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

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Abstract

We develop a polygamous household model with child labour improving the value of the future inheritable asset. The model predicts that increasing mothers' relative bargaining power increases children's labour supply, especially when social norms assign a greater inheritance share to the mother's child.Using data from Nigeria and the variation in mothers' bargaining power and inheritance norms, we find that children of the first wife work more than children of other mothers within the polygamous household. This result is more pronounced for boys, landed households and settings where first wives increase their returns to inheritance via their offspring.

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1 Introduction

Family decisions regarding resources accumulation and their distribution are driven by individual decision-making power within the household. Power is a function of individual characteristics, such as relative incomes or education, and formal and informal institutions, such as the rule of law and traditional practices (Browning et al. 2014). Yet, despite the importance of cultural settings for the position of women within the household (Alesina et al. 2018, Lowes 2020, Ashraf et al. 2020) and that child outcomes differ depending on who controls income within the household (Duflo 2003, Armand et al. 2020), the relationship between social norms and women's bargaining power in determining human capital investments — in particular child labor — has received less attention in this literature.

This paper studies the effect of mother's status on human capital investments across siblings given differences in cultural norms. To do so, we draw upon the unique case of polygamous households where decisions are the outcome of a complex negotiation and bargaining power dynamics are not limited to husband and wife but include those between co-wives. This allows to identify variation in bargaining power within the household and analyse its effect on the variation of child outcomes when inheritance norms affect siblings to a different extent. Our identification strategy relies on two key assumptions. As bargaining power is assigned by the rank within the marriage order, it can be regarded as exogenous to child outcomes. The assumption of exogeneity of mother's bargaining power for child outcomes may be challenged by the fact that mother characteristics, in particular fertility outcomes, affect the decision to have multiple wives. We condition on fertility outcomes and mother characteristics to alleviate this concern. The second assumption is that given differences in inheritance norms that vary by gender and legal relation, access to inheritance can vary across siblings within the polygamous household. This variation is exogenous to child outcomes, once unobservable household characteristics have been taken into account. To validate this assumption, we guide our empirical analysis by a theoretical household model in which land quality depends on child labor and bargaining power varies across mothers. Children and mothers have a varying degree of land inheritance depending on the inheritance norm setting. The model predicts that the higher the bargaining power of one mother relative to her co-mothers, the longer are the hours worked on the farm by her children. This is more likely to occur if the child of the more powerful mother is the principal heir or if her valuation of child labor exceeds that of education.

We analyse the model's predictions using several waves of household survey data from Nigeria. Nigeria is the best possible case to validate our results because is a

country where polygamy affects around 28 percent of the population (Kramer 2020), first wives have been found to be more powerful (Munro et al. 2019), and multiple overlapping norms regarding inheritance coexist. We explore the variation in child labour supply due to differences in mothers' bargaining power within the household and inheritance norms drawing upon a variety of data sources, including inheritance measures at the level of the land area within the household, the community, and the ethnic group.

Contrasting previous evidence that junior wives'child labour supply compensates for the educational investments made for children of more senior wives (Mammen 2009), we find that children of the first wife work longer hours than children of other wives. This result is driven by boys, can be explained by landed households and is more likely to emerge when mothers only have access to a diminutive share of inheritance. Our results withstand a variety of robustness and specification checks including inheritance measures based on matched ethnographic information, different functional forms and addressing endogeneity of wife status. Using disaggregated data at the household-plot-child-level, we find that children, and especially boys, work more when they are entitled to inherit a particular piece of land, and that first wives' sons are 8.6 percentage points more likely to do so compared to sons of other mothers.

Our paper contributes to the growing literature on how social norms and institutions impact on parental investments in human capital across siblings. Recent work shows that the expansion of individual property rights led to significantly higher survival chances for male children in families without a first born son in a setting in which sons are entitled to inherit the land (Bhalotra et al. 2019). While progressive legislation aimed at improving inheritance rights of women had only limited direct effects on inheritance, it increased human capital investments in daughters as parents compensate their daughters by increasing their education (Roy 2015). La Ferrara & Milazzo (2017) find that boys in landed households who belong to the ethnic group most impacted by a land reform in Ghana, tend to experience a substantial reduction in schooling. In line with these findings, Jensen & Miller (2017) find that increasing the perceived returns to education in urban areas reduces school enrolment of boys as parents initially hoped they would remain at home to tend to the farm in the rural setting of India. While we do not analyse the effect of exogenous *changes* to social norms or institutions on the variation in child outcomes across gender, we focus on the effect of mother status and inheritance norms, both of which are unrelated to unobservables affecting outcomes across siblings *within* the polygamous household, once fertility decisions have been made.

More generally, our paper also contributes to the theoretical literature on child labour supply in developing countries (Basu 1999). We extend a standard collective model to a polygamous household that consists of more than two decision-makers. Unlike previous models that analyse the education-child-labour-trade-off (Reggio 2011), we assume that child labour not only generates disutility to the household (as it hampers the accumulation of human capital) but also utility, because it improves the quality of land and thus, the future value of the family inheritable asset. By doing so, child labour acts as long-term investment particularly attractive to parents of children who are more likely to inherit the land. While our findings are based on polygamous households data, they can be extended to settings in which gender-biased inheritance norms, differences in preferences and power within the household coexist. Basu (2006), for example, finds that when the distribution of power is skewed towards one parent, child labour supply can increase since the powerful parent can appropriate the resulting additional income. We expand this finding by showing that when there is uncertainty in the access to inheritance of mothers, working the land may appear to the relatively more powerful mother an attractive alternative to education, especially if it serves to provide her a greater return to future inheritance.

The paper proceeds as follows. Section 2 discusses power dynamics and inheritance norms in polygamous households with a focus on Nigeria. Section 3 presents the theoretical model and its key results. Section 4 contains our empirical framework, which is followed by a discussion of the sample and data characteristics. Section 6 summarizes the empirical results and robustness checks. A final section concludes.

2 Polygamous households

The literature on polygamous households highlights cooperation and rivalry among co-wives as driving forces for the intra-household allocation of resources.

2.1 Cooperation

One of the reasons that explains why polygamy is still widespread in Sub-Saharan Africa (SSA) is the production system that dominates the region.[1] Given that agriculture remains the main source of income, having a higher number of relatively cheap inputs to employ in home-based production can result in a more efficient system of household production (Jacoby 1995).

[1]Despite having declined during the past decades, more than one third of married women have been estimated to live in polygamous unions in African countries (Fenske 2015).

Cooperation among co-wives on household duties has been repeatedly reported as a way to optimally manage resources and energies over time in polygamous households (Ware 1979). Akresh et al. (2011) report a higher level of productivity obtained by polygamous compared to monogamous households due to higher cooperation among co-wives compared to husbands and wives for whom love or altruism may limit the strength of the punishment for violating an informal agreement (Otite 1991).

2.2 Conflict

As suggested by Becker (1981), although cooperation might occur in certain domestic spheres, rivalry among co-wives can still arise in other domains. Conflicting preferences without the possibility to enforce any binding, official agreement can result in inefficiencies of the distribution of household resources (Mammen 2009). Fertility competition across co-wives has been repeatedly reported to have negative externalities on child welfare in polygamous households in a variety of SSA countries resulting in increased child mortality, gender-biased child preferences and reduced birth intervals (Rossi 2019, Arthi & Fenske 2018, Milazzo 2014). Evidence of human capital investments suggests that children of more senior wives fare better than children of other mothers. Mammen (2009) finds that in the presence of borrowing constraints, children of more senior wives receive more education compared to children of junior wives, and spend less time in home production and related tasks. Similarly, children of senior wives were also observed to attend school more regularly than children of other mothers (Matz 2016).

Matz (2016) suggests that more productive wives are more likely to become first wives and, as such, have access to a higher share of household resources. In line with this finding, Dauphin et al. (2015) find that when the bargaining power of the first wife increases, this leads to higher expenditure on her own children at the expense of her husband's and co-wives' consumption.

2.3 Inside Nigerian households

The division of labour and 'within household responsibilities' vary significantly by location in Nigeria. In the North of the country where traditional cultures prevail "the man is not only seen as the head of the family but also the 'sole director' of the affairs taking place in the family ..." (Nwosuji 2008).

At age 20, less than 4% of men are married, compared to about 50% of women in rural areas. With early marriage and household responsibilities, women lose out

on labour market opportunities. For example, among Kanuri people women have been found to not enter the labor market increasing their reliance on husband and children (Grossbard-Shechtman 1976).

In rural areas, women supply around 60 to 80% of all labour but have less access to resources and limited decision-making power over their plots (World Bank 2019). The high proportion of women involved in farming and related activities (74%) and the disparity in the education received by girls trap most women in low-paid occupations, small household enterprises and non-farm business characterised by low productivity and potential to grow (Enfield 2006). Those disparities are greater in the North compared to the South of the country, where strong gender norms affects girls' educational attainment and, especially, secondary school completion.

2.3.1 Power distribution within the household

Also, the way polygamy is practiced in Nigeria varies across ethnic groups and geographic location. Within the Nigerian household, the dynamics of competition and rivalry among wives observed in other polygamous societies seem confirmed. Competition for affection and resources from the husband between nuclear family units headed by wives of different rank position is widespread among the Igbo (Egboh 1972). A survey conducted in Ibaden found that among the Yoruba, co-wife jealousy is primarily driven by competition over shares of economic resources (Ware 1979). Yoruba wives have been found to earn incomes and contribute to the household budget, but tend to hide their incomes from their husbands to gain autonomy in decision making (van Staveren & Ode bode 2007). Also among the Nupe in Western Nigeria limited cooperativeness among co-wives compared to husbands and wives has been observed in a series public-good-style investment games (Barr et al. 2019). Still, Yoruba wives cooperate in domestic tasks such as the provision of child care and food preparation within households (Saito et al. 1994). Similar observations have been made for the Hausa where "wives cook or sweep and do domestic work in rotation" (Otite 1991, p.21).

Seniority rankings among wives affect the distribution of resources within the Nigerian household with first wives having been repeatedly reported to be more powerful than other wives: "[. I]n a polygynous family [wives] are ranked according to their order of marriage, with the shelter of the senior one containing the most valuable property of the family." (Otite 1991, p.30).

Among Igbo wives, co-wives are regarded as a means to supplement the labour supply, while first wives enjoy several legal as well as social privileges, resulting in conflict (Arthi & Fenske 2018). First wives were also found to do less work and their

children receive preferential treatment (Ware 1979).

Evidence from Kano, Northern Nigeria, suggests that in polygamous households, in which men control the allocation of resources, first wives secure a relatively greater resource share than second wives (Munro et al. 2019). While the study finds that fertility and age affect the resource allocation in these household, these factors do not outweigh the first wife advantage. In line with these results, using the latest Demographic and Health Survey for Nigeria (NDHS), we find that first wives report a greater relative degree of autonomy in decision-making than other wives. Husbands are less likely to be reported to be the sole decision-makers regarding wife's health, large purchases, social visits and his own earnings (Table A3). However, this is mostly explained by the seniority of first wives: when differences in age of wives are taken into account, the difference vanishes except for decisions regarding social activities (Table A4).

[Table A3 and A4]

2.3.2 Inheritance norms

The literature examined so far often assumes that child labour limits the child's welfare (Reggio 2011), but especially in rural, agricultural economies where inheritance is one of the main mechanisms for the transmission of wealth, child labour may become a long-run investment.

The set of inheritable rights in Nigeria is mainly dictated by land tenure and marriage form. Land is divided into 3 major types: communal land, individual (or private) land or public (state) land. There is also customary land, held as a corporate aggregate across descent lines and family systems, which can be used jointly by any member. Eviction from such land is not possible without consent of the community. Private tenure in customary systems assigns the management of the land mainly to the family instead: the family head distributes rights to land that are inheritable to children but not alienable without consent of the head of the household.[2] The private rights referred to are mostly limited to usufructuary rights as the ultimate ownership rights rest with the community (Lloyd 1970). Once labour has been applied to clearing and cultivating a plot of land, it creates usufruct rights (Meek 1970*a*). Inheritance within the lineage, in particular in the patrilineage, is widespread across Nigeria's ethnic groups (Meek 1970*b*).

While all individuals who are members of the community or family have a right to a portion of the land, this does not apply to women as they are often considered as

[2]For a more detailed description of land tenure in Nigeria, see Emery (2006) or Lloyd (1970).

temporary household members and therefore, without the rights to acquire or inherit land if/when their husbands die (Achinewhu-Nworgu et al. 2019, van Staveren & Ode bode 2007). Upon a man's death, land may be divided among his male heirs or passed down solely to the eldest son, depending on community practice. Under customary tenure, women rarely inherit and mostly obtain use rights through their husbands or children. While women may not hold a right to the land "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 1970*b*, p. 294). The inheritance system under Islamic law provides more protection to woman's inheritance rights: widows inherit their husbands' properties together with their children; however, women have the right to inherit a small share only which is decreasing in the number of wives. Still, women without a son are extremely vulnerable facing possible eviction if a son or another member of the family fails to ensure her access to land (Lambert & Rossi 2016, Milazzo & van de Walle 2021).

To summarize, the existence of gender-biased inheritance norms in combination with absent old-age support systems often turn children into irreversible investments that determine wives' outside options in polygamous households, making co-wives primarily concerned with their nucleus family's rather than the overall household's welfare.

3 A Polygamous Household Model

Consider a household whose utility function is a linear combination of partners'/spouses' individual utility functions weighted by their bargaining power (Browning et al. 2014). In line with Reggio's (2011) adaptation of the collective model to a developing country, we focus on the child labour/schooling trade-off but in a setting in which children face different inheritance rights (Bhalotra et al. 2019, La Ferrara & Milazzo 2017) and bargaining power varies among wives within polygamous households.

3.1 Set Up

Each polygamous household consists of three partners: one husband (male), m, and two wives (female), fi, where $i = A, B$. For simplicity, we assume that each wife has one child from the same husband and her utility function is affected by elements that concern her biological child only.

The model unfolds over two periods: in the first period, each mother chooses the optimal amount of child labour. In the second period, children receive a fraction

of inheritance which represents the share of land each child is entitled to according to social norms, π.[3] In Nigeria, wives are considered temporary members of the household, hence they either inherit a small fraction of their husband's wealth or have access to inheritance via their child. We assume for now π to be exogenous. This is consistent with a well established rule of law that regulates inheritance norms for the household's members and is not affected by wives' rank (we relax this assumption in Section 3.4 below).

The utility of each wife depends directly on the consumption of public good $Q_{t,HH}$ in both periods and on the labour supply of each (adult) member of the household $L_{t,fi}$. Indirectly, the utility of each wife depends on V_i, i.e. the utility of her biological child which is a function of the expected value of the future inheritance (the stock of land $A_{t,HH}$) multiplied by π (or $(1-\pi)$), and the level of education, E_{Ci}. We assume the utility functions of both wives are increasing in consumption, in the education of their children, in the future value of inheritance, and decreasing in labor supply. These functions are concave, continuous and twice differentiable and separable in the sub-components.

$$U_{fA} = U_A\Big(Q_{1,HH}, Q_{2,HH}, L_{1,fA}, L_{2,fA}\Big) + V_A\Big(\pi A_{2,HH}, (1 - L_{CA})\Big) \tag{1}$$

$$U_{fB} = U_B\Big(Q_{1,HH}, Q_{2,HH}, L_{1,fB}, L_{2,fB}\Big) + V_B\Big((1-\pi) A_{2,HH}, (1 - L_{CB})\Big) \tag{2}$$

Children have a total amount of time available normalized to 1 that can be allocated to either attending school or working on the farm, so that $L_{Ci} \geq 0$, $E_{Ci} \geq 0$. The time constraint can be written as:

$$1 = L_{Ci} + E_{Ci} \qquad i = A, B.$$

In this model, the time both children contribute to domestic production, L_{Ci}, affects the stock of land to farm in $t = 2$, $A_{2,HH}$, which children inherit in the future.[4] The type of activities we consider as child labour are age-appropriate tasks that do not present hazards for the children such as family farm activities that can help them to learn valuable skills while contributing to household income such as clearing the land, preparing the soil and providing irrigation. Working on the farm improves the

[3] We assume women do not hold significant land and so we disregard a possible death/inheritance on their part.

[4] The rights associated with private land are mostly owned by the family head (predominately male) and are inheritable by his children. While women in the Islamic tradition are (in principle) entitled to inherit, they only get a diminutive share compared to her children. Their share is decreasing as the number of wives increases (Achinewhu-Nworgu et al. 2019).

long term value of the main asset (i.e. land) and the benefits of the amount of time spent working on the farm in $t = 1$ materialize in period $t = 2$, through a higher land productivity. We assume that the main work on land is conducted by the children. The stock of available land in $t = 2$ depends on the one in $t = 1$, normalized to 1, and the work done by the children in the previous period:

$$A_{2,HH} = A_{1,HH}(1 + \gamma_A L_{CA} + \gamma_B L_{CB}) \tag{3}$$

where $A_{1,HH}$ represents the stock of land in period $t = 1$, exogenously given and equal to 1; γ_A and γ_B are productivity parameters of each child. These parameters measure the ability/efficiency of children in completing their tasks and we assume that γ_A and γ_B in period one affect the returns to labor on land in period two, i.e. they are age independent.

