATLAS data

Table 12: Fixed effects estimates of first wife difference by inheritance, ATLAS data

| | Children inherit | | | Patrilineal | | |
| --- | --- | --- | --- | --- | --- | --- |
| | H'rs (extensive) | H'rs (intensive) | Any labour | H'rs (extensive) | H'rs (intensive) | Any labour |
| Wife 1 ($\beta_1$) | 2.0445*** | 0.9689 | 0.0536*** | 1.9219*** | 0.6259 | 0.0465** |
| | (0.6016) | (0.7844) | (0.0195) | (0.5897) | (0.7667) | (0.0191) |
| Wife 1 × Inheritance × Daughter ($\delta_3$) | -0.3179 | 0.1390 | -0.0196 | -0.9038 | -1.3862 | -0.0265 |
| | (0.9334) | (1.3277) | (0.0292) | (0.9366) | (1.3360) | (0.0291) |
| Wife 1 × Inheritance ($\delta_1$) | 0.5912 | 1.2815 | 0.0196 | 0.9158 | 2.1291** | 0.0378 |
| | (0.7675) | (0.9649) | (0.0238) | (0.7685) | (0.9723) | (0.0235) |
| Wife 1 × Daughter ($\delta_2$) | -1.5820** | -1.6364* | -0.0181 | -1.3085* | -0.8736 | -0.0157 |
| | (0.7147) | (0.9634) | (0.0250) | (0.7057) | (0.9480) | (0.0244) |
| Daughter ($\beta_3$) | -1.4372*** | -2.2194*** | -0.0100 | -1.4440*** | -2.2454*** | -0.0101 |
| | (0.4091) | (0.6107) | (0.0144) | (0.4087) | (0.6095) | (0.0144) |
| $\beta_1 + \delta_1$ | 2.636 | 2.250 | 0.073 | 2.838 | 2.755 | 0.084 |
| SE($\beta_1 + \delta_1$) | 0.600 | 0.844 | 0.020 | 0.613 | 0.870 | 0.020 |
| $\beta_1 + \delta_2$ | 0.463 | -0.667 | 0.036 | 0.613 | -0.248 | 0.031 |
| SE($\beta_1 + \delta_2$) | 0.591 | 0.897 | 0.020 | 0.573 | 0.892 | 0.019 |
| $\beta_1 + \delta_1 + \delta_2 + \delta_3$ | 0.736 | 0.753 | 0.036 | 0.625 | 0.495 | 0.042 |
| SE($\beta_1 + \delta_1 + \delta_2 + \delta_3$) | 0.574 | 0.807 | 0.020 | 0.590 | 0.806 | 0.020 |
| N | 7,401 | 4,030 | 7,401 | 7,401 | 4,030 | 7,401 |
| #fixed effects | 1,468 | 1,187 | 1,468 | 1,468 | 1,187 | 1,468 |
| within-R squared | 0.137 | 0.135 | 0.228 | 0.138 | 0.135 | 0.229 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