As is standard in the literature, the time spent at school, E_{Ci}, is expected to increase the welfare of both biological parents, for example, because of expected improvement in the social standing of their children. This can be thought as a *pride effect* driven by the hope of realizing a better future for their children.

Since the benefits of the future inheritance, represented by the share of land inherited at $t = 2$ by both children, are gained by the heirs of a deceased husband only (wives and children), we assume that the husband derives utility of the public good produced in every period and indirectly of his children's education to an equal extent.[5] His utility function, increasing in consumption and education of both his children and decreasing in his labour supply, is concave and twice continuously differentiable:

$$U_m = U_m\Big(Q_{1,HH}, Q_{2,HH}, L_{1,m}, L_{2,m}\Big) + V_m\Big((1 - L_{CA}), (1 - L_{CB})\Big) \tag{4}$$

By combining equations (1), (2) and (4), the household welfare function HH, is defined as a weighted average of the husband and spouses individual welfare

[5]For now, we assume children to be both male. We will then relax this assumption to analyse the effects of a gender biased inheritance system.

functions:

$$HH = \mu_A \Big[\sum_{t=1}^{2} U_A(Q_{t,HH}, L_{t,fA}) + V_A(\pi A_{2,HH}, (1 - L_{CA}))\Big] \tag{5}$$

$$+\mu_B \Big[\sum_{t=1}^{2} U_B(Q_{t,HH}, L_{t,fB}) + V_B((1-\pi) A_{2,HH}, (1 - L_{CB}))\Big] \tag{6}$$

$$+(1 - \mu_A - \mu_B)\Big[\sum_{t=1}^{2} U_m(Q_{t,HH}, L_{t,m}) + V_m((1 - L_{CA}), (1 - L_{CB}))\Big] \tag{7}$$

The weight μ_i represents the decisional power of each spouse within the household with $0 < \mu_A \leq 1$ and $0 < \mu_B \leq 1$. μ is considered to be a function of exogenous factors that affect the distribution of power within the household, but do not directly alter preferences or incomes (Browning et al. 2014). While identifying the distribution of power within the monogamous household is complicated, wife rankings are generally available in polygamous households and can be classified as one factor determining μ_i in this setting (as discussed in more detail in Section 2.3.1 above). As our model focuses on the intra-household labour allocation of children of different mothers within the polygamous household, this set up not only allows us to analyze the sharing of resources between the husband and his wives, but also how the bargaining power of one wife affects both her biological and her co-wife's children's welfare.

Total household production, $Y_{t,HH}$ represents the farm production in each period obtained with the household owned factor inputs: land ($A_{t,HH}$) and both adult and child labour ($L_{t,fi/m}, L_{Ci}$ respectively). Child and adult labour differ in productivity. This is expressed by separating their effect into the production function. Domestic farm production is characterised by the following function:

$$t = 1 \qquad Y_{1,HH} = F_1(L_{1,fA}, L_{1,fB}, L_{1,m}) + G_1(A_{1,HH}) \tag{8}$$

$$t = 2 \qquad Y_{2,HH} = F_2(L_{2,fA}, L_{2,fB}, L_{2,m}) + G_2(A_{2,HH}) \tag{9}$$

where $A_{t,HH}$ represents the stock of land in both periods, L_{CA} and L_{CB} are the child labour inputs when working on the farm by the children. The production functions satisfy standard properties (i.e. strictly increasing, twice differentiable).

In each period, the budget constraint faced by the household is given by:

$$t = 1 \qquad Q_{1,HH} + \tau(E_A + E_B) + S = Y_{1,HH} \tag{10}$$

$$t = 2 \qquad Q_{2,HH} = S + Y_{2,HH} \tag{11}$$

where the price of the public good is normalized to 1, τ represents the cost of education (measured in-kind, so non-pecuniary) equal for both children and S represents a non perishable good/asset that can be stored for one period at no cost.

Combining (10) and (11), together with (8) and (9), we obtain the intertemporal budget constraint:

$$\begin{aligned} &F_1(L_{1,fA}, L_{1,fB}, L_{1,m}) + G_1(A_{1,HH}) - \tau[(1 - L_{CA}) + (1 - L_{CB})] - Q_{1,HH} \\ &+F_2(L_{2,fA}, L_{2,fB}, L_{2,m}) + G_2(A_{1,HH}(1 + \gamma_A L_{CA} + \gamma_B L_{CB})) - Q_{2,HH} = 0 \end{aligned} \quad (12)$$

We assume children's productivity does not vary by gender i.e. $\gamma_A = \gamma_B = \gamma$.[6]

Maximising function (5) subject to (12) with respect to L_{CA} and L_{CB} provides us with the first order condition. Rearranging to obtain the implicit function F:

$$\begin{aligned} F \equiv &\left\{\mu_A \left[\frac{\partial V_A}{\partial A_{2,HH}}\gamma\pi - \frac{\partial V_A}{\partial(1 - L_{CA})}\right] - (1 - \mu_A - \mu_B)\frac{\partial V_m}{\partial(1 - L_{CA})}\right\} \\ -&\left\{\mu_B \left[\frac{\partial V_B}{\partial A_{2,HH}}\gamma(1 - \pi) - \frac{\partial V_B}{\partial(1 - L_{CB})}\right] - (1 - \mu_A - \mu_B)\frac{\partial V_m}{\partial(1 - L_{CB})}\right\} = 0 \end{aligned} \quad (13)$$

3.2 Mother status and human capital investment

To study the effects of a variation in the wives' bargaining power on children's labour supply, we proceed by totally differentiating L_{Ci}, a child's labour supply, with respect to the bargaining power of wife i, μ_i, using the Implicit Function Theorem:

$$\frac{dL_{CA}}{d\mu_A} = -\frac{\partial F}{\partial \mu_A} \Big/ \frac{\partial F}{\partial L_{CA}} \qquad \text{and} \qquad \frac{dL_{CB}}{d\mu_A} = -\frac{\partial F}{\partial \mu_A} \Big/ \frac{\partial F}{\partial L_{CB}} \quad (14)$$

We focus on the effect of an increase in the bargaining power of wife A on the labour supply of both children, A and B. Full derivation, and analogous results for wife B, can be found in Appendix A. We find the following:

Result 1 *If the bargaining power of wife A is relatively greater than of wife B* $\left(\frac{\mu_A \pi}{\mu_B(1-\pi)} > \frac{\partial^2 V_B}{\partial^2 A_{2,HH}} \Big/ \frac{\partial^2 V_A}{\partial^2 A_{2,HH}}\right)$*, child i's labour supply is decided by the preferences of wife A.*

Both children's labour supply changes depend on the size of the relative bargaining power of wife A and/or the size of inheritance of the children. A higher bargaining power of wife A with respect to wife B is a sufficient but non necessary condition to have $\frac{\partial F}{\partial L_{Ci}} < 0$. Because of the higher bargaining power,

[6] Results continue to hold when removing this assumption and are available upon request.

($\mu_A > \mu_B$), wife A chooses child i's labor supply according to her preferences only (see equation (A.11) in the Appendix A for example). In case of child A, wife A faces a trade off between how much she cares about the marginal gain of her child inheriting fraction π of the land, $\partial V_A/\partial A_{2,HH}$ and the marginal benefit she derives from the child's education, $\partial V_A/\partial(1 - L_{CA})$. This tradeoff is fortified by π: the higher is the share of inheritance her child receives, the higher is the child's labour supply. But π alone does not explain the result as it still holds under the assumption of equal inheritance shares for both children as long as $\mu_A > \mu_B$. The same rationale applies in case of child B's labour supply although the motivations behind this differ: when wife A has more bargaining power than B, she wants both children (A and B) to work more on the farm, but labour supply of child A increases to reinforce the future ownership on the land the mother benefits from ((A.10) and (A.11)), whereas the labour supply of child B increases so that in the long run child A (and wife A as a result) inherits an asset with a higher value ((A.10) and (A.17)). If our theoretical results are correct, in our empirical analysis below (Section 6.1), we should find children of the first wife to provide a higher number of working hours. We wouldn't expect a difference in labor supply across siblings if wife A is able to control the labor supply of both children.

If her preferences for education, instead, exceed her estimate of the future returns to the inherited asset, her child's labour supply decreases ($\frac{\partial L_{CA}}{\partial \mu_A} < 0$). In case of child B, wife A decides the labour supply of the child of the other mother on the basis of her preferences (see equation (A.10)): since the asset's value is improved by the work of both children, the greater is the share of inheritance for her biological child, the more she would like child B (who inherits less) to work on the farm.

Prediction 1 *Children of the first wife provide more labour supply (or receive more education), compared to the children of other mothers if they inherit.*

Result 2 *If the bargaining power of wife A is relatively smaller than of wife B* $\left(\frac{\mu_A \pi}{\mu_B(1-\pi)} < \frac{\partial^2 V_B}{\partial^2 A_{2,HH}} / \frac{\partial^2 V_A}{\partial^2 A_{2,HH}}\right)$*, child i's labour supply is decided mainly (but not only) by the inheritance share of the child of the most powerful wife.*

1. In this case, $\frac{\partial F}{\partial L_{Ci}} > 0$. This due to the fact that wife B's power cannot be compensated by the joint bargaining power of wife A and husband, m.

   In case of child A, since $\mu_A < \mu_B$, and therefore, wife B is more likely to gain the benefits of the future inheritance, wife A wants child A to work less on the

household farm. Hence, $\frac{\partial L_{CA}}{\partial \mu_A} < 0$. However, the higher is child's B inheritance share, the more likely is that $\frac{\partial L_{CA}}{\partial \mu_A}$ is positive: since the future value of land is improved by the labour supply of child A too, wife B, with her power, controls child A's labour supply so that her child (and her, ultimately) inherits an asset with a higher value.

In case of child B, the final sign of $\frac{\partial L_{CB}}{\partial \mu_A}$ is positive when the inheritance share of child B is higher than child A. Wife A, despite the increase in her bargaining power, still has less power than wife B, who, because of the higher inheritance share, chooses her child to work more on the farm. When, instead, the inheritance share of child A is higher than child B, the final sign of $\frac{\partial L_{CB}}{\partial \mu_A}$ is negative: because of wife B's relatively higher power, she controls her child's labour supply such that the child does not to work on the farm when inheriting a smaller share.

2. Despite wife B being more powerful, wife A still decides child A's labour supply according to her preferences only. But in order to exercise control of the labour supply of her biological child, wife A needs to team up with her husband so that the joint power of wife A and husband can compensate wife B's power (see equations (A.11)-(A.13) in Appendix A). As a consequence $\frac{\partial F}{\partial L_{CA}} < 0$ and the higher the share child A is entitled to inherit, the more likely it is that $\frac{\partial L_{CA}}{\partial \mu_A} > 0$, implying a positive labour supply for child A.

3.3 Gender biased inheritance

So far we assumed that social norms assign to both children a positive inheritance share. Inheritance rights, like most rights in Nigeria, are tilted towards men. When it comes to intestate devolution of properties, wives and daughters typically get little or nothing in comparison to the male counterparts.

Assume, therefore, child A is the sole heir (male), i.e. $\pi = 1$, because of the gender-biased inheritance system, whilst child B (female) is formally excluded from inheritance (i.e.$(1 - \pi) = 0$).

Result 3 *When Child A is the sole heir his labour supply is increasing in wife A's bargaining power.*

An inheritance system that favors sons over daughters increases the weight of the mother's marginal utility of the future inheritance when her first child is a son (see equation (A.24) in Appendix A). When $\pi = 1$, wife A knows that her child has assigned the biggest share of inheritance, therefore, in a system that guarantees

those rights, she wants her child to work more on the farm to increase the value of the estate that he (and she ultimately) inherits.

As across ethnic groups and religions, a higher share of inheritance is usually granted to boys, Result 3 shows that the mother of boys wants them to work more on the farm. Hence, we expect those providing more working hours among children to be boys compared to girls.

Prediction 2 *The more powerful mother wants her sons to work more than daughters on the farm when boys inherit more than girls.*

3.4 π as an endogenous function of bargaining power

Assume, now, π is a function of wives' relative position within the household ($\pi = \pi(\mu_A, \mu_B) = \frac{\mu_A}{\mu_A+\mu_B}$). To study how child A's labour supply, L_{CA}, varies with respect to an increase in the bargaining power of the biological mother, μ_A, we compute again $\frac{dL_{CA}}{d\mu_A}$ (full derivation can be found in the Appendix A).

Result 4 *Child A's labour supply is increasing in the bargaining power of the most powerful wife.*

There are instances in which the wife with the relatively higher bargaining power is wife A. Hence, the weight of the marginal utility of inheritance for wife A is greater than the one of her child's education. The already observed increase of child A's labour supply is even more pronounced when π is endogenous: when multiple rules of law co-exist and regulate inheritance rights, bargaining power may become key in determining the share of assets heirs are entitled to. However, it can also be that wife B has more bargaining power than wife A. If this is the case, then child A's labour supply increases so that wife B inherits an asset with a higher value. When, instead, $\frac{\partial F}{\partial L_{CA}} > 0$, (i.e. negative due to the minus in front of the expression), the final effect is ambiguous.

Prediction 3 *When inheritance norms are ambiguous, wife's status is a key factor in explaining child labor supply.*

Consistently with Ashraf et al. (2020), our results suggest that children's inheritance shares contribute in shaping parents' investments in their education. Our results extend also the *Wealth Paradox* of Bhalotra & Heady (2003) to the polygamous household environment but rather than *owning* the land, it is the possibility of *inheriting* the land in the future that exacerbates the parental trade-off between

labour supply and education in our framework. In particular, we show that where the rights/access to land for widows is not guaranteed and those rights are determined by a mix of non-prevailing norms creating inequality across siblings, having a higher rank within the polygamous household (hence, bargaining power) provides the opportunity to the most powerful wife within the household to choose the children's (A and B) labour supply according to her preferences only (Result (1)). If this is the case, we would not expect any difference in labour supply across siblings, unless her preferences favour education. If instead her power is not so strong within the household, in order to exercise full control of her child's labour supply she needs to have her husband's support (Result 2.2).

In a setting where instead the rule of law assigns inheritance shares to all the children in the household, independently of the rank of their mother, the role of bargaining power becomes less crucial. Differences in the labour supply across children emerge depending on both their inheritance share and the bargaining power of their mother. If mother A has less bargaining power than B and her child has a smaller inheritance share compared to B, then she does not want her child to provide labour supply (Result 2.1).

For landed households in rural areas, this could mean that the child more likely to inherit the family's land receives less education and works longer hours, conditional on the relative bargaining power his/her mother has within the household. The result becomes even more likely if the child is a boy and inheritance norms privilege boys over girls (Result (3)). But if the mother has a stronger preference for education, her child would spend less time working on the farm.

Result 4 identifies the role of inheritance norms on children's labour supply and predicts the more uncertain is the rule of law regarding how inheritance rights are assigned, the more important the bargaining power of wives becomes for the allocation of resources among household members.

4 Empirical framework

To test the predictions of our model and disentangle the effect of the bargaining power of the first wife and inheritance norms on the labour supply (and human capital outcomes) across children of different mothers (Prediction 1), we specify an empirical model as:

$$y_{iht} = \alpha + \delta w_{ih} + \boldsymbol{\gamma} \boldsymbol{x}_{iht} + \eta_{ht} + \varepsilon_{iht} \tag{15}$$

where y_{iht} is labour supply or educational outcome of child i in household h in wave t. w_{ih} takes on the value of one if child i is the child of the first wife, and $\boldsymbol{x}$ is a vector of child and mother characteristics (discussed in detail below). η_{ht} is a household-wave fixed effect that captures child-invariant father/household characteristics, such as, genetic characteristics or cultural factors affecting all children in a given household and wave equally.

As inheritance is the mechanism identified by our theoretical framework (Prediction 2), we also estimate

$$\begin{aligned} y_{iht} =& \alpha + \beta_1 w_{ih} + \beta_2 I_{ht} + \beta_3 g_{ih} + \delta_1 (I_{ht} \times w_{ih}) \\ &+ \delta_2 (g_{ih} \times w_{ih}) + \delta_3 (I_{ht} \times w_{ih} \times g_{ih}) + \boldsymbol{\gamma x}_{iht} + \eta_{ht} + \varepsilon_{iht} \end{aligned} \tag{16}$$

where I_{ht} is an inheritance indicator (discussed in detail in Section 5.3) and g_{ih} is an indicator taking the value of one if the child is a girl and zero otherwise. Given that I_{ht} and η_{ht} are perfectly collinear, the parameter estimate of β_2, the inheritance difference of sons of mothers other than the first wife, cannot be identified.