# Ethnicity vs Inheritance

| | Bade | Bini | Bura | Fulbe | Hausa | Ibo | Jukun | Kanuri | Nupe | Tiv | Yoruba |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Wife 1 | -3.4659 | -2.9587 | 0.6499 | -0.9583 | 1.7243*** | 1.0829 | 3.2625** | 5.7172*** | 1.9978 | 1.6359** | 2.2376 |
| | (-1.14) | (-0.86) | (1.34) | (-0.68) | (2.83) | (0.55) | (2.07) | (3.73) | (1.56) | (2.25) | (1.62) |
| Birth rank | 3.9716* | -2.7027 | 0.3366 | -0.0656 | -0.0012 | -2.4863** | 0.9192** | -2.1259 | -1.2016 | 0.9260 | -1.1141 |
| | (1.98) | (-1.07) | (1.13) | (-0.11) | (-0.00) | (-2.17) | (2.20) | (-1.64) | (-1.60) | (1.45) | (-1.21) |
| Daughter | -4.4851** | -1.7550 | 0.7325 | -3.8925*** | -4.1406*** | 1.8724 | -1.1805 | 0.0061 | -0.8294 | 1.7426 | -0.8522 |
| | (-2.31) | (-1.30) | (1.15) | (-3.47) | (-7.00) | (1.14) | (-1.25) | (0.01) | (-0.61) | (1.44) | (-0.99) |
| # bio. brothers | -0.5125 | 0.2121 | -0.0081 | 0.6511 | -0.1082 | -0.9875 | -0.6870 | 0.0837 | -1.2672 | -1.7967*** | -0.9716 |
| | (-0.47) | (0.26) | (-0.04) | (1.44) | (-0.45) | (-0.96) | (-0.90) | (0.15) | (-1.14) | (-3.88) | (-1.59) |
| # bio. sisters | -0.2226 | -0.9142 | -0.1608 | -0.3317 | -0.4742* | -0.1658 | -0.3495 | -0.0842 | -0.7400 | -1.2683 | 0.1814 |
| | (-0.31) | (-0.47) | (-0.77) | (-0.70) | (-1.80) | (-0.23) | (-0.53) | (-0.11) | (-1.58) | (-1.59) | (0.24) |
| Mother works | -17.5115*** | 12.5416 | 0.8656 | -0.3977 | 1.0822 | 3.0831 | 0.9137 | -11.0897*** | 0.6311 | 2.8583* | 0.4635 |
| | (-3.96) | (1.46) | (0.45) | (-0.16) | (0.79) | (0.64) | (0.58) | (-3.55) | (0.08) | (1.94) | (0.19) |
| Mother school | -3.0410 | -1.3209 | 0.1521 | 2.5595 | 0.8188 | 1.2005 | -0.4218 | 3.0221 | 2.1219 | 0.0346 | -3.6685* |
| | (-1.55) | (-0.82) | (0.32) | (1.65) | (0.59) | (0.36) | (-0.24) | (1.12) | (1.30) | (0.04) | (-1.84) |
| Mother age | 0.5727* | -0.1555 | 0.0060 | 0.0778 | 0.0135 | -0.0089 | -0.1028 | -0.6025** | -0.0009 | 0.0889 | 0.1095 |
| | (1.96) | (-0.34) | (0.11) | (0.56) | (0.24) | (-0.04) | (-0.77) | (-2.62) | (-0.01) | (0.70) | (0.72) |
| Mother's assets | -0.2149 | 1.4218 | 0.0292 | -0.1093 | -0.0004 | 0.1077 | -0.0406 | -0.0395 | -0.0383 | -0.0662 | -0.0120* |
| | (-1.67) | (1.45) | (0.68) | (-1.40) | (-0.04) | (0.32) | (-1.28) | (-0.90) | (-0.71) | (-1.07) | (-1.94) |
| Constant | -30.8848 | 20.9837 | -2.1071 | -0.6825 | 3.1714 | 19.0586 | -0.3737 | 47.4303*** | 11.9661 | -0.3556 | 5.1597 |
| | (-1.70) | (0.54) | (-0.52) | (-0.10) | (0.83) | (1.62) | (-0.06) | (3.13) | (1.19) | (-0.05) | (0.54) |
| N | 232 | 158 | 162 | 720 | 2,834 | 308 | 856 | 480 | 519 | 267 | 418 |
| #fixed effects | 40 | 31 | 26 | 134 | 546 | 67 | 174 | 97 | 111 | 52 | 93 |
| within-R squared | 0.400 | 0.221 | 0.215 | 0.188 | 0.197 | 0.297 | 0.160 | 0.178 | 0.100 | 0.141 | 0.193 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Go back to <span style="background:lightblue">Alternative Inheritance Measures</span>

## Education outcomes

**Panel A: Wife Status and Gender**

| | Attends | | | Ever attended | | | Literate | | | Years edu. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wife 1 | 0.0364*** | -0.0001 | -0.0068 | 0.0591*** | 0.0069 | 0.0027 | 0.1241*** | 0.0168* | 0.0131 | 1.1328*** | 0.1237** | 0.0849 |
| | (0.0095) | (0.0112) | (0.0137) | (0.0082) | (0.0079) | (0.0103) | (0.0107) | (0.0102) | (0.0125) | (0.0770) | (0.0578) | (0.0808) |
| Wife 1 | | | 0.0080 | | | 0.0175 | | | 0.0278* | | | 0.1037 |
| | | | (0.0157) | | | (0.0125) | | | (0.0149) | | | (0.0983) |
| Wife 1 × Daughter | | | -0.0323* | | | -0.0324** | | | -0.0323* | | | -0.0411 |
| | | | (0.0181) | | | (0.0150) | | | (0.0187) | | | (0.1117) |
| Daughter | | | -0.0452*** | | | -0.0300** | | | -0.0153 | | | -0.0833 |
| | | | (0.0144) | | | (0.0124) | | | (0.0147) | | | (0.0817) |
| N | 7,401 | 7,401 | 7,401 | 7,223 | 7,223 | 7,223 | 7,161 | 7,161 | 7,161 | 7,177 | 7,177 | 7,177 |
| # fixed effects | 1,468 | 1,468 | 1,468 | 1,459 | 1,459 | 1,459 | 1,456 | 1,456 | 1,456 | 1,458 | 1,458 | 1,458 |

**Panel B: Wife Status and Inheritance**

| | Attends | | | Ever attended | | | Literate | | | Years edu. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wife 1 $(\beta_1)$ | | | -0.0450*** | | | -0.0130 | | | -0.0011 | | | 0.0545 |
| | | | (0.0172) | | | (0.0133) | | | (0.0170) | | | (0.1076) |
| Wife 1 × Inheritance | | | 0.0494*** | | | 0.0243 | | | 0.0259 | | | 0.0514 |
| | | | (0.0186) | | | (0.0152) | | | (0.0186) | | | (0.1113) |

**Panel C: Wife Status, Inheritance and Gender**

| | Attends | | | Ever attended | | | Literate | | | Years edu. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wife 1 $(\delta_1)$ | | | 0.0675*** | | | 0.0364* | | | 0.0125 | | | -0.0167 |
| | | | (0.0215) | | | (0.0191) | | | (0.0217) | | | (0.1380) |
| Wife 1 × Daughter $(\delta_2)$ | | | -0.0045 | | | -0.0135 | | | -0.0484* | | | -0.1184 |
| | | | (0.0258) | | | (0.0207) | | | (0.0247) | | | (0.1588) |
| Wife 1 × Inheritance × Daughter $(\delta_3)$ | | | -0.0406 | | | -0.0271 | | | 0.0286 | | | 0.1485 |
| | | | (0.0268) | | | (0.0221) | | | (0.0260) | | | (0.1643) |
| Wife 1 $(\beta_1)$ | | | -0.0427** | | | -0.0067 | | | 0.0211 | | | 0.1086 |
| | | | (0.0204) | | | (0.0177) | | | (0.0204) | | | (0.1387) |
| Daughter $(\beta_5)$ | | | -0.0467*** | | | -0.0306** | | | -0.0156 | | | -0.0828 |
| | | | (0.0145) | | | (0.0125) | | | (0.0148) | | | (0.0825) |
| Child controls | ✓ | | | ✓ | | | ✓ | | | ✓ | | |
| Mother Controls | | | ✓ | | | ✓ | | | ✓ | | | ✓ |
| N | 7,324 | | | 7,148 | | | 7,086 | | | 7,102 | | |
| # fixed effects | 1,451 | | | 1,442 | | | 1,439 | | | 1,441 | | |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Go back to  Specification Issues