The parameter estimate of $\beta_1 + \delta_1$ is the difference in sons' labour supply across mothers' status when the inheritance indicator is equal to one, such as for ethnic groups in which the mother has access to inheritance (Table A1 summarizes the expected differences in labour supply across mother status, inheritance regime and gender). β_1 measures the difference in human capital investments between first wives' sons and those of other mothers when the inheritance indicator is equal to zero. δ_1 is the inheritance difference in labor supply for sons of the first wife.

To test Prediction 3, we analyse heterogeneity in inheritance and bargaining power using the fact that the Sharia states in Northern Nigeria provide a setting in which π can be regarded as exogenously determined (inheritance across mothers is explicitly written into the law (Lambert & Rossi 2016)) while in non-Sharia states there is arguably much more ambiguity on inheritance rules.

5 Data sources and sample characteristics

The main data we use is drawn from the Nigeria General Household Panel Survey (GHS) collected by the Nigerian Bureau of Statistics.[7]

[7]Nigeria National Bureau of Statistics. General Household Survey, Panel (GHS-Panel) 2010-2011; 2012-13; 2015-15; and 2018-19. Ref.NGA_2010_GHSP_v02_M, Ref.NGA_2012_LSMS_v03_M, Ref.NGA_2015_GHSP-W3_v02_M, and Ref.NGA_2018_GHSP-W4_v01_M downloaded from www.microdata.worldbank.org [first accessed 31 Oct 2014, last accessed 16 Oct 2020].

5.1 Data sources

The GHS is part of a larger cross-sectional survey that covers 22,000 households following an initial 5,000 households interviewed in 2010-11 (wave 1), re-interviewed in 2012-13 (wave 2), 2015-16 (wave 3) and 2018-19 (wave 4).

A unique feature of the GHS is that it contains a community questionnaire which collects information about access to and acquisition of land.[8] The questionnaire is answered by a group of a minimum of five knowledgable, representative individuals of the community and asks if villagers can "inherit land and/or bequeath land when they die" and if women can do so.[9] To analyse the intra-household labor allocation and inheritance more explicitly and to corroborate the results, we also draw upon the agricultural questionnaires of the GHS which collect individual labor supply and inheritance information at the land plot level.[10] We also link our data to the information on inheritance provided by the *Ethnographic Atlas*, added to Murdock's *Ethnographic Map* and digitalized by Blier and Nunn.[11] To increase the sample size and incorporate recent inheritance norms, we draw upon ethnicity data from the *Atlas Narodov Mira*/GREG (Geo-referencing of ethnic groups) data (Weidmann et al. 2010), and add inheritance information for each matched ethnic group[12]

We use the 2018 NDHS to ascertain the validity of our data and analyse correlates of wife rank, power and observable characteristics further.

[8]The community questionnaire is conducted at the enumeration area level (primary sampling unit) and there are approximately 400 to 500 enumeration areas per wave.

[9]Given that the first wave of the data does not contain the information on inheritance in the community questionnaire and the short time interval between the first and second waves, we impute the inheritance information of the first wave with the second wave data.

[10]Wave 1 does not contain plot-level inheritance information, so we exclude it from the plot-level analysis.

[11]Available on: https://worldmap.harvard.edu/data/geonode:Murdock_EA_2011_vkZ [last accessed 04/12/20]. We update missing information using the *Atlas of Pre-Colonial Societies* for Nigeria, an extended *Atlas* version based on Müller (1999) that has been used in recent studies (Corno et al. 2020), which is available on: https://www.worlddevelopment.uzh.ch/en/atlas/Data.html [last accessed 04/12/20]. As the names of the ethnic groups in the *Atlas* do not always correspond to the names on the *Map*, we use alternative spellings, names and subgroup affiliations (Fenske 2013), and draw upon online sources, such as the Joshua Project, to increase the matching of ethnic groups across the two data sources. A list of the ethnic groups matched across the *Map* and the *Atlas* can be found in the Appendix Table A15.

[12]A detailed list of the sources of information and the ethnic/inheritance grouping can be found in the Appendix Table A2.

5.2 Sample

We classify a household as being polygamous if it contains a household head who co-resides with multiple spouses.[13]

Our unit of analysis is children aged 5 to 17 for whom information of human capital outcomes is collected. Across the waves, there are 10,665 households with children of the head of the household and his spouses in this age group, constituting 2,737 households, or 56 percent, of the initial sample households (Table 1 and Table A5). Of all households who have children of this age, about 28 percent are polygamous with about 51 percent of these having children of different mothers. This amounts to 37 and 24 percent of all children, respectively (Table 1). In general, polygamous households are more heavily concentrated in Northern and Northeastern Nigeria than in Southern Nigeria (see Figure A1).

The plot-level data consists of 2,522 plots on which child labor is supplied with about 60 percent of these from multiple children.

5.3 Variable construction

The household head explicitly identifies the first wife among his spouses and the way the data is entered allows construction of an unambiguous wife ranking in the GHS. Based on this, we create an indicator variable if child i's mother is the first wife (w_{ih}). As the great majority of households only co-resides with two wives (only 19.54 percent of households have more than 2 wives in our data), we cannot explore the role of wife's rank beyond the first wife.

Information about working hours during the past seven days for the primary and secondary jobs is collected for all individual household members aged 5 and above. The GHS questionnaires are generally consistent across the waves, but there are some differences. While wave 1 and 2 collect information on water and firewood collection in minutes/hours using a one day recall, wave 3 collects this information in minute interval format and wave 4 contains a full time-use module that collects hours spent during the last 7 days. We convert this information into weekly totals and add it to create a more comprehensive measure of hours of work. η_{ht} in (15) absorbs any differences in questionnaire design across the waves.[14] We use the

[13] While co-residence may be a restrictive assumption, Reynoso (2017) finds that cohabitation of wives could amount to 86 percent in Nigeria. Using data from the NDHS, we find that about 30 percent of all women aged 15 to 49 who are in a union report their husbands have multiple wives. Only 7.5 percent of these do not reside with their partner and co-residence among wives amounts to 68.7 percent.

[14] The interviewer manual explicitly asks to collect labor and education information of individuals directly, unless the person is below the age of 12.

total hours worked including zero hours of work, as a measure of labour supply at the extensive margin, and the working hours conditional on supplying labour, as a measure of labour supply at the intensive margin, as outcome variables (y_{iht}). In addition to hours of work, we classify a child as supplying 'substantial' child labour if she is younger than 12 and worked at least an hour during the past week; she is aged between 12 and 14 and works for more than 13 hours per week or if she is between 15 and 17 years of age and works more than 43 hours per week (Edmonds 2008).[15] To measure educational outcomes, we construct an indicator of whether the child was attending school during the current school year, whether she ever attended school, whether she is literate and a years of schooling measure.[16]

Plot-level labor supply is collected in hours for up to four household members and two agricultural seasons per wave, which we aggregate at the individual-plot-level. We use three analogue measures of labor supply in the plot-level data: the total hours worked, the logarithm of the total hours worked and the share of labor in plot-level family labor.

To measure I_{ht}, we create an indicator variable whether women in the village in which the child resides can inherit land as an indication of mothers' access to inheritance. To distinguish inheritance settings further we draw upon plot-level inheritance and ethnographic information. Plot-level inheritance information is collected for multiple household members and allows constructing an indicator of whether a child inherits a particular plot of land. Using the GREG data, we classify settings in which 'Children can inherit with daughters receiving less' as in some customary traditions (such as Yoruba and Nupe) and 'Patrilineal systems (first sons)' as in most customary traditions (such as the Igbo, Jukun and Idoma, Bini, Bura); systems in which only sons are entitled to inherit; and systems in which 'Spouses and children are entitled to inherit with daughters receiving less' (such as for the Fulbe, Hausa, Kanuri and Bade). When using the *Atlas*, we use analogue codings for I_{ht} except for inheritance systems that include spouses as this is not available in the *Atlas* data.

We control for several child characteristics, such as a full set of age fixed effects, gender, and the number of biological brothers and sisters. Given the importance

[15]This measure is based on the ILO allowable age of employment and has been used in various instances to measure child labour supply (e.g. NORC 2020). It is associated with a decline in child labor over the age groups with 27.62 supplying substantial labor among the 12 to 14 year old children while only 4.4 percent do so among the ones aged above 15 in our data.

[16]We use the highest level of education completed for those not currently attending school to construct a years of schooling measure and we use the level of enrollment and subtract the current year for those currently enrolled. Given Nigerian educational categories that are difficult to relate to exact years of schooling (for instance, 'completed koranic' and 'adult education'), our 'years of schooling variable' is likely to be measured with error so we only report the results for this outcome for completeness.

of seniority rankings among children for inheritance, we also account for the 'birth rank' by ranking all the biological children of the household head by their age rather than using a birth order measure constructed at the parental sub-unit level.[17]

Given that mother characteristics contribute to explaining decision-making capacities within polygamous households (see Table A3 and A4), we include a set of mother characteristics such as her age; the net value of her assets in '000 Naira (for bargaining-effects); her work status in the past week and her education to alleviate possible endogeneity concerns of w_{ih}.

5.4 Descriptive statistics

Table 1 contains descriptive statistics for the pooled data of all children of the household head aged 5 to 17, children in polygamous households, and children in polygamous households with different mothers (our sample). Table A5 presents additional summary statistics by wave.

[Table 1]

Polygamous households with children aged 5 to 17 are more likely to be located in the Sharia region, in a rural area and the head of the household to be Muslim compared to the full children sample (see Table 1, column (2) compared to (3) and (4)). Polygamous households have, on average, 2.8 additional members (column (2) and (3)), and households with multiple children add about 1.4 members to this (column (3) and (4)). Contrary to common perception that women are generally not entitled to land inheritance in Nigeria, 52 percent of households live in a community in which women are reported to be able to inherit or bequest land.[18] Notably, girls work relatively less than boys in settings in which mothers are entitled to inheritance compared to those in which they are not (Figure 1).

[Figure 1]

[17]Unlike the DHS, the GHS does not contain detailed birth records of mothers, but the data allows us to match children to their biological parents within the household. As we cannot unambiguously rank children in the case of twins we allocate them the same birth rank.

[18]There is a notable increase in the access to inheritance of women in wave 4 compared to the earlier waves of the data (Table A5). While Nigeria passed a Violence against Persons Prohibition Act in the end of 2015, which also contains a small provision for the rights of widows, only few states adopted the act and we do not find these states to have a greater fraction of communities in which women inherit. The increase could be in parts due to a partial refreshment of the sample in wave 4 in which 1,425 of the original households were tracked, and 3,551 new households were added.

Despite the reduction in sample size when restricting the sample to polygamous households with 'multiple children from different mothers' (column (4)), the child and mother characteristics are very similar compared with the 'full' polygamous sample (column (3)).

6 Results

6.1 Do the children of the first wife provide more labour supply than children of other mothers?

To test Prediction 1, Tables 2 and 3 present estimates of Equation (15) for labour supply and educational outcomes, respectively.

[Table 2 and Table 3]

Across the specifications, we find that children of the first wife work longer hours than children of other mothers (Table 2). They are also 2 to 5 percentage points more likely to supply substantial labour, and this holds true accounting for various child and mother characteristics. This is consistent with our theoretical model: being the wife with the higher rank implies more bargaining power, which translates into the first wife choosing the labour supply of the children according to her preferences. In a setting in which inheritance is unequal across children, more bargaining power means more hours of work of her child relative to other children if the child is the principal heir.

The birth rank does not affect hours of work at the intensive or extensive margin but, conditional on age, later born children are less likely to supply substantial labour. This is in line with previous findings (Ejrnæs & Pörtner 2004). There is a strong general gender effect with daughters working significantly less than sons, on average, conditional on child characteristics and that our labour measure underestimates domestic labour supply (see Section 5.3).

We do not find a strong, consistent pattern for educational outcomes (Table 3). If anything, the results suggest that children of the first wife fare better than children of other mothers as they are more likely to currently attend school, to have ever attended school, to be literate and have more years of education. While these results are consistent with the theoretical model in that the first wife can choose according to her preferences, the results are not robust to the inclusion of co-variates.

6.2 Do sons of the first wife work more than daughters?

To test Prediction 2, we focus now on gender effects more explicitly by adding $g_{ih} \times w_{ih}$ to Equation (15). In this specification, the estimate attached to w_{ih} measures the first wife difference in child labor supply for boys while the coefficient on the interaction term measures how far the first wife labor supply effect varies across child gender. We find our prediction confirmed: Sons of first wives work more than sons of others mothers; daughters of wives other than the first, work less than their sons; daughters of first wives work substantially less than their sons, but not much more than daughters of other mothers (see Table 4).

[Table 4]

It could be that the first born children in our sample are disproportionately from the first wife and, as a result, our estimates are picking up birth order rather than mother status effects. To analyse first born effects beyond our 'birth rank' variable, we create a dummy variable for the first born based on our 'birth ranking' of children of the household head, and interact it with the first wife indicator and add it to Equation (15). The first born dummy variable and the interaction effect are both insignificant and the parameter estimate of the first mother status is not affected by their inclusion (Appendix Table A6).

6.3 Do inheritance norms explain differences in labor supply across mothers?

To analyse whether inheritance norms explain the gender differences in labour supply observed in the previous section, we estimate Equation (16). In our main specification, I_{ht} is equal to one when women can inherit and/or bequest land in the community in which the child resides (see Section 5.3). In section 6.5.2 we distinguish inheritance settings further drawing upon alternative data sources (discussed in Section 5.1).

[Table 5]

Table 5 shows that first wives' sons work longer hours than sons of other mothers when their mothers are entitled to a share of the inheritance than when they are not ($\beta_1 + \delta_1$). This effect is driven by sons of first wives working longer in settings in which their mothers are included in the inheritance than when they are not (δ_1). In fact, the difference of sons' labour supply across wives in settings in which mothers are not included in the inheritance (β_1) vanishes once the interaction between w_{ih}

and I_{ht} is included (column (2) to (4), Table 5). While these results do not strictly align with the predictions made in Result 1, they support the transmission channel outlined in the result: facing the prospect of increasing the returns to mothers' future land, first wives' sons will work longer hours. No similar effect is found for settings in which women do not have access to inheritance (when mothers are not entitled to inherit, labor supply differences across mother status do not vary by child gender i.e. δ_2 is not significant). We do not find a consistent pattern for girls. For education, we find a first wife advantage in settings in which mothers are entitled to inherit compared to when they are not, as sons of the first wife are more likely to currently or ever attend education when their mothers are entitled to inheritance. In settings in which mothers are not entitled to inheritance, first wives' sons are less likely to attend schooling compared to sons of other mothers.

If it is the case that first wife mothers encourage their children to work longer hours when they are more likely to inherit the key family asset, our results should only be true for households who own some land. In line with this argument, we indeed find that the increased labour supply of children of the first wife is driven by households that own land (see Appendix Table A7). As in Bhalotra & Heady (2003), our results support the idea that working on the farm can be considered a long-term first best option for landowner households.

Rather than laying future rights to the land by the means of child labour, our results may be driven by households in which women have generally more rights to farming the land and may as such immediately benefit from labour supply. To analyse if this is the case, we use information on property rights from the community questionnaire and, instead of I_{ht}, we use an indicator variable if women have access to property rights of land in Equation (16). Contrary to our findings in Table 5, we do not find that the effect of mothers' bargaining power varies by property rights rules (δ_1 is insignificant in Table 6). If anything, it is in settings without a provision to property rights that sons of the first wife work more. This is in line with our theoretical predictions and the qualitative literature on the use of child labor to gain access to markets in some parts of Nigeria (Schildkrout 1982), in that once women's access to land is restricted to the returns to their offspring's labor, mothers' limited economic options incentives them to draw upon their children as a source of income.

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

Prediction 3 suggests that when inheritance shares depend on the wife's rank, bargaining power becomes the key determinant of labour supply, since future inheritance shares are influenced by the wives' status: when the rule of law and formal institutions do not provide security on future wealth, social norms (i.e. wife's status) fill the gap shaping parental's incentives. Given that polygamous marriages are recognised by Sharia law and inheritance across mothers is explicitly written into the law (Lambert & Rossi 2016), the Sharia states in Northern Nigeria provide a setting in which π can be regarded as exogenously determined, while in non-Sharia states there is arguably much more ambiguity on inheritance rules. In fact, in Non-Sharia states, 63.80 percent of households live in communities in which women cannot inherit which compares to 29.33 percent of households in Sharia states in our sample. While the great majority of households in Sharia states is headed by a Muslim, in Non-Sharia states 46.11 percent of households are headed by a Christian and 48.83 percent by a Muslim. Table 7 summarizes the results when we split the sample into Sharia versus Non-Sharia states.

[Table 7]

Our results suggest that the findings in Table 5 can be in parts explained by Sharia states: when inheritance is exogenously determined, sons of the first wife work longer hours conditionally on their mother being entitled to inheritance (δ_1 is driving the result). With more ambiguous inheritance norms, the effect of mother's bargaining power is not channeled via the inheritance rules (as β_1 is driving the result). As second marriages are generally not recognised by law in Non-Sharia states, and the majority of mothers do not have access to inheritance in many customary traditions, the only way to increase the returns to land is by having the child work longer hours and this is independent of the existing inheritance norms. If anything, increasing female bargaining power reduces sons' labor supply in societies with pro-female inheritance norms relative to those without (δ_1 is negative but it is not significant).

6.5 Robustness and specification checks

6.5.1 Endogenous wife status

Children of the first wife may work longer hours because first wives differ in many observable characteristics from their co-wives, reflecting and affecting their relative

position within the household (Matz 2016). Table A8 summarizes differences in characteristics across wives in the GHS for all polygamous households in which wives co-reside.

[Table A8]

The results suggest that first wives are older than their co-wives by about 7 years (column (2)) and are, reflecting their rank and age, married for a longer time (column (12)). First wives are about 5 percentage points more likely to have attended or completed primary education and 3 percentage points less likely to have attended or completed secondary education relative to their co-wife counterparts. The difference in educational outcomes across wives is explained by differences in age: Once age and cohort effects are taken into account, there are no significant differences in educational outcomes across wives (Appendix Table A9 and A10).

Somewhat unexpectedly, first wives have, on average, more children than other wives. They have about 1.6 more children (1 son and 0.6 daughters) and are 16 percentage points less likely to be childless (column (5)). This holds true when accounting for age (Appendix Table A9 and Table A10) and cohort effects (Figure A2). These fertility differences across wives are consistent with the latest NDHS in which first wives have, on average, 1.8 children more than their co-wive(s) (Appendix Table A11 and Table A12).[19]

In line with Matz (2016), our data suggests that first wives are more productive than their co-wives: they are 5.4 percentage points more likely to have worked in the past seven days on their own account or in a business enterprise belonging to herself or to another household member. First wives work, on average, 3.7 hours more per week and, when working for a wage, they tend to earn 11.3 percent more compared to their co-wives. It could be that these productivity differences reflect an age-driven division of labour between wives, with younger wives specializing in home production and older wives pursuing tasks outside the household consistent with their children's age, but our results, except for earnings, hold true when controlling for mothers' age (Appendix Table A9 and Table A10).

While significant differences in characteristics exist across wives in polygamous households, accounting for mother characteristics in equation (15) such as for age, labour supply and education does not significantly affect the parameter estimates of the mother's status on child labour supply (see Table 2, column (4), (7) and (10)).

[19]This suggests that selection into (co-residence) polygamy is not primary due to the low number of children of the first wife in the setting from which our data is drawn, which is in contrast to previous findings (Milazzo 2014), but we cannot rule out that fertility differences do affect residence status.

Controlling in addition to the sibling composition for the total number of children of mothers does not affect size or significance of our results (see Appendix Table A13).

In order to test whether our results may be driven by chance, we randomly assign first wife status across mothers within the household and re-estimate Equation (15) in a falsification exercise. There is no evidence to suggest that our results are driven by chance (Appendix Table A14).

6.5.2 Alternative Inheritance Measures

Plot-level labor supply and inheritance norms. While the community data allows identifying if women have access to inheritance, it does not allow identifying who has access to inheritance within the household. To analyse the variation in labor supply across siblings due to inheritance systems, mother status and child gender within the household, we draw upon the plot-level data. We account for mother and child characteristics and for household-plot-wave-fixed-effects to control for any plot-specific child-invariant characteristics, such as the plot's soil quality or whether there are multiple heirs to the same plot.

[Table A16]

Table A16 summarizes the plot-level estimates indicating that children entitled to inherit a plot of land supply relatively more labor on it than children who do not (panel 1, Table A16) and that this effect is mostly driven by boys (panel 2, Table A16). We do not find that the first wife difference in sons labor supply varies by inheritance system but, in line with our findings so far, sons of the first wife work longer hours than sons of other mothers (panel 3, Table A16).

First wives' sons are also 8.6 percentage points more likely to report inheriting a plot of land than sons of other mothers. While there is no difference in likelihood of inheriting between daughters of the first wife and those of other mothers, daughters of mothers other than the first are less likely to inherit than their sons and this sibling gender difference is even more pronounced for children of the first wife (Table A17).

[Table A17]

If first wives use their son's labor to establish ownership/access to land, we would expect this result to be driven by inheritance systems in which the family has no right to bequeath the land of a plot or bequeathing the land requires community approval. Given the richness of the agricultural questionnaire, we use information of whether a plot can be bequeathed and on whether inheritance rests outside the

household accounting for household-wave-fixed effect and a range of plot characteristics. We do not find evidence that the first wife difference in child labor can be explained by community inheritance norms (village headman, traditional authority or political leader inherits), whether community approval is needed to bequeath a plot or whether the family has the right to bequeath the plot at all (results available upon request).

Ethnographic inheritance information. While the community data allows identifying if women have access to inheritance, it does not allow distinguishing inheritance settings further. To do so and to corroborate our findings, we link our data to the information on inheritance provided by the *Ethnographic Atlas* and ethnicity data from the *Atlas Narodov Mira*/GREG. Appendix Tables A18 to A20 summarize the results using different inheritance measures based on the GREG data. The results generally align with our findings: in a setting in which the mother has access to a diminutive share of inheritance, it is her sons that work longer hours. In contrast, when the mother is entirely excluded from the inheritance such as in patrilineal inheritance settings (Table A20), δ_1 is negative and the entire first wife difference in labour supply is driven by β_1. This finding can be aligned with Result 3 of our theoretical framework: once the more powerful mother faces the prospect of increasing her returns to inheritance, it will be the child yielding the highest return that will work more. Using the *Ethnographic Atlas*, we find that it is sons of first wives who work longer hours when children are entitled to inherit compared to sons of other mothers ($\delta_1 + \beta_1$, Table A21). While this is mostly due to patrilineal inheritance systems favoring sons (Table A22), the size of $\delta_1 + \beta_1$ is now principally due to β_1, the first wife difference in labour supply in settings in which children are not entitled to inherit, which may be explained by the fact that the *Atlas* data does not contain information on whether spouses have access to inheritance.

Ethnicity vs. Inheritance. It could be that rather inheritance *per se*, it is particular ethnic groups driving our results. Appendix Table A23 uses the GREG data to split the sample into different ethnic groups to see if the difference in child labour across mother status relates to a particular ethnic group. The ethnic groups driving our results are the Hausa, Yoruba, Tiv, Jukun and Idoma, and Nupe. Ranging from practicing 'no individual property' (Tiv) to following 'Islamic law' (as many Hausa), no clear pattern emerges across these groups. This could be due to several sociopolitical changes affecting existing inheritance norms even *within* ethnic groups, such as British colonial rule or the establishment of Sharia law in the North of the country.

While patrilinear inheritance practices are widespread across the Nigerian society, there is a considerable heterogeneity due to the co-existence of multiple overlapping (legal) inheritance norms within the various ethnic groups which may explain the lack of pattern of results by ethnicity.

6.5.3 Specification issues

Information on hours of work tends to be measured with error especially for children. To analyse the extent to which outlier values are driving our results, we transform the dependent variable in several ways. First, we log transform hours of work after adding a positive constant. Second, we take the inverse hyperbolic sine of hours of work. Third, we winzorise hours of work values that exceed the 95th percentile value at the geopolitical zone-level with the 95th percentile value, and finally we exclude observations for which hours of work exceed the 95th percentile value within each wave. Table A24 in the Appendix summarizes the results, which are consistent with our previous findings.

Hours of work are zero for a great fraction of children in our sample. In order to account for the truncated nature of the data, we also estimate a range of non-linear models. The addition of the fixed effects leads to the 'incidental parameter problem' that contaminates all parameter estimates in the Maximum Likelihood setting, which is particularly severe given the number of parameters to be estimated increases as $N \to \infty$ but T is fixed. First differencing or demeaning the data does not eliminate η_h in this setting (Hsiao 2003). As a result, we estimate a fixed effects poisson model, a Mundlak/Chamberlain type of random effects Tobit models and Honoré's (1992) trimmed least squares model. The results are consistent and get more pronounced once the truncation of the data has been taken into account (Table A25).

As children of the same mother are likely to exhibit unobserved common characteristics and first wives tend to have more children than other wives, we repeat the estimation of the key specifications adjusting the standard errors for the intra-mother correlation of error terms across siblings by cluster-bootstrapping the standard errors (reported in Appendix Table A26), which yields consistent results.

Our sample is restricted to children aged 5 to 17. As compulsory schooling covers 9 years in many countries, including in Nigeria, the age bracket to define child labour usually consists of children who are 5 to 14 years old. Restricting the sample further to children who are 5 to 14 year old yields results that are similar in magnitude and significance (reported in Appendix Table A27 and A28).

7 Conclusion

This paper documents the importance of inheritance norms and female bargaining power for investments in children's human capital in settings where formal institutions and markets operate only with limited force. We develop a polygamous household model in which child labour improves the quality of land, the main inheritable asset. We show that inheritance norms that prioritize a particular child incentivize mothers to prefer child labour over educational investments, and particularly so for mothers who are relatively more powerful with a child who is the principal heir.

Using data from Nigeria, we find that children of the more powerful mother work more than children of other mothers within the polygamous household. This result is driven by boys, can be explained by landed households and is more likely to emerge when mothers have only access to a diminutive share of inheritance. This is in line with our theoretical framework: when the returns to child outcomes vary across wives but the distribution of power within the household limits the control wives can place on the labor supply of children of other mothers, the husband joins the least powerful wife to mediate the resource allocation across wife-child-nuclear-units to guarantee optimal household welfare.

In addition to improving our understanding of the relationship between bargaining power, household structures and child outcomes, our findings highlight the importance of inheritance norms for designing development policies aimed at female empowerment. The UN Convention on the Elimination of All Forms of Discrimination against Women condemns gender-based discrimination in inheritance practices and states that polygamy breaches the convention as it "severely undermines equality in marriage and family relations" (UN 2016, p.9). Studying the case of Nigeria, a country in which polygamy is widespread, land is one of the most valuable assets and multiple legal practices coexist, this paper shows the importance of taking power struggles within the household into account when designing policies to promote human capital investments in settings with complex family structures and gender-biased inheritance norms.

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

	All children	Polygamous households	Polygamous different mothers
Child characteristics			
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	8.44
H'rs. lab.	24.83	26.09	26.00
H'rs. domestic	4.09	4.43	4.40
Emp. (=1)	0.33	0.35	0.36
Attends edu.	0.72	0.65	0.65
Ever att. edu.	0.83	0.77	0.77
Literate (=1)	0.58	0.50	0.50
Birth rank	3.36	4.20	4.66
# Biological brothers	2.08	2.11	1.94
# Biological sisters	1.74	1.64	1.53
# Child-wave obs.	31,842	11,746	7,727
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	7.67	10.46	11.82
Total land area (m^2)	83.47	98.95	103.14
Polygamous (=1)	0.28		
# Household-wave obs.	10,665	2,934	1,486

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 17 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.

Figure 1: Labour supply by gender and inheritance

Notes: The figure illustrates the distribution of the logarithm of the hours worked during the last week by child gender and land inheritance arrangement in the community in which the child resides. The data is pooled across the GHS waves.

Table 2: Estimates of mother status on child labour supply in polygamous households

	H'rs (OLS)	H'rs (extensive)			H'rs (intensive)			Any labour		
Wife 1	2.4278***	3.2180***	1.4925***	1.5393***	2.3163***	0.9829**	0.9035*	0.0172*	0.0548***	0.0506***
	(0.3781)	(0.3034)	(0.3088)	(0.3856)	(0.4051)	(0.4176)	(0.5449)	(0.0103)	(0.0099)	(0.0124)
Birth rank			-0.1477	-0.1478		-0.0131	-0.0046		-0.0249***	-0.0248***
			(0.2289)	(0.2281)		(0.2953)	(0.2948)		(0.0068)	(0.0068)
Daughter			-2.3628***	-2.3494***		-3.0902***	-3.0771***		-0.0252**	-0.0247**
			(0.3586)	(0.3579)		(0.5259)	(0.5286)		(0.0110)	(0.0110)
# bio. brothers			-0.2379	-0.2403		-0.3836	-0.3941		0.0021	0.0016
			(0.1768)	(0.1767)		(0.2776)	(0.2774)		(0.0049)	(0.0050)
# bio. sisters			-0.3164**	-0.3090**		-0.1200	-0.1027		-0.0043	-0.0044
			(0.1574)	(0.1573)		(0.2395)	(0.2426)		(0.0054)	(0.0054)
Mother works				-0.7534			-0.0566			0.0261
				(0.9013)			(1.3453)			(0.0291)
Mother school				0.3407			0.8469			0.0155
				(0.5506)			(0.8663)			(0.0203)
Mother age				0.0101			0.0119			0.0009
				(0.0404)			(0.0574)			(0.0014)
Mother's assets				-0.0106			0.0029			-0.0004
				(0.0071)			(0.0148)			(0.0003)
Constant	10.0606***	6.8662***	5.3008***	5.3243**	14.4202***	11.2015***	10.3684***	0.3511***	0.4213***	0.3677***
	(1.4403)	(0.1626)	(1.9711)	(2.5246)	(0.2355)	(2.6817)	(3.3948)	(0.0055)	(0.0565)	(0.0784)
N	7,404	7,404	7,404	7,404	4,034	4,034	4,034	7,404	7,404	7,404
# fixed effects	794	1,469	1,469	1,469	1,189	1,189	1,189	1,469	1,469	1,469
within-R squared	0.046	0.023	0.135	0.136	0.012	0.132	0.132	0.000	0.227	0.228

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

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

OLS estimates control for wave and zone fixed effects.

Age fixed effects are controlled for but estimates are not reported.

Table 3: Fixed effects estimates of mother status and birth order on educational outcomes in polygamous households

	Attends			Ever attended			Literate			Years edu.		
Wife 1	0.0364***	-0.0001	-0.0067	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)
Birth rank		-0.0034	-0.0030		-0.0073	-0.0072		0.0014	0.0014		-0.1651***	-0.1661***
		(0.0060)	(0.0060)		(0.0055)	(0.0055)		(0.0069)	(0.0069)		(0.0480)	(0.0481)
Daughter		-0.0622***	-0.0620***		-0.0471***	-0.0469***		-0.0321***	-0.0323***		-0.1050	-0.1049
		(0.0109)	(0.0109)		(0.0094)	(0.0094)		(0.0111)	(0.0111)		(0.0646)	(0.0642)
# bio. brothers		0.0057	0.0053		0.0035	0.0032		0.0061	0.0060		0.0379	0.0351
		(0.0060)	(0.0061)		(0.0038)	(0.0039)		(0.0051)	(0.0052)		(0.0271)	(0.0276)
# bio. sisters		0.0095	0.0094		0.0103**	0.0103**		0.0061	0.0058		0.0670**	0.0658**
		(0.0064)	(0.0064)		(0.0045)	(0.0045)		(0.0053)	(0.0053)		(0.0320)	(0.0320)
Mother works			0.0234			0.0105			0.0152			-0.2003
			(0.0283)			(0.0224)			(0.0238)			(0.1460)
Mother school			0.0348			0.0084			-0.0046			-0.0768
			(0.0231)			(0.0176)			(0.0217)			(0.1096)
Mother age			0.0008			0.0006			0.0001			0.0052
			(0.0014)			(0.0011)			(0.0013)			(0.0091)
Mother's assets			0.0001			0.0000			0.0003			0.0029*
			(0.0003)			(0.0002)			(0.0004)			(0.0017)
Constant	0.6331***	0.3977***	0.3364***	0.7353***	0.5393***	0.5089***	0.4307***	0.1482***	0.1357*	2.2651***	1.5748***	1.5698***
	(0.0051)	(0.0525)	(0.0746)	(0.0044)	(0.0489)	(0.0632)	(0.0058)	(0.0569)	(0.0721)	(0.0415)	(0.3907)	(0.5108)
N	7,404	7,404	7,404	7,226	7,226	7,226	7,164	7,164	7,164	7,180	7,180	7,180
# fixed effects	1,469	1,469	1,469	1,461	1,461	1,461	1,458	1,458	1,458	1,460	1,460	1,460
within-R squared	0.003	0.111	0.112	0.010	0.136	0.136	0.027	0.258	0.258	0.047	0.505	0.505

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

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

Age fixed effects are controlled for but estimates are not reported.