# Adjusting for outlier values

| | Hrs (extensive) | Log(H'rs + 1)) | Log(H'rs+$\sqrt{H'rs^2+1}$) | H'rs winsorised[a] | Trimmed p95[b] |
|---|---|---|---|---|---|
| Wife 1 | 1.5392*** | 0.1479*** | 0.1779*** | 1.2350*** | 0.6393** |
| | (0.3856) | (0.0350) | (0.0421) | (0.3324) | (0.2947) |
| Birth rank | -0.1480 | -0.0190 | -0.0233 | -0.0860 | -0.1669 |
| | (0.2281) | (0.0184) | (0.0220) | (0.1802) | (0.1544) |
| Daughter | -2.3495*** | -0.1850*** | -0.2132*** | -2.1641*** | -1.7507*** |
| | (0.3579) | (0.0324) | (0.0388) | (0.3145) | (0.2579) |
| # bio. brothers | -0.2403 | -0.0016 | 0.0000 | -0.1323 | 0.0644 |
| | (0.1767) | (0.0143) | (0.0169) | (0.1512) | (0.1185) |
| # bio. sisters | -0.3090** | -0.0176 | -0.0199 | -0.2991** | -0.2432** |
| | (0.1573) | (0.0143) | (0.0172) | (0.1428) | (0.1201) |
| Mother works | -0.7534 | -0.0067 | -0.0031 | -0.4270 | 0.2638 |
| | (0.9013) | (0.0816) | (0.0979) | (0.8080) | (0.7418) |
| Mother school | 0.3406 | 0.0529 | 0.0648 | 0.4291 | 0.4734 |
| | (0.5506) | (0.0540) | (0.0655) | (0.4931) | (0.4097) |
| Mother age | 0.0101 | 0.0010 | 0.0011 | 0.0171 | 0.0181 |
| | (0.0404) | (0.0040) | (0.0048) | (0.0358) | (0.0319) |
| Mother's assets | -0.0106 | -0.0011 | -0.0013 | -0.0097 | -0.0053 |
| | (0.0071) | (0.0007) | (0.0008) | (0.0061) | (0.0049) |
| Constant | 5.3283** | 0.6258*** | 0.7637*** | 4.1275* | 3.0723 |
| | (2.5253) | (0.2146) | (0.2565) | (2.1096) | (1.8672) |
| N | 7,401 | 7,401 | 7,401 | 7,401 | 7,045 |
| # fixed effects | 1,468 | 1,468 | 1,468 | 1,468 | 1,452 |
| within-R squared | 0.136 | 0.194 | 0.195 | 0.144 | 0.128 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Go back to Specification Issues

# Functional form issues

| | Poisson[a] | Mundlak[b] | Honoré[c] | Any labour[d] |
|---|---|---|---|---|
| Wife 1 | 0.1389*** | 2.9197*** | 3.5573*** | 0.0497*** |
| | (0.0345) | (0.4749) | (0.7474) | (0.0094) |
| N | 6,122 | 7,401 | 7,401 | 7,401 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Child characteristics are controlled for, but estimates are not reported.

[a] Fixed-effects Poisson regression with standard errors in parentheses adjusted for clustering at the household-level.

[b] Random-effects Tobit estimates with mean values controlled for but not reported. Marginal effect reported.

[c] Honoré's trimmed least squares estimates.

[d] Random-effects probit model, marginal effect reported.

Go back to  Specification Issues

# Differences across mothers (GHS)

| | # Boys | # Girls | No child | Ever school | Literate | No edu. | Primary[a] | Secondary[a] | Higher edu | Y'rs edu. | Y'rs marr. | Emp. out[b] | Emp. farm[b] | Emp. Own.[b] | H'rs W'kd. | Log wage |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wife 1 | 0.803*** | 0.505*** | -0.142*** | -0.003 | -0.007 | -0.000 | 0.020 | -0.003 | -0.016* | -0.113 | 5.578*** | -0.003 | 0.014** | 0.030*** | 2.717*** | 0.060 |
| | (0.065) | (0.054) | (0.015) | (0.010) | (0.010) | (0.007) | (0.017) | (0.017) | (0.009) | (0.110) | (0.261) | (0.006) | (0.006) | (0.010) | (0.443) | (0.063) |
| Age | 0.191*** | 0.157*** | -0.038*** | 0.000 | -0.000 | 0.001 | 0.001 | 0.004 | -0.004 | -0.002 | 0.481*** | 0.004** | -0.000 | 0.014*** | 0.719*** | 0.034 |
| | (0.014) | (0.013) | (0.004) | (0.003) | (0.003) | (0.003) | (0.006) | (0.005) | (0.004) | (0.050) | (0.073) | (0.002) | (0.002) | (0.003) | (0.135) | (0.025) |
| Age squared | -0.002*** | -0.002*** | 0.000*** | -0.000* | -0.000 | -0.000 | 0.000 | -0.000* | 0.000 | -0.000 | 0.001 | -0.000*** | -0.000 | -0.000*** | -0.009*** | -0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) | (0.000) | (0.000) | (0.000) | (0.002) | (0.000) |
| Constant | -2.636*** | -1.997*** | 0.939*** | 0.497*** | 0.451*** | 0.015 | 0.611*** | 0.221** | 0.110 | 7.348*** | -2.974** | -0.037 | 0.249*** | 0.125** | 12.114*** | 8.326*** |
| | (0.293) | (0.272) | (0.082) | (0.059) | (0.057) | (0.060) | (0.112) | (0.107) | (0.073) | (0.972) | (1.387) | (0.031) | (0.040) | (0.063) | (2.545) | (0.477) |
| N | 7,389 | 7,389 | 7,389 | 7,269 | 7,285 | 3,839 | 3,839 | 3,839 | 3,839 | 3,839 | 6,772 | 7,137 | 7,130 | 7,132 | 7,389 | 941 |
| #fixed effects | 3,467 | 3,467 | 3,467 | 3,414 | 3,419 | 2,120 | 2,120 | 2,120 | 2,120 | 2,120 | 3,125 | 3,442 | 3,440 | 3,442 | 3,467 | 540 |
| within-R squared | 0.236 | 0.156 | 0.115 | 0.014 | 0.010 | 0.002 | 0.024 | 0.015 | 0.007 | 0.006 | 0.639 | 0.003 | 0.003 | 0.025 | 0.037 | 0.027 |