Table 4: Estimates of mother status on child labour supply by child gender

	H'rs (extensive)	H'rs (intensive)	Any labour	Attends	Ever attended	Literate	Years edu.
Wife 1 × Daughter	-1.7510***	-1.5836**	-0.0285	-0.0323*	-0.0324**	-0.0323*	-0.0411
	(0.5233)	(0.7531)	(0.0195)	(0.0181)	(0.0150)	(0.0187)	(0.1117)
Wife 1	2.3395***	1.6183**	0.0636***	0.0080	0.0175	0.0278*	0.1036
	(0.4647)	(0.6575)	(0.0156)	(0.0157)	(0.0125)	(0.0149)	(0.0983)
Birth rank	-0.1498	-0.0020	-0.0248***	-0.0031	-0.0072	0.0014	-0.1662***
	(0.2278)	(0.2941)	(0.0068)	(0.0060)	(0.0055)	(0.0069)	(0.0481)
Daughter	-1.4359***	-2.2065***	-0.0098	-0.0452***	-0.0300**	-0.0153	-0.0833
	(0.4088)	(0.6095)	(0.0144)	(0.0144)	(0.0124)	(0.0147)	(0.0817)
# bio. brothers	-0.2317	-0.3883	0.0017	0.0054	0.0033	0.0062	0.0353
	(0.1767)	(0.2780)	(0.0050)	(0.0061)	(0.0039)	(0.0052)	(0.0276)
# bio. sisters	-0.3163**	-0.1151	-0.0045	0.0092	0.0101**	0.0057	0.0656**
	(0.1576)	(0.2438)	(0.0054)	(0.0064)	(0.0045)	(0.0053)	(0.0320)
Mother works	-0.7888	-0.0179	0.0255	0.0228	0.0097	0.0145	-0.2012
	(0.8959)	(1.3378)	(0.0291)	(0.0282)	(0.0222)	(0.0237)	(0.1459)
Mother school	0.3541	0.8369	0.0157	0.0351	0.0086	-0.0043	-0.0765
	(0.5518)	(0.8701)	(0.0203)	(0.0231)	(0.0176)	(0.0217)	(0.1096)
Mother age	0.0137	0.0145	0.0010	0.0009	0.0007	0.0002	0.0053
	(0.0404)	(0.0573)	(0.0014)	(0.0014)	(0.0011)	(0.0013)	(0.0091)
Mother's assets	-0.0106	0.0021	-0.0004	0.0001	0.0000	0.0003	0.0029*
	(0.0072)	(0.0147)	(0.0003)	(0.0003)	(0.0002)	(0.0004)	(0.0017)
Constant	4.7917*	9.7926***	0.3590***	0.3266***	0.4991***	0.1257*	1.5575***
	(2.5328)	(3.3730)	(0.0787)	(0.0752)	(0.0634)	(0.0719)	(0.5121)
N	7,404	4,034	7,404	7,404	7,226	7,164	7,180
# fixed effects	1,469	1,189	1,469	1,469	1,461	1,458	1,460
within-R squared	0.137	0.134	0.228	0.112	0.137	0.258	0.505

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

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

Age fixed effects are controlled for but estimates are not reported.

Table 5: Fixed effects estimates of first wife difference by group (women inherit)

	H'rs (extensive)	H'rs (intensive)	Any labour	Edu. attending	Edu. ever att.	Literate	Years edu.
Wife 1 × women inherit ($\boldsymbol{\delta_1}$)	2.0817***	1.6088	0.0870***	0.0675***	0.0364*	0.0124	-0.0167
	(0.7653)	(1.0171)	(0.0238)	(0.0215)	(0.0191)	(0.0217)	(0.1380)
Wife 1 × Daughter (δ_2)	0.1879	0.4501	0.0130	-0.0045	-0.0135	-0.0484**	-0.1184
	(0.7664)	(1.0638)	(0.0270)	(0.0258)	(0.0207)	(0.0247)	(0.1588)
Wife 1 × women inherit × Daughter (δ_3)	-2.8864***	-2.9195**	-0.0632**	-0.0406	-0.0271	0.0286	0.1484
	(0.9386)	(1.3148)	(0.0299)	(0.0268)	(0.0221)	(0.0260)	(0.1643)
Wife 1 ($\boldsymbol{\beta_1}$)	0.9310	0.4346	0.0079	-0.0427**	-0.0067	0.0212	0.1086
	(0.6949)	(0.9197)	(0.0221)	(0.0204)	(0.0177)	(0.0204)	(0.1387)
Daughter (β_3)	-1.4763***	-2.2733***	-0.0097	-0.0467***	-0.0306**	-0.0156	-0.0828
	(0.4109)	(0.6114)	(0.0145)	(0.0145)	(0.0125)	(0.0148)	(0.0825)
$\boldsymbol{\beta_1 + \delta_1}$	3.013	2.043	0.095	0.025	0.030	0.034	0.092
SE($\beta_1 + \delta_1$)	0.527	0.751	0.018	0.017	0.014	0.017	0.107
$\boldsymbol{\beta_1 + \delta_2}$	1.119	0.885	0.021	-0.047	-0.020	-0.027	-0.010
SE($\beta_1 + \delta_2$)	0.671	0.925	0.023	0.023	0.016	0.021	0.127
$\boldsymbol{\beta_1 + \delta_1 + \delta_2 + \delta_3}$	0.314	-0.426	0.045	-0.020	-0.011	0.014	0.122
SE($\beta_1 + \delta_1 + \delta_2 + \delta_3$)	0.532	0.789	0.018	0.019	0.016	0.019	0.114
N	7,327	3,991	7,327	7,327	7,151	7,089	7,105
#fixed effects	1,452	1,176	1,452	1,452	1,444	1,441	1,443
within-R squared	0.139	0.132	0.231	0.116	0.139	0.259	0.506

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

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

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

Table 6: Fixed effects estimates of first wife difference by group (women prop. rights)

	H'rs (extensive)	H'rs (intensive)	Any labour	Edu. attending	Edu. ever att.	Literate	Years edu.
Wife 1 × women prop. rights ($\boldsymbol{\delta_1}$)	-0.6340	-0.6181	0.0203	0.0343*	0.0270	0.0205	-0.0463
	(0.7895)	(0.9652)	(0.0238)	(0.0207)	(0.0184)	(0.0224)	(0.1358)
Wife 1 × Daughter (δ_2)	-2.0668**	-2.2360**	-0.0344	-0.0187	-0.0125	-0.0450*	-0.1087
	(0.8075)	(1.0826)	(0.0278)	(0.0266)	(0.0208)	(0.0240)	(0.1527)
Wife 1 × women prop. rights × Daughter (δ_3)	0.7244	1.5258	0.0118	-0.0185	-0.0295	0.0251	0.1452
	(0.9509)	(1.2557)	(0.0300)	(0.0284)	(0.0234)	(0.0267)	(0.1635)
Wife 1 ($\boldsymbol{\beta_1}$)	2.6043***	1.7888**	0.0500**	-0.0210	-0.0000	0.0165	0.1244
	(0.6724)	(0.8888)	(0.0222)	(0.0195)	(0.0175)	(0.0198)	(0.1303)
Daughter (β_3)	-1.4498***	-2.2327***	-0.0093	-0.0467***	-0.0307**	-0.0163	-0.0854
	(0.4110)	(0.6118)	(0.0145)	(0.0144)	(0.0125)	(0.0148)	(0.0822)
$\boldsymbol{\beta_1 + \delta_1}$	1.970	1.171	0.070	0.013	0.027	0.037	0.078
SE($\beta_1 + \delta_1$)	0.551	0.743	0.018	0.017	0.014	0.018	0.112
$\boldsymbol{\beta_1 + \delta_2}$	0.537	-0.447	0.016	-0.040	-0.013	-0.029	0.016
SE($\beta_1 + \delta_2$)	0.644	0.869	0.022	0.023	0.017	0.021	0.128
$\boldsymbol{\beta_1 + \delta_1 + \delta_2 + \delta_3}$	0.628	0.461	0.048	-0.024	-0.015	0.017	0.115
SE($\beta_1 + \delta_1 + \delta_2 + \delta_3$)	0.546	0.797	0.018	0.019	0.015	0.019	0.112
N	7,330	3,994	7,330	7,330	7,154	7,092	7,108
#fixed effects	1,453	1,177	1,453	1,453	1,445	1,442	1,444
within-R squared	0.137	0.131	0.229	0.115	0.139	0.259	0.506

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

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

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

Table 7: Fixed effects estimates of first wife difference by group (Sharia)

	H'rs (extensive)		H'rs (intensive)		Any labour		Edu. attending		Edu. ever att.		Literate		Years edu.	
	Sharia	Non-sharia	Sharia	Non-sharia	Sharia	Non-sharia	Sharia	Non-sharia	Sharia	Non-sharia	sharia	Non-sharia	Sharia	Non-sharia
Wife 1 × women inherit ($\boldsymbol{\delta_1}$)	2.7336***	-1.2744	2.6009**	-1.6299	0.1231***	0.0254	0.0644**	0.0561	0.0021	0.0446	-0.0145	0.0404	0.0661	0.1075
	(0.9539)	(1.0451)	(1.2012)	(1.5346)	(0.0310)	(0.0399)	(0.0290)	(0.0367)	(0.0284)	(0.0294)	(0.0288)	(0.0379)	(0.1842)	(0.2305)
Wife 1 × Daughter (δ_2)	0.6276	-0.9761	1.1039	-0.3458	0.0601*	-0.0446	0.0130	-0.0280	-0.0225	-0.0086	-0.0666*	-0.0455	-0.1357	-0.1983
	(1.1169)	(1.0148)	(1.4580)	(1.5202)	(0.0359)	(0.0410)	(0.0344)	(0.0384)	(0.0333)	(0.0226)	(0.0356)	(0.0338)	(0.2278)	(0.2203)
Wife 1 × women inherit × Daughter (δ_3)	-3.9303***	2.3549	-4.5037***	2.2935	-0.1214***	0.0622	-0.0474	-0.0067	-0.0049	-0.0402	0.0729**	-0.0267	0.2523	0.0161
	(1.2306)	(1.4455)	(1.6678)	(2.0984)	(0.0375)	(0.0537)	(0.0346)	(0.0475)	(0.0326)	(0.0359)	(0.0351)	(0.0448)	(0.2293)	(0.2553)
Wife 1 ($\boldsymbol{\beta_1}$)	0.4806	1.9501**	-0.4900	1.4773	-0.0366	0.0601*	-0.0445	-0.0377	0.0250	-0.0309*	0.0251	0.0221	-0.1105	0.2989
	(0.9289)	(0.9518)	(1.1363)	(1.3860)	(0.0309)	(0.0317)	(0.0298)	(0.0279)	(0.0295)	(0.0185)	(0.0304)	(0.0258)	(0.1990)	(0.1890)
Daughter (β_3)	-2.1273***	-0.0733	-2.6165***	-1.3818	-0.0207	0.0096	-0.0619***	-0.0210	-0.0465***	-0.0023	-0.0458**	0.0388	-0.2457**	0.1950
	(0.5593)	(0.5805)	(0.8473)	(0.8704)	(0.0186)	(0.0232)	(0.0184)	(0.0237)	(0.0163)	(0.0194)	(0.0184)	(0.0236)	(0.0999)	(0.1404)
$\boldsymbol{\beta_1 + \delta_1}$	3.214	0.676	2.111	-0.153	0.087	0.086	0.020	0.018	0.027	0.014	0.011	0.062	-0.044	0.406
SE($\beta_1 + \delta_1$)	0.647	0.748	0.908	1.152	0.022	0.031	0.021	0.031	0.019	0.023	0.021	0.031	0.126	0.201
$\boldsymbol{\beta_1 + \delta_2}$	1.108	0.974	0.614	1.131	0.024	0.016	-0.031	-0.066	0.002	-0.040	-0.042	-0.023	-0.246	0.101
SE($\beta_1 + \delta_2$)	0.975	0.878	1.329	1.251	0.035	0.032	0.031	0.034	0.026	0.019	0.036	0.026	0.190	0.167
$\boldsymbol{\beta_1 + \delta_1 + \delta_2 + \delta_3}$	-0.089	2.055	-1.289	1.795	0.025	0.103	-0.015	-0.016	-0.000	-0.035	0.017	-0.010	0.072	0.224
SE($\beta_1 + \delta_1 + \delta_2 + \delta_3$)	0.623	1.126	0.940	1.396	0.021	0.035	0.021	0.040	0.020	0.028	0.023	0.034	0.138	0.199
N	4,873	2,454	2,651	1,340	4,873	2,454	4,873	2,454	4,766	2,385	4,729	2,360	4,739	2,366
#fixed effects	953	499	770	406	953	499	953	499	950	494	948	493	949	494
within-R squared	0.165	0.106	0.171	0.093	0.232	0.241	0.141	0.081	0.168	0.089	0.275	0.241	0.471	0.585

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

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

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

A Theoretical Appendix

Consider the household utility function below which is the same as (5) in the text:

$$HH = \mu_A \left[\sum_{t=1}^{2} U_A(Q^t_{HH}, L^t_{fA}) + V_A(\pi(A_{1,HH}(1 + \gamma_A L_{CA} + \gamma_B L_{CB})), (1 - L_{CA})) \right]$$
$$+\mu_B \left[\sum_{t=1}^{2} U_B(Q^t_{HH}, L^t_{fB}) + V_B((1 - \pi)(A_{1,HH}(1 + \gamma_A L_{CA} + \gamma_B L_{CB})), (1 - L_{CB})) \right]$$
$$+ (1 - \mu_A - \mu_B) \left[\sum_{t=1}^{2} U_m(Q^t_{HH}, L^t_m) + V_m((1 - L_{CA}), (1 - L_{CB})) \right] \quad \text{(A.1)}$$

and the intertemporal budget constraint:

$$F_1(L_{1,fA}, L_{1,fB}, L_{1,m}) + G_1(A_{1,HH}) - \tau[(1 - L_{CA}) + (1 - L_{CB})] - Q_{1,HH} +$$
$$F_2(L_{2,fA}, L_{2,fB}, L_{2,m}) + G_2(A_{1,HH}(1 + \gamma_A L_{CA} + \gamma_B L_{CB})) - Q_{2,HH} = 0 \quad \text{(A.2)}$$

where we have substituted the land equation in $t = 2$:

$$A_{2,HH} = A_{1,HH}(1 + \gamma_A L_{CA} + \gamma_B L_{CB}) \quad \text{(A.3)}$$

and where $A_{1,HH} = 1$.

The Lagrangian function is given by:

$$L = HH + \lambda(\text{intertemporal budget contraint}) \quad \text{(A.4)}$$

Maximising equation (A.4) with respect to L_{CA} and L_{CB} provides us with the First Order Conditions:

$$\frac{\partial L}{\partial L_{CA}} = \mu_A \Big\{ \frac{\partial V_A}{\partial A_{2,HH}} \gamma_A \pi - \frac{\partial V_A}{\partial (1 - L_{CA})} \Big\}$$
$$- (1 - \mu_A - \mu_B) \frac{\partial V_m}{\partial (1 - L_{CA})} + \lambda \Big\{ \tau + \frac{\partial G_{2,HH}}{\partial A_{2,HH}} \gamma_A \Big\} = 0 \quad \text{(A.5)}$$

$$\frac{\partial L}{\partial L_{CB}} = \mu_B\Big\{\frac{\partial V_B}{\partial A_{2,HH}}\gamma_B(1-\pi) - \frac{\partial V_B}{\partial(1-L_{CB})}\Big\} - (1-\mu_A-\mu_B)\frac{\partial V_m}{\partial(1-L_{CB})} + \lambda\Big\{\tau + \frac{\partial G_{2,HH}}{\partial A_{2,HH}}\gamma_B\Big\} = 0 \quad \text{(A.6)}$$

After rearranging the FOCs by moving the last term in the LHS to the RHS, we divide the first by the second FOCs and we get:

$$\frac{\mu_A\Big\{\frac{\partial V_A}{\partial A_{2,HH}}\gamma_A\pi - \frac{\partial V_A}{\partial(1-L_{CA})}\Big\} - (1-\mu_A-\mu_B)\frac{\partial V_m}{\partial(1-L_{CA})}}{\mu_B\Big\{\frac{\partial V_B}{\partial A_{2,HH}}\gamma_B(1-\pi) - \frac{\partial V_B}{\partial(1-L_{CB})}\Big\} - (1-\mu_A-\mu_B)\frac{\partial V_m}{\partial(1-L_{CB})}} = \frac{-\lambda\Big\{\tau + \frac{\partial G_{2,HH}}{\partial A_{2,HH}}\gamma_A\Big\}}{-\lambda\Big\{\tau + \frac{\partial G_{2,HH}}{\partial A_{2,HH}}\gamma_B\Big\}} \quad \text{(A.7)}$$

Assume now $\gamma_A = \gamma_B = \gamma$. Rearranging equation (A.7) allows us to define function F as:

$$\begin{aligned} F \equiv &\Big\{\mu_A\Big[\frac{\partial V_A}{\partial A_{2,HH}}\gamma\pi - \frac{\partial V_A}{\partial(1-L_{CA})}\Big] - (1-\mu_A-\mu_B)\frac{\partial V_m}{\partial(1-L_{CA})}\Big\} \\ -&\Big\{\mu_B\Big[\frac{\partial V_B}{\partial A_{2,HH}}\gamma(1-\pi) - \frac{\partial V_B}{\partial(1-L_{CB})}\Big] - (1-\mu_A-\mu_B)\frac{\partial V_m}{\partial(1-L_{CB})}\Big\} = 0 \end{aligned} \quad \text{(A.8)}$$

To analyze the effect of the first wife's bargaining power on her child's labour supply, we totally differentiate child labour, L_{CA} with respect to the bargaining power of the biological mother, μ_A, by using the Implicit Function Theorem:

$$\frac{dL_{CA}}{d\mu_A} = -\frac{\partial F}{\partial \mu_A}\Big/\frac{\partial F}{\partial L_{CA}} \quad \text{(A.9)}$$

We differentiate equation (A.8) first with respect to μ_A to get:

$$\frac{\partial F}{\partial \mu_A} = \Big\{\frac{\partial V_A}{\partial A_{2,HH}}\gamma\pi - \frac{\partial V_A}{\partial(1-L_{CA})} + \frac{\partial V_m}{\partial(1-L_{CA})}\Big\} - \frac{\partial V_m}{\partial(1-L_{CB})} \quad \text{(A.10)}$$

Since we assumed that husband, m, values equally the education of his children, the sign of equation (A.10) is determined by the trade-off between $(\partial V_A/\partial A_{2,HH})\gamma\pi$, the marginal gain mother A has when her child inherits fraction π of the land and $\partial V_A/\partial(1-L_{CA})$, the marginal benefit she derives from his education. Because the V_A function is increasing with respect to both arguments, the sign of equation (A.10) is provided by the difference between two positive terms: the higher the share of inheritance, π, the greater the likelihood the sign of equation (A.10) is positive.

Differentiating now equation (A.8) with respect to L_{CA} and rearranging, we

obtain:

$$\frac{\partial F}{\partial L_{CA}} = \gamma^2 \left[\mu_A \frac{\partial^2 V_A}{\partial^2 A_{2,HH}} \pi - \mu_B \frac{\partial^2 V_B}{\partial^2 A_{2,HH}} (1-\pi) \right] + \mu_A \frac{\partial^2 V_A}{\partial^2 (1-L_{CA})} + (1-\mu_A-\mu_B) \frac{\partial^2 V_m}{\partial^2 (1-L_{CA})} \tag{A.11}$$

Define now:

$$\Theta_{A/B} \equiv \gamma^2 \left[\mu_A \frac{\partial^2 V_A}{\partial^2 A_{2,HH}} \pi - \mu_B \frac{\partial^2 V_B}{\partial^2 A_{2,HH}} (1-\pi) \right] \tag{A.12}$$

and

$$\Theta_{A/m} \equiv \mu_A \frac{\partial^2 V_A}{\partial^2 (1-L_{CA})} + (1-\mu_A-\mu_B) \frac{\partial^2 V_m}{\partial^2 (1-L_{CA})} \tag{A.13}$$

The sign of $\frac{dL_{CA}}{d\mu_A}$ depends therefore by the sign of both equations (A.10) and (A.11). When $\left(\mu_A \frac{\partial^2 V_A}{\partial^2 A_{2,HH}} \pi > \mu_B \frac{\partial^2 V_B}{\partial^2 A_{2,HH}} (1-\pi) \right)$ then $\frac{\partial F}{\partial L_{CA}} < 0$ which, since the expression is multiplied by minus, implies that the bottom of the fraction is positive and therefore, the final sign of $\frac{dL_{CA}}{d\mu_A}$ is determined by equation (A.10). When instead $\left(\mu_A \frac{\partial^2 V_A}{\partial^2 A_{2,HH}} \pi < \mu_B \frac{\partial^2 V_B}{\partial^2 A_{2,HH}} (1-\pi) \right)$ we can have two possible cases:

1. $\frac{\partial F}{\partial L_{CA}} < 0$, which implies $\Theta_{A/B} < \Theta_{A/m}$(i.e. positive due to the minus in front of the expression). In this case, still the final sign of $\frac{dL_{CA}}{d\mu_A}$ is determined by equation (A.10).

2. $\frac{\partial F}{\partial L_{CA}} > 0$, which implies $\Theta_{A/B} > \Theta_{A/m}$(i.e. negative due to the minus in front of the expression). In this case, if $\frac{\partial F}{\partial \mu_A} > 0$ then $\frac{dL_{CA}}{d\mu_A} < 0$; when instead $\frac{\partial F}{\partial \mu_A} < 0$ then $\frac{dL_{CA}}{d\mu_A} > 0$.

We can analyse now what happens to the labour supply of child A if the bargaining power of wife B increases, i.e. $\frac{dL_{CA}}{d\mu_B}$ which is given by:

$$\frac{dL_{CA}}{d\mu_B} = \frac{\partial F}{\partial \mu_B} \Big/ \frac{\partial F}{\partial L_{CA}} \tag{A.14}$$

First, we calculate $\frac{\partial F}{\partial \mu_B}$ which is given by:

$$\frac{\partial F}{\partial \mu_B} = \frac{\partial V_m}{\partial (1-L_{CA})} - \left\{ \left[\frac{\partial V_B}{\partial A_{2,HH}} (1-\pi)\gamma - \frac{\partial V_B}{\partial (1-L_{CB})} \right] + \frac{\partial V_m}{\partial (1-L_{CB})} \right\} \tag{A.15}$$

We already calculated $\frac{\partial F}{\partial L_{CA}}$ which is given by equation (A.11). Therefore, when $\frac{\partial F}{\partial L_{CA}} < 0$ (i.e. positive), assuming as before that the husband cares to an equal

extend for the education of the children, the final sign of $\frac{dL_{CA}}{d\mu_B}$ is given by the trade-off that mother B faces between the future value of inheritance and the education of her child: if she cares more about the future of value of inheritance then child A will work less. When instead $\frac{\partial F}{\partial L_{CA}} > 0$ (i.e. the actual sign is negative since it is multiplied times minus) which implies that the bargaining power of wife B is very high, if wife B cares more of the future value of inheritance then she will want child A to work more because she wants the value of the land to be improved by the labour supply of child A too. If instead she cares more about the education of her child, she wants child A to work less.

To complete our analysis we study what happens to child B's labour supply when bargaining power of mother A increases, i.e.:

$$\frac{dL_{CB}}{d\mu_A} = -\frac{\partial F}{\partial \mu_A} / \frac{\partial F}{\partial L_{CB}} \tag{A.16}$$

where $\frac{\partial F}{\partial \mu_A}$ is given by (A.10) and leaves us to compute $\frac{\partial F}{\partial L_{CB}}$.
Differentiating equation (A.8) with respect to L_{CB} and rearranging, we obtain:

$$\frac{\partial F}{\partial L_{CB}} = \gamma^2 \left[\mu_A \frac{\partial^2 V_A}{\partial^2 A_{2,HH}} \pi - \mu_B \frac{\partial^2 V_B}{\partial^2 A_{2,HH}} (1-\pi) \right] - \mu_B \frac{\partial^2 V_B}{\partial^2 (1-L_{CB})} - (1-\mu_A-\mu_B) \frac{\partial^2 V_m}{\partial^2 (1-L_{CB})} \tag{A.17}$$

Define now:

$$\Theta_{B/m} \equiv -\mu_B \frac{\partial^2 V_B}{\partial^2 (1-L_{CB})} - (1-\mu_A-\mu_B) \frac{\partial^2 V_m}{\partial^2 (1-L_{CB})} \tag{A.18}$$

The sign of $\frac{dL_{CB}}{d\mu_A}$ depends therefore by the sign of both equations (A.10) and (A.17). When $\left(\mu_A \frac{\partial^2 V_A}{\partial^2 A_{2,HH}} \pi > \mu_B \frac{\partial^2 V_B}{\partial^2 A_{2,HH}} (1-\pi) \right)$ and greater then $\Theta_{B/m}$, then $\frac{\partial F}{\partial L_{CB}} < 0$ which, since the expression is multiplied by minus, implies that the bottom of the fraction is positive. The final sign of $\frac{dL_{CB}}{d\mu_A}$ is determined by equation (A.10).

When $\left(\mu_A \frac{\partial^2 V_A}{\partial^2 A_{2,HH}} \pi < \mu_B \frac{\partial^2 V_B}{\partial^2 A_{2,HH}} (1-\pi) \right)$, this implies that μ_B must be such that she has control over her child's labour supply. This is implies that $\frac{\partial F}{\partial L_{CB}} > 0$ (negative when multiplied by minus) and given that child A is more likely to inherit, the labour supply of child B decreases.

A.1 π endogenous function of bargaining power

Assume now that π is a function of the relative bargaining power, i.e. $\pi(\frac{\mu_A}{\mu_B})$. For example, we assume $\pi = \frac{\mu_A}{\mu_A + \mu_B}$.

Substituting in the F function $\pi = \frac{\mu_A}{\mu_A+\mu_B}$ we obtain:

$$F \equiv \left\{\mu_A \left[\frac{\partial V_A}{\partial A_{2,HH}}\gamma\frac{\mu_A}{\mu_A+\mu_B} - \frac{\partial V_A}{\partial(1-L_{CA})}\right] - (1-\mu_A-\mu_B)\frac{\partial V_m}{\partial(1-L_{CA})}\right\}$$
$$-\left\{\mu_B \left[\frac{\partial V_B}{\partial A_{2,HH}}\gamma\frac{\mu_B}{\mu_A+\mu_B} - \frac{\partial V_B}{\partial(1-L_{CB})}\right] - (1-\mu_A-\mu_B)\frac{\partial V_m}{\partial(1-L_{CB})}\right\} = 0 \tag{A.19}$$

In order to analyze the effect of the first wife's bargaining power on her child's labour supply, we totally differentiate child labour of child A, L_{CA}, with respect to the bargaining power of the biological mother, μ_A, by using the Implicit Function Theorem:

$$\frac{dL_{CA}}{d\mu_A} = -\frac{\partial F}{\partial \mu_A} \Big/ \frac{\partial F}{\partial L_{CA}} \tag{A.20}$$

Since $\frac{\partial F}{\partial L_{CA}}$ does not change under our new assumption, we just need to differentiate equation (A.19) with respect to μ_A:

$$\frac{\partial F}{\partial \mu_A} = \left\{\frac{2\mu_A(\mu_A+\mu_B)-\mu_A^2}{(\mu_A+\mu_B)^2}\frac{\partial V_A}{\partial A_{2,HH}}\gamma - \frac{\partial V_A}{\partial(1-L_{CA})} + \frac{\partial V_m}{\partial(1-L_{CA})}\right\}$$
$$-\left\{\mu_B \left[\frac{\partial V_B}{\partial A_{2,HH}}\gamma\frac{-\mu_B^2}{(\mu_A+\mu_B)^2} - \frac{\partial V_B}{\partial(1-L_{CB})}\right] + \frac{\partial V_m}{\partial(1-L_{CB})}\right\} = 0 \tag{A.21}$$

Therefore, we get:

$$\frac{\partial F}{\partial \mu_A} = \left\{\frac{\mu_A(\mu_A+2\mu_B)}{(\mu_A+\mu_B)^2}\frac{\partial V_A}{\partial A_{2,HH}}\gamma - \frac{\partial V_A}{\partial(1-L_{CA})} + \frac{\partial V_m}{\partial(1-L_{CA})}\right\}$$
$$+\left[\frac{\mu_B^2}{(\mu_A+\mu_B)^2}\gamma\frac{\partial V_B}{\partial A_{2,HH}} - \frac{\partial V_m}{\partial(1-L_{CB})}\right] \tag{A.22}$$

As previously assumed, husband cares equally about the education of his children, equation (A.22) becomes then:

$$\frac{\partial F}{\partial \mu_A} = \left\{\frac{\mu_A(\mu_A+2\mu_B)}{(\mu_A+\mu_B)^2}\frac{\partial V_A}{\partial A_{2,HH}}\gamma - \frac{\partial V_A}{\partial(1-L_{CA})} + \frac{\mu_B^2}{(\mu_A+\mu_B)^2}\gamma\frac{\partial V_B}{\partial A_{2,HH}}\right\} \tag{A.23}$$

Again the final sign of $\frac{\partial F}{\partial L_{CA}}$ depends on (A.11) and (A.23).

When wife A has a higher bargaining power than wife B, $\left(\frac{\mu_A^2}{(\mu_A+\mu_B)}\frac{\partial^2 V_A}{\partial^2 A_{2,HH}} > \frac{\mu_B^2}{(\mu_A+\mu_B)}\frac{\partial^2 V_B}{\partial^2 A_{2,HH}}\right)$ then $\frac{\partial F}{\partial L_{CA}} < 0$ which, since the expression is multiplied by minus,

implies that the bottom of the fraction is positive and therefore, the final sign of $\frac{dL_{CA}}{d\mu_A}$ is determined by $\frac{\partial F}{\partial \mu_A}$. As we can see, this is more likely to happen when wife A has a higher bargaining power than wife B. In this case, in fact, a high bargaining power of wife A relative to wife B increases the the weight that the future value of inheritance has compared to the value of education. The bargaining power translates directly into a preference for land versus education as if a higher bargaining power makes the access to land in the future less uncertain compared to the returns of education.

When, instead, $\left(\frac{\mu_A^2}{(\mu_A+\mu_B)}\frac{\partial^2 V_A}{\partial^2 A_{2,HH}} < \frac{\mu_B^2}{(\mu_A+\mu_B)}\frac{\partial^2 V_B}{\partial^2 A_{2,HH}}\right)$, we can have two possible cases:

1. $\frac{\partial F}{\partial L_{CA}} < 0$, (i.e. positive due to the minus in front of the expression). In this case, still the final sign of $\frac{dL_{CA}}{d\mu_A}$ is determined by equation (A.23) and the same reasoning applies.

2. $\frac{\partial F}{\partial L_{CA}} > 0$, (i.e. negative due to the minus in front of the expression). In this case, the final sign is ambiguous. If $\frac{\partial F}{\partial \mu_A} > 0$ then $\frac{dL_{CA}}{d\mu_A} < 0$; when instead $\frac{\partial F}{\partial \mu_A} < 0$ then $\frac{dL_{CA}}{d\mu_A} > 0$.

In an environment where inheritance rules reflect both the rule of law and social norms, wife's bargaining power affects the inheritance share.

A.2 Gender Differences

Consider now the role of gender-biased inheritance systems. Assume that sons do inherit but daughters do not and that child A is a boy and child B is a girl. This is equivalent to assume that $\pi = 1$. $\frac{dL_{CA}}{d\mu_A}$ is, now, given by:

$$\frac{\partial F}{\partial \mu_A} = \left\{\frac{\partial V_A}{\partial A_{2,HH}}\gamma_A - \frac{\partial V_A}{\partial(1-L_{CA})} + \frac{\partial V_m}{\partial(1-L_{CA})}\right\}\left(\gamma_B\frac{\partial G_{2,HH}}{\partial A_{2,HH}}\right) - \frac{\partial V_m}{\partial(1-L_{CB})}\left(\gamma_A\frac{\partial G_{2,HH}}{\partial A_{2,HH}}\right) \tag{A.24}$$

and

$$\frac{\partial F}{\partial L_{CA}} = \left[\mu_A\left(\frac{\partial^2 V_A}{\partial^2 A_{2,HH}}\gamma_A^2 + \frac{\partial^2 V_A}{\partial^2(1-L_{CA})}\right) + (1-\mu_A-\mu_B)\frac{\partial^2 V_m}{\partial^2(1-L_{CA})}\right]\left(\gamma_B\frac{\partial G_{2,HH}}{\partial A_{2,HH}}\right) - \left[-\mu_B\frac{\partial V_B}{\partial(1-L_{CB})} - (1-\mu_A-\mu_B)\frac{\partial V_m}{\partial(1-L_{CB})}\right]\left(\frac{\partial^2 G_{2,HH}}{\partial^2 A_{2,HH}}\gamma_A^2\right) \tag{A.25}$$

Being $\frac{\partial F}{\partial L_{CA}} < 0$, the sign of $\frac{dL_{CA}}{d\mu_A}$ is given by $\frac{\partial F}{\partial \mu_A}$. The more mother A cares for inheritance, the more likely that the labour supply of child A, which inherits all the resources, is positive. This result is obtained under the assumption that the father cares equally for his children. Removing this assumption creates ambiguous results.

B Empirical Appendix

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Table A1: Expected effects of inheritance across gender and wife status

	Wife 1	Other wives	Difference
Boys			
Inheritance = 1	$\beta_1 + \delta_1$		$\beta_1 + \delta_1$
Inheritance = 0	β_1		β_1
Difference	δ_1		δ_1
Girls			
Inheritance = 1	$\beta_1 + \beta_3 + \delta_1 + \delta_2 + \delta_3$	β_3	$\beta_1 + \delta_1 + \delta_2 + \delta_3$
Inheritance = 0	$\beta_1 + \beta_3 + \delta_2$	β_3	$\beta_1 + \delta_2$
Difference	$\delta_1 + \delta_3$	0	$\delta_1 + \delta_3$

Notes: Expected values based on: $y_{iht} = \alpha + \beta_1 w_{ih} + \beta_2 I_{ht} + \beta_3 g_{ih} + \delta_1 (I_{ht} \times w_{ih}) + \delta_2 (g_{ih} \times w_{ih}) + \delta_3 (I_{ht} \times w_{ih} \times g_{ih}) + \boldsymbol{\gamma x}_{iht} + \eta_{ht} + \varepsilon_{iht}$.
The term $\boldsymbol{\gamma x}_{iht} + \eta_{ht}$ cancels out when taking differences and is omitted to simplify notation.