$* \ p < 0.10$, $** \ p < 0.05$, $*** \ p < 0.01$

Household fixed-effects estimates report. Standard errors in parentheses are adjusted for clustering at the household-level.

[a] The educational categories and include some up to competed primary and secondary education.

[b] The employment categories are based on a set of screening questions referring to the activity undertaken in the past 7 days. They comprise whether an

individual aged 5 or above has worked for someone who is not a member of your household, whether any work was undertaken on a farm owned or rented by a member of the household

or whether the person worked on their own account or in a business belonging to the person or someone in the household.

# Differences across mothers (NDHS)

| | First child son | Share b'm sons | # Children | # sons (home) | # daughters (home) | # sons (away) | # daughters (away) | # child death | Edu. y'rs | Literate | Edu. y'rs | Primary | Secondary |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wife 1 | 0.037* | 0.007 | 0.505*** | 0.465*** | 0.342*** | -0.178*** | -0.124*** | 0.018 | -0.016 | -0.147 | 0.011 | -0.014 | -0.007 |
| | (0.020) | (0.011) | (0.067) | (0.048) | (0.044) | (0.031) | (0.031) | (0.044) | (0.011) | (0.101) | (0.011) | (0.009) | (0.014) |
| Age | 0.007 | 0.006 | 0.564*** | 0.332*** | 0.349*** | -0.030* | -0.086*** | 0.072*** | -0.003 | -0.013 | -0.001 | -0.002 | -0.001 |
| | (0.009) | (0.006) | (0.028) | (0.020) | (0.018) | (0.012) | (0.012) | (0.021) | (0.004) | (0.039) | (0.005) | (0.004) | (0.007) |
| Age squared | -0.000 | -0.000 | -0.006*** | -0.004*** | -0.005*** | 0.001*** | 0.002*** | 0.000 | 0.000 | -0.000 | -0.000 | -0.000 | 0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.000) |
| Constant | 0.404*** | 0.413*** | -7.929*** | -4.448*** | -4.547*** | 0.220 | 0.845*** | -1.387*** | 0.220*** | 2.523*** | 0.155** | 0.184*** | 0.802*** |
| | (0.157) | (0.099) | (0.433) | (0.321) | (0.290) | (0.185) | (0.187) | (0.332) | (0.072) | (0.643) | (0.079) | (0.059) | (0.114) |
| N | 5,563 | 5,563 | 5,889 | 5,889 | 5,889 | 5,889 | 5,889 | 5,889 | 5,885 | 5,889 | 5,889 | 5,889 | 3,933 |
| #hh's | 2,749 | 2,749 | 2,760 | 2,760 | 2,760 | 2,760 | 2,760 | 2,760 | 2,760 | 2,760 | 2,760 | 2,760 | 2,184 |
| within-R squared | 0.002 | 0.001 | 0.465 | 0.236 | 0.190 | 0.089 | 0.203 | 0.152 | 0.009 | 0.019 | 0.000 | 0.020 | 0.002 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Household fixed-effects estimates report. Standard errors in parentheses are adjusted for clustering at the household-level.

The sample is restricted to women age 15 to 49 who are currently in a union that report their husband has multiple wives, and are either the household head, the spouse, the co-wive or co-spouse, and there are at least two wives in a given household.