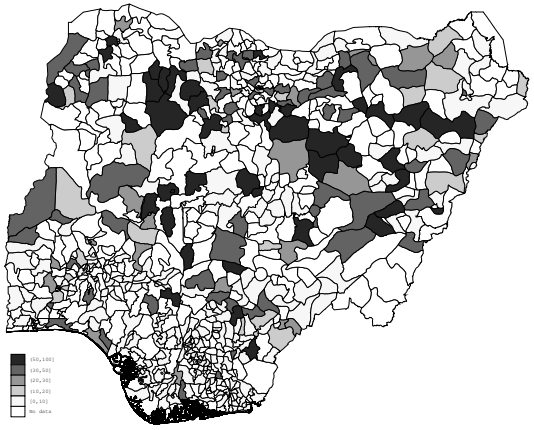
Table A2: Ethnicity and Inheritance

Tribe	% of children in estimation sample	Customary law	Islamic law	Absence of individual property rights or rules	Matrilineal (sisters sons) (M.)	Other matrilineal heirs (e.g., younger brothers) (N.)	Children, with daughters receiving less (D.)	Children, equally for both sexes (C.)	Other patrilineal heirs (e.g., younger brothers) (Q.)	Patrilineal (sons) (P.)	Inheritance Variable Coding	More Info	Source:
Hausa	**37.95**	Yes, the eldest inherits but gives something to younger brothers	✓							Inheritance works through the patrilineal line (if not islamic law)	**1 (Spouses and children with daughters receiving less)**	"To the peasant, farmland is the most important property...." "**By local custom, the sons of the deceased land holder are entitled to divide the farm up amongst themselves**. In practice this means that the eldest son runs the farm with the help of his unmarried brothers...**Where a land owner leaves only female issue, his brothers and their heirs, or sibling them his sister's heirs, may occupy the deceased land in their own right.** ... MaJiki law would not prevent the deceased's dauthers entering into possession, but in practice the custom described above prevails. The female heirs, however, have in local custom and in law an absolute right to the fruits of the economics trees on these farms, viz., locust-bean trees (dorowa) and baobab trees (kuka)."Land and inheritance-transfers proceed among Hausa under customary usages which may occasionally conflict with one another and with both Maliki and Statute law."	M.G. Smiths, "Hausa Inheritance and Succession", ch.7 in Studies in the Laws of Succession in Nigeria. J.D. M. Derrett ed. London; https://www.encyclopedia.com/social-sciences-and-law/anthropology-and-archaeology/people/hausa
Idoma	**11.54**									Every male member of the family is entitled to land.	**2 (Patrilineal (sons))**	"**Only the sons are entitled to inherit their fathers estate**. Where there is no son, close male relatives will succeed. The sons are duty bound and expected to provide for the disfavoured daughters. However, daughters can share in the economic trees planted on family land."	www.britannica.com/topic/Idoma; B.N. Okpalaobi, E.F. Okaphor "Revisiting the case of Ukeje V Ukeje Viz a Viz Igbo Customary Inheritance" NG Journal of Social Development 2017, vol 6.
Fulbe (Fulani)	**9.73**	Yes, the eldest inherits but gives something to younger brothers	✓							Inheritance works through the patrilineal line.	**1 (Spouses and children with daughters receiving less)**	At marriage, the woman move to the village of her husband. Inheritance: Lineage members inherit cattles and widows. "Among Town Fulani, inheritance generally follows Islamic prescriptions, with the exception that generally women do not contest their inheritance with their full brothers. Among the Fulani for example, the eldest son inherits his deceased father's cattle, the main asset in those days, out of which he makes presents to his younger brothers according to their needs. A man always gives his belongings to his oldest son upon death. The women in the family are rarely given belongings because they are son inferior to men in the rural areas."	http://www.everyculture.com/Africa-Middle-East/Fulani-Marriage-and-Family.html#ixzz4jnM8J8Yt; http://www.oseroghoassociates.com/articles/125-inheritance-succession-wills-private-trust#sthash.akAcpSWV.dpuf http://dice.missouri.edu/docs/niger-congo/Fulani.pdf
Nupe	**7.10**						✓				**3 (Children with daughters receiving less)**	"**The personal property of men is inherited by their sons, that of women by their daughters**. The family farm goes to the relative next in seniority younger brother or eldest son in the classificatory sense. A widow may be inherited by her husband's sister son or her husband's younger brother; custom forbids remarriage with an elder brother. islam however allows remarriage with elder or younger brother".	http://www.encyclopedia.com/places/africa/nigeria political-geography/nupe ; People of the Niger-Benue Confluence, D. Forde, P.Brown and R. Armstrong, Routledge 2017
Kanuri	**6.62**	Not present	✓				✓				**1 (Spouses and children with daughters receiving less)**	"Matri-kin may provide inheritance sources if there are no heirs among the patrilineal relations of the mother's descent group. It is the rule that adoptions must alternate between patri- and matri-kin, although neither the father's nor the mother's kin group have any priority over the first child given for adoption. After puberty when a young boy begins thinking about his nonfarming occupation he can, within the limits of his father's authority, use either patri- or matri-relations in order to obtain the necessary training. That is to say, both matri- and patri-kin are obligated to consider ego as a possible apprentice in their dry season nonfarming activity. Kanuri names pass down alternate generations and ego may receive the name of either his mother's or father's parent." According to the Joshua Project the **Kanuri are mostly Muslim** and have been so since the eleventh century.	Cohen, R. (1961) "Marriage instability among the Kanuri in Northern Nigeria". American Anthropologist; https://joshuaproject.net/people_groups/12509/NI
Yoruba	**5.78**	✓							Oldest brother inherits property. The brother then allocates son a share of land.		**3 (Children with daughters receiving less)**	The Yoruba muslims chose whichever law is most beneficial. But in terms of Inheritance they seem to favor customary law. "If a wife has no children, her property passes to her siblings. However, all property given to a barren wife by the husband during her lifetime (like a house or vehicle) does not pass to her siblings, but goes back to the husband, or his relatives." **Wives do not inherit from husbands**. If she has children she is allowed to stay in the house. "The common practice, among the Yorubas, is that a widow does not inherit from her husband; rather she is considered property. A widow is inherited in the sense that one of the brothers of the deceased" "Islam grants a woman an undeniable right to have a recognizable share in the property of her husband. She receives a quarter of the whole property if her husband has no children. In addition, Islam denounces the inheritance of a widow by a relative, because she is not a property but a human being."	Sodiq, Y. (1996), "An analysis of Yoruba and Islamic law of inheritance", The Muslim World, Volume 86, Issue 3-4, p. 313333

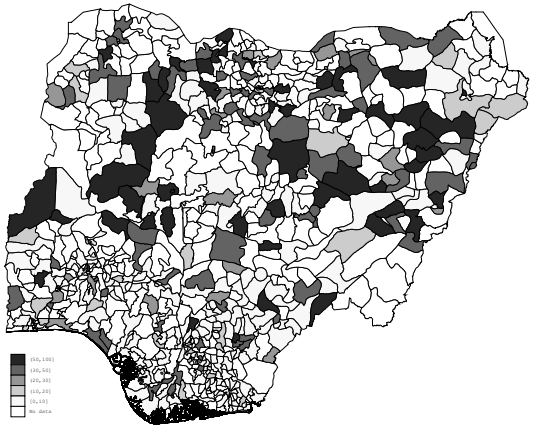
Ethnicity and Inheritance ctd.

Tribe	% of children in estimation sample	Customary law	Islamic law	Absence of individual property rights or rules	Matrilineal (sisters sons) (M.)	Other matrilineal heirs (e.g., younger brothers) (N.)	Children, with daughters receiving less (D.)	Children, equally for both sexes (C.)	Other patrilineal heirs (e.g., younger brothers) (Q.)	Patrilineal (sons) (P.)	Inheritance Variable Coding	More Info	Source:
Igbo	**4.30**	✓								According to Ibo customary law, after death the largest share of land goes to the eldest son and the rest is shared equally among sons. If no son is available, the land goes to the father's brother with the eldest getting the biggest share.	**2 (Patrilineal (sons))**	The cardinal principle of the Igbo customary law of inheritance is the concept of primogeniture as it is predominantly, patrilineal. **Inheritance is through the eldest son in the family known as the 'okpala' or 'diokpa'. In a nuclear family, inheritance is through the eldest male child of the deceased**. In extended families, it is through the eldest son of the ancestor, irrespective of the fact that the okpala, may in fact be younger in age to other members of the extended family. Such first sons inherit absolutely to the exclusion of other children. This is because the okpala has the status of family head. Such status may be acquired by birth or subsequently. The first male child of the deceased is the okpala. But where an okpala dies while his father is alive, the status will devolve on the next male son of the father but if he dies after his father has died, the okpalas first son inherits the property. Females do not possess the right to inherit, that is, daughters, wives and sisters cannot inherit, especially, landed properties.	http://www.loc.gov/law/foreign-news/article/nigeria-supreme-court-invalidates-igbo-customary-law-denying-female-descendants-the-right-to-inherit/
Tiv	**3.64**	✓		Land is not inherited as this is given by Earth.						**Sons inherit personal property of the father; daughter-in-law of the mother.**	**5 (Absense of individual property rights)**		http://dice.missouri.edu/docs/niger-congo/Tiv.pdf
Bade (also Bedde, Bede)	**3.05**		✓								**1 (Spouses and children with daughters receiving less)**	Mostly islamic	https://joshuaproject.net/people_groups/10548/NI
Bura	**2.28**									✓	**2 (Patrilineal (sons))**		Mshelia A. Y. (2014), The Story of the Origins of the Bura/Pabir People of Northeast Nigeria, AuthorHouse
Bini (also Edo)	**2.04**									✓	**2 (Patrilineal (sons))**	"The system of primogeniture prevails among the Edo: **the eldest son receives the rights to property, hereditary titles, and ritual duties**. Although the bulk of the estate goes to the eldest son, the eldest sons by the other wives of his father receive shares as well, in order of their seniority. When there are no sons, the property sometimes passes to the father's brother or sister, or sometimes to a daughter."	http://www.encyclopedia.com/places/asia/japanese-political-geography/edo
Ijo (also Ijaw or Oru)	**0.70**				✓			✓			**6 (matrilineal (most prevalent))**	"The children including the daughters can inherit, depending on the type of marriage contracted by the parents. Among the ijaws of Okirika, Kalabari and Nembe, the marriage could be the iya (big-dowry), where the male children inherit their fathers property. Where there is no male child, the fathers brothers inherit. **If the woman acquired any property during the marriage, her children inherit equally**. In the iya marriage, the children and their mother belong to their fathers family. On the other hand, there is the igwa (small dowry) marriage, where the children cannot inherit from their father but from their mother, maternal uncles and relations jointly. This is because, the children and their mother, belong to their mothers family. However, the mothers premarital property goes to her siblings."	http://dice.missouri.edu/docs/niger-congo/Ijo.pdf, http://www.jstor.org/stable/pdf/3629410.pdf

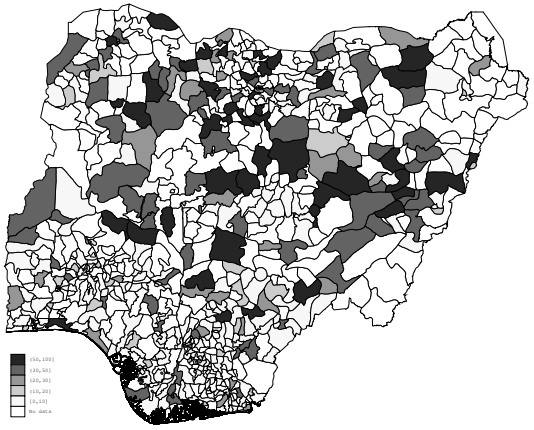
Figure A1: Incidence of polygamy across the waves



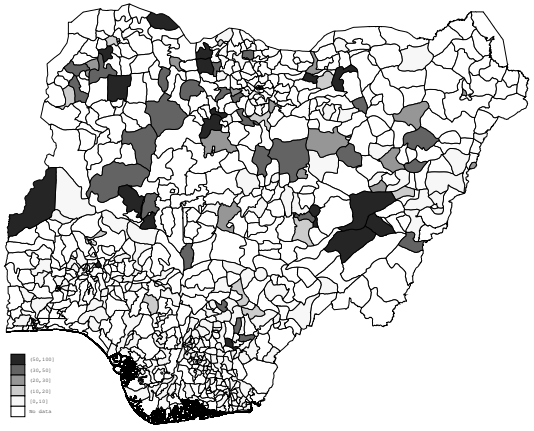
(a) 2010/2011



(b) 2011/2012



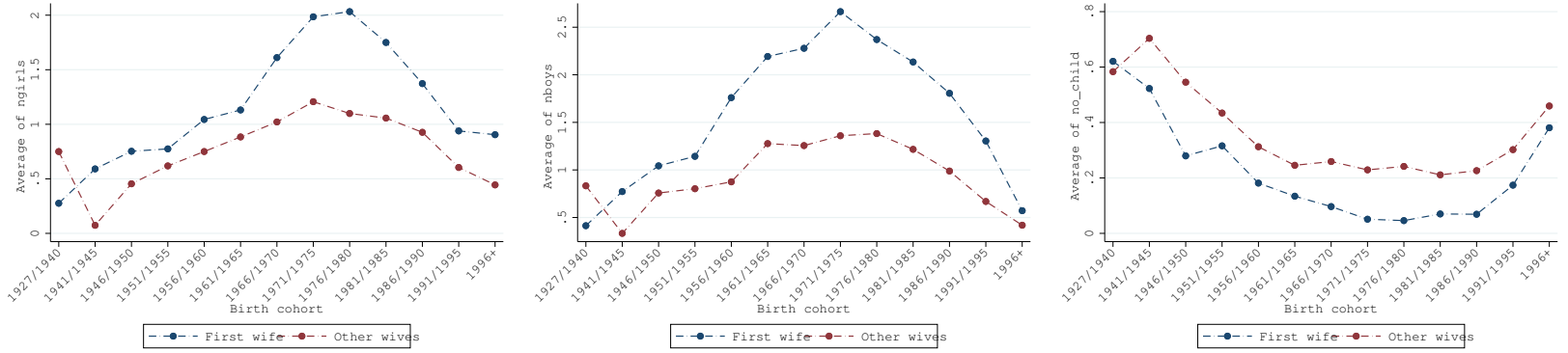
(c) 2015/2016



(d) 2018/2019

Note: Each figure panel summarizes the fraction of households residing with multiple spouses for each GHS survey wave. Shade colours reflect the intensity of polygamy at the administrative boundary level ($[0, 10\%]$, $(10\%, 20\%]$, $(20\%, 30\%]$, $(30\%, 50\%]$ and $(50\%, 100\%]$) .

Figure A2: Child composition and mother status



Number of daughters | Number of sons | Fraction without a child

Notes: The figure summarizes the average number of daughters, sons and the fraction of mothers without a child by mother birth cohort. The data is pooled across the GHS waves.

Table A3: Wife Status and Decision Making, DHS data

	Wife's health care	Large purchases	Social visits	Husband's money
Wife 1	-0.036***	-0.029***	-0.054***	-0.012*
	(0.008)	(0.007)	(0.009)	(0.007)
Constant	0.800***	0.839***	0.604***	0.878***
	(0.004)	(0.003)	(0.004)	(0.003)
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.

Table A4: Wife Status and Decision Making, DHS data controlling for age

	Wife's health care	Large purchases	Social visits	Husband's money
Wife 1	-0.013	-0.013	-0.027**	-0.012
	(0.011)	(0.011)	(0.012)	(0.010)
Age	-0.003***	-0.002*	-0.004***	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Constant	0.895***	0.903***	0.719***	0.880***
	(0.035)	(0.034)	(0.038)	(0.032)
N	5,883	5,873	5,882	5,873
#hh's	2,760	2,759	2,760	2,760
within-R squared	0.009	0.006	0.015	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.