# Wife Status and Decision Making (NDHS)

| | Wife's health care | Large purchases | Social visits | Husband's money |
|---|---|---|---|---|
| Wife 1 | -0.036*** | -0.029*** | -0.054*** | -0.012* |
| No controls | (0.008) | (0.007) | (0.009) | (0.007) |
| Wife 1 | -0.013 | -0.013 | -0.027** | -0.012 |
| Controlling for age | (0.011) | (0.011) | (0.012) | (0.010) |
| N | 5,883 | 5,873 | 5,882 | 5,873 |
| #hh's | 2,760 | 2,759 | 2,760 | 2,760 |
| within-R squared | 0.006 | 0.004 | 0.012 | 0.001 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Household fixed-effects estimates report. Standard errors in parentheses are adjusted for clustering at the household-level.
The sample is restricted to women age 15 to 49 who are currently in a union that report their husband has multiple wives,
and are either the household head, the spouse, the co-wive or co-spouse, and there are at least two wives in a given household.
The dependent variable is equal to 1 if the husband/partner is the sole decision maker.
The base categories are 'respondent and husband' or 'respondent alone' usually decides.

▶ But our results survive controlling for mother characteristics including fertility and age

▶ Back to  Robustness checks

# Random mother status within the household

| | Hrs (extensive) | | Hrs (intensive) | | Any labour | |
|---|---|---|---|---|---|---|
| Random wife 1 | 0.2835 | 0.2748 | 0.2456 | 0.4068 | -0.0090 | -0.0085 |
| | (0.2589) | (0.2705) | (0.3647) | (0.3741) | (0.0092) | (0.0099) |
| Birth rank | -0.1455 | -0.1175 | -0.0898 | 0.0113 | -0.0264*** | -0.0171** |
| | (0.2113) | (0.2304) | (0.3007) | (0.2974) | (0.0064) | (0.0071) |
| Daughter | -2.3665*** | -2.3509*** | -2.9787*** | -3.0634*** | -0.0192* | -0.0279** |
| | (0.3509) | (0.3570) | (0.5279) | (0.5294) | (0.0111) | (0.0117) |
| Age | 1.6379*** | 1.6499*** | 0.6101 | 0.6262 | 0.2110*** | 0.0806*** |
| | (0.3285) | (0.3427) | (0.5241) | (0.5126) | (0.0117) | (0.0137) |
| Age squared | -0.0312** | -0.0316** | 0.0171 | 0.0182 | -0.0116*** | -0.0087*** |
| | (0.0128) | (0.0132) | (0.0201) | (0.0198) | (0.0005) | (0.0005) |
| # bio. brothers | -0.0235 | -0.1618 | -0.2186 | -0.3838 | 0.0099** | -0.0057 |
| | (0.1549) | (0.1741) | (0.2512) | (0.2738) | (0.0048) | (0.0058) |
| # bio. sisters | -0.2097 | -0.2287 | -0.0258 | -0.0508 | 0.0003 | -0.0010 |
| | (0.1405) | (0.1522) | (0.2222) | (0.2372) | (0.0052) | (0.0059) |
| Mother works | | -0.4784 | | 0.0907 | | 0.0027 |
| | | (0.9132) | | (1.3350) | | (0.0291) |
| Mother school | | 0.3247 | | 0.8914 | | -0.0191 |
| | | (0.5511) | | (0.8699) | | (0.0217) |
| Mother age | | 0.1086*** | | 0.0736* | | 0.0014 |
| | | (0.0332) | | (0.0445) | | (0.0011) |
| Mother's assets | | -0.0032 | | 0.0053 | | 0.0002 |
| | | (0.0074) | | (0.0159) | | (0.0004) |
| Constant | -2.7259 | -6.2804* | 8.5557* | 5.0693 | -0.3250*** | 0.9857*** |
| | (2.9446) | (3.4129) | (4.4566) | (4.6810) | (0.0914) | (0.1198) |
| N | 7,696 | 7,402 | 4,161 | 4,032 | 7,696 | 4,032 |
| # fixed effects | 1,484 | 1,468 | 1,210 | 1,188 | 1,484 | 1,188 |
| within-R squared | 0.128 | 0.133 | 0.123 | 0.128 | 0.165 | 0.590 |

Standard errors in parentheses

Household-wave fixed effects estimates reported.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$