Table A5: Descriptive Statistics of Children 5 to 17 years old

	All children				Polygamous households				Polygamous different mothers			
Wave	1	2	3	4	1	2	3	4	1	2	3	4
Child characteristics												
Age (years)	10.11	10.35	10.57	10.34	10.01	10.25	10.47	10.33	10.01	10.22	10.53	10.38
Girl (=1)	0.47	0.47	0.47	0.47	0.46	0.46	0.45	0.47	0.46	0.47	0.44	0.47
Emp. outside (=1)	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Emp. home (=1)	0.14	0.09	0.11	0.33	0.17	0.11	0.13	0.39	0.20	0.12	0.13	0.40
Emp. own (=1)	0.03	0.01	0.02	0.07	0.04	0.02	0.03	0.09	0.04	0.02	0.03	0.08
H'rs. worked	7.57	5.92	4.59	9.20	8.45	7.16	5.38	11.63	9.24	7.22	5.10	11.90
H'rs. lab.	31.37	34.98	21.33	20.32	30.16	35.49	22.24	22.52	29.91	35.24	21.54	23.04
H'rs. domestic	3.25	5.97	3.95	4.07	3.16	6.76	4.24	4.75	3.22	6.52	4.08	4.78
Emp. (=1)	0.32	0.28	0.30	0.42	0.33	0.31	0.32	0.46	0.34	0.31	0.31	0.45
Attends edu.	0.75	0.70	0.74	0.70	0.69	0.64	0.68	0.60	0.69	0.65	0.68	0.60
Ever att. edu.	0.84	0.83	0.82	0.82	0.78	0.78	0.76	0.74	0.79	0.78	0.77	0.74
Literate (=1)	0.54	0.55	0.61	0.61	0.46	0.48	0.52	0.52	0.48	0.49	0.50	0.53
Birth rank	3.15	3.38	3.41	3.52	3.84	4.12	4.12	4.74	4.27	4.56	4.62	5.12
# Biological brothers	2.04	2.06	2.17	2.04	2.09	2.07	2.15	2.12	1.81	1.82	1.95	2.14
# Biological sisters	1.68	1.72	1.86	1.71	1.55	1.59	1.74	1.67	1.35	1.43	1.61	1.68
# Children	7,913	8,236	7,717	7,976	2,804	3,140	3,062	2,740	1,718	1,981	1,894	2,134
Mother characteristics												
Mother age (years)	37.01	37.54	37.85	37.80	36.42	36.99	36.93	37.55	36.28	36.52	36.77	37.60
Mother att. edu.	0.57	0.57	0.60	0.66	0.41	0.42	0.46	0.49	0.44	0.44	0.45	0.50
Mother emp. outside	0.06	0.06	0.06	0.06	0.05	0.03	0.03	0.01	0.04	0.03	0.03	0.02
Mother emp. home	0.34	0.29	0.26	0.42	0.26	0.21	0.19	0.34	0.29	0.21	0.20	0.34
Mother emp. own	0.46	0.48	0.48	0.48	0.46	0.47	0.48	0.49	0.46	0.48	0.50	0.50
Asset val. ('000)	9.33	11.82	8.30	7.97	9.59	9.83	7.70	8.48	8.34	9.58	4.88	7.72
Household characteristics												
Sharia (=1)	0.42	0.44	0.44	0.40	0.64	0.65	0.65	0.70	0.60	0.65	0.64	0.70
Head islam (=1)	0.51	0.53	0.54	0.50	0.78	0.77	0.79	0.83	0.77	0.80	0.79	0.83
Women inherit (=1)	0.49	0.50	0.45	0.65	0.60	0.60	0.46	0.75	0.58	0.59	0.43	0.75
Rural (=1)	0.73	0.74	0.72	0.71	0.85	0.84	0.84	0.87	0.86	0.85	0.84	0.86
North (=1)	0.61	0.64	0.63	0.63	0.85	0.85	0.85	0.92	0.83	0.86	0.86	0.92
# wives	1.33	1.36	1.39	1.26	2.21	2.22	2.26	2.20	2.32	2.33	2.36	2.25
Household size	7.35	7.71	8.41	7.25	9.88	10.21	11.07	10.72	11.26	11.55	12.48	11.98
Total land area (m^2)	85.40	82.38	83.52	82.70	98.41	95.37	93.68	110.38	102.48	99.40	99.60	110.50
Polygamous (=1)	0.27	0.29	0.31	0.23								
# Households	2,737	2,746	2,565	2,617	746	809	786	593	346	397	371	372

Source: GHPS Wave 1 (2010/11), Wave 2 (2011/12), Wave 3 (2015/16) and Wave 4 (2018/19).

Notes: The column numbers indicate the survey waves.

The first four columns refer to all children aged 5 to 17 of the household head and his spouses.

Columns (5) to (8) restrict the sample to children in polygamous households.

Columns (9) to (12) restrict the sample to polygamous households with children of different mothers.

Hours worked refers to the 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.

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

Table A6: Fixed effects estimates of mother status and birth order on child labour supply

	Hrs (extensive)	Hrs (intensive)	Any labour
Wife 1	1.4498***	0.9011	0.0487***
	(0.4023)	(0.5797)	(0.0128)
First born	-0.5715	-1.5451	-0.0006
	(0.9248)	(1.2633)	(0.0320)
Wife 1 × First born	0.8073	0.6806	-0.0034
	(1.0549)	(1.3957)	(0.0335)
Daughter	-2.3421***	-3.0828***	-0.0236**
	(0.3578)	(0.5285)	(0.0110)
# bio. brothers	-0.2369	-0.3955	0.0012
	(0.1770)	(0.2791)	(0.0049)
# bio. sisters	-0.3028*	-0.1018	-0.0039
	(0.1570)	(0.2422)	(0.0054)
Mother works	-0.7481	-0.1282	0.0271
	(0.9039)	(1.3457)	(0.0295)
Mother school	0.3722	0.8243	0.0201
	(0.5476)	(0.8622)	(0.0204)
Mother age	0.0122	0.0089	0.0009
	(0.0410)	(0.0581)	(0.0014)
Mother's assets	-0.0103	0.0032	-0.0004
	(0.0072)	(0.0149)	(0.0003)
Constant	4.1108***	10.4498***	0.1766***
	(1.5805)	(2.4905)	(0.0529)
N	7,404	4,034	7,404
# fixed effects	1,469	1,189	1,469
within-R squared	0.136	0.133	0.225

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

Household-wave fixed effects estimates reported.

Age fixed effects are controlled for but estimates are not reported.

Table A7: Fixed effects estimates of first wife difference by group (land)

	H'rs (extensive)	H'rs (intensive)	Any labour	Edu. attending	Edu. ever att.	Literate	Years edu.
Wife 1 × land ($\boldsymbol{\delta_1}$)	2.3751***	2.7774***	0.0842***	-0.0165	0.0131	0.0227	-0.1353
	(0.5739)	(0.9951)	(0.0215)	(0.0216)	(0.0161)	(0.0212)	(0.1437)
Wife 1 ($\boldsymbol{\beta_1}$)	-0.3621	-1.4342	-0.0169	0.0065	-0.0078	-0.0051	0.1935
	(0.5318)	(0.9878)	(0.0208)	(0.0217)	(0.0151)	(0.0202)	(0.1455)
Birth rank	-0.1642	-0.0252	-0.0254***	-0.0029	-0.0072	0.0013	-0.1651***
	(0.2261)	(0.2912)	(0.0067)	(0.0060)	(0.0055)	(0.0069)	(0.0480)
Daughter (β_3)	-2.3221***	-3.0335***	-0.0238**	-0.0622***	-0.0468***	-0.0320***	-0.1066*
	(0.3563)	(0.5267)	(0.0110)	(0.0109)	(0.0094)	(0.0111)	(0.0641)
# bio. brothers	-0.2645	-0.4254	0.0007	0.0054	0.0030	0.0057	0.0366
	(0.1762)	(0.2767)	(0.0049)	(0.0060)	(0.0039)	(0.0053)	(0.0277)
# bio. sisters	-0.2908*	-0.0929	-0.0037	0.0092	0.0104**	0.0060	0.0646**
	(0.1562)	(0.2422)	(0.0053)	(0.0064)	(0.0045)	(0.0053)	(0.0317)
Mother works	-0.6325	0.1362	0.0304	0.0226	0.0111	0.0163	-0.2072
	(0.9013)	(1.3425)	(0.0287)	(0.0282)	(0.0225)	(0.0239)	(0.1462)
Mother school	0.3996	0.9572	0.0176	0.0344	0.0087	-0.0040	-0.0805
	(0.5451)	(0.8560)	(0.0201)	(0.0231)	(0.0176)	(0.0216)	(0.1087)
Mother age	0.0089	0.0155	0.0009	0.0008	0.0006	0.0001	0.0053
	(0.0400)	(0.0568)	(0.0014)	(0.0014)	(0.0011)	(0.0013)	(0.0091)
Mother's assets	-0.0072	0.0024	-0.0003	0.0001	0.0000	0.0004	0.0027
	(0.0070)	(0.0145)	(0.0003)	(0.0003)	(0.0002)	(0.0004)	(0.0017)
Constant	5.3598**	10.1910***	0.3689***	0.3362***	0.5090***	0.1359*	1.5690***
	(2.5055)	(3.3818)	(0.0778)	(0.0747)	(0.0632)	(0.0721)	(0.5107)
N	7,404	4,034	7,404	7,404	7,226	7,164	7,180
#fixed effects	1,469	1,189	1,469	1,469	1,461	1,458	1,460
within-R squared	0.138	0.135	0.230	0.112	0.137	0.258	0.505

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

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

Age fixed effects are controlled for but estimates are not reported.

Table A8: Wife characteristics and Wife Status

	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]	Emp. Own.[b]	H'rs W'kd.	Log wage
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***	0.054***	3.754***	0.107**
	(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)	(0.008)	(0.339)	(0.041)
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***	0.408***	23.274***	9.028***
	(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)	(0.003)	(0.150)	(0.020)
N	7,389	7,642	7,642	7,642	7,517	7,535	3,985	3,985	3,985	3,985	3,985	6,782	7,138	7,131	7,133	7,642	941
#fixed effects	3,467	3,477	3,477	3,477	3,425	3,430	2,146	2,146	2,146	2,146	2,146	3,127	3,442	3,440	3,442	3,477	540
within-R squared	0.430	0.171	0.097	0.070	0.004	0.003	0.000	0.012	0.005	0.002	0.005	0.514	0.000	0.003	0.017	0.034	0.017

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

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

[a] The educational categories 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. 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.

Table A9: Wife characteristics and Wife Status

	# 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.

Table A10: Wife characteristics and Wife Status

	# 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	0.789***	0.492***	-0.136***	0.001	-0.006	-0.002	0.025	-0.004	-0.019*	-0.143	5.519***	-0.002	0.019***	0.025**	2.424***	0.088
	(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)	(0.010)	(0.451)	(0.060)
Age	0.101***	0.088***	-0.027***	-0.008	-0.004	0.009	-0.003	0.000	-0.005	-0.066	0.112	0.001	0.004	0.008	0.716***	-0.006
	(0.020)	(0.019)	(0.006)	(0.005)	(0.005)	(0.006)	(0.010)	(0.010)	(0.006)	(0.097)	(0.114)	(0.002)	(0.004)	(0.006)	(0.218)	(0.040)
Age squared	-0.001***	-0.001***	0.000***	0.000	0.000	-0.000*	0.000	-0.000	0.000	0.001	0.004***	-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)	(0.003)	(0.000)
Birth year 1956/1960	0.222	0.066	0.003	0.071*	0.044	-0.038**	0.113	-0.037	-0.038	-0.196	-1.180	0.049*	0.009	-0.087*	0.046	0.149
	(0.195)	(0.179)	(0.067)	(0.039)	(0.038)	(0.019)	(0.079)	(0.078)	(0.034)	(0.518)	(1.122)	(0.028)	(0.032)	(0.048)	(1.848)	(0.195)
Birth year 1961/1965	0.354	0.230	0.003	0.028	0.026	-0.027	-0.036	0.140	-0.074	0.438	-1.926	0.033	0.014	-0.049	0.580	0.235
	(0.220)	(0.190)	(0.073)	(0.043)	(0.038)	(0.020)	(0.092)	(0.092)	(0.047)	(0.607)	(1.313)	(0.028)	(0.042)	(0.058)	(2.132)	(0.291)
Birth year 1966/1970	0.245	0.552**	-0.003	0.052	0.030	-0.033	-0.033	0.141	-0.070	0.379	-2.149	0.052	0.027	-0.051	0.870	0.282
	(0.246)	(0.230)	(0.088)	(0.051)	(0.046)	(0.027)	(0.105)	(0.115)	(0.064)	(0.686)	(1.522)	(0.037)	(0.052)	(0.068)	(2.485)	(0.282)
Birth year 1971/1975	0.255	0.708***	0.015	0.043	0.023	-0.032	-0.073	0.190	-0.084	0.572	-2.843	0.045	0.055	-0.072	0.140	0.118
	(0.280)	(0.267)	(0.098)	(0.056)	(0.051)	(0.032)	(0.117)	(0.126)	(0.063)	(0.740)	(1.728)	(0.035)	(0.059)	(0.075)	(2.790)	(0.305)
Birth year 1976/1980	0.018	0.648**	0.053	0.019	0.031	-0.033	-0.053	0.187	-0.101	0.329	-4.921***	0.046	0.054	-0.087	0.394	0.022
	(0.311)	(0.290)	(0.105)	(0.064)	(0.059)	(0.034)	(0.127)	(0.145)	(0.082)	(0.792)	(1.893)	(0.042)	(0.064)	(0.083)	(3.035)	(0.301)
Birth year 1981/1985	-0.293	0.511	0.063	0.016	0.034	-0.004	-0.059	0.167	-0.107	0.048	-5.472***	0.037	0.074	-0.098	0.811	0.045
	(0.339)	(0.317)	(0.113)	(0.071)	(0.065)	(0.039)	(0.137)	(0.158)	(0.088)	(0.834)	(2.043)	(0.044)	(0.069)	(0.089)	(3.276)	(0.309)
Birth year 1986/1990	-0.443	0.364	0.039	0.003	0.015	-0.008	-0.094	0.211	-0.122	0.152	-7.029***	0.028	0.089	-0.116	0.836	-0.010
	(0.371)	(0.351)	(0.121)	(0.081)	(0.074)	(0.044)	(0.149)	(0.174)	(0.099)	(0.923)	(2.207)	(0.048)	(0.072)	(0.095)	(3.548)	(0.323)
Birth year 1991/1995	-0.737*	0.000	0.137	-0.015	0.013	0.032	-0.123	0.210	-0.123	0.161	-7.764***	0.035	0.114	-0.181*	0.740	-0.113
	(0.399)	(0.385)	(0.128)	(0.092)	(0.083)	(0.053)	(0.156)	(0.184)	(0.107)	(0.984)	(2.347)	(0.052)	(0.074)	(0.101)	(3.842)	(0.380)
Birth year 1996 plus	-0.857*	-0.004	0.256*	-0.063	-0.015	0.054	-0.106	0.187	-0.152	-0.635	-8.400***	0.047	0.123	-0.155	1.785	-0.094
	(0.445)	(0.415)	(0.138)	(0.108)	(0.093)	(0.063)	(0.178)	(0.205)	(0.116)	(1.113)	(2.512)	(0.055)	(0.075)	(0.106)	(4.250)	(0.386)
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	0.379**	11.399*	9.095***
	(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)	(0.149)	(6.075)	(0.807)
N	7,099	7,099	7,099	7,000	7,015	3,714	3,714	3,714	3,714	3,714	6,552	6,917	6,911	6,912	7,099	918
#fixed effects	3,391	3,391	3,391	3,347	3,352	2,073	2,073	2,073	2,073	2,073	3,060	3,361	3,359	3,361	3,391	529
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	0.030	0.033	0.047

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

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

The reference age cohort category is a dummy variable for thos born prior to 1956.

[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.

Table A11: Wife characterstics and Wife Status, DHS data

	Age	Age first m'rge	Age first birth	First child son	Share b'rn sons	# Children	# sons (home)	# daughters (home)	# sons (away)	# daughters (away)	# child death	Literate	Edu. y'rs	Primary	Secondary	Emp. own	Emp. farm
Wife 1	6.877***	-0.454***	-0.451***	0.033**	0.007	1.883***	0.881***	0.633***	0.094***	0.275***	0.543***	-0.034***	-0.424***	0.003	-0.039***	0.007	0.003
	(0.114)	(0.081)	(0.082)	(0.014)	(0.008)	(0.051)	(0.036)	(0.033)	(0.019)	(0.022)	(0.033)	(0.007)	(0.066)	(0.008)	(0.006)	(0.010)	(0.007)
Constant	28.845***	16.215***	18.040***	0.507***	0.508***	3.250***	1.316***	1.216***	0.332***	0.386***	0.750***	0.144***	1.771***	0.124***	0.104***	0.815***	0.231***
	(0.051)	(0.037)	(0.038)	(0.007)	(0.004)	(0.023)	(0.016)	(0.015)	(0.008)	(0.010)	(0.015)	(0.003)	(0.030)	(0.003)	(0.003)	(0.005)	(0.003)
N	5,889	5,889	5,563	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	3,933
#hh's	2,760	2,760	2,749	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	2,184
within-R squared	0.498	0.009	0.010	0.002	0.000	0.294	0.164	0.105	0.007	0.047	0.078	0.007	0.013	0.000	0.014	0.000	0.000

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

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.

Table A12: Wife characterstics and Wife Status, DHS data

	First child son	Share b'rn sons	# Children	# sons (home)	# daughters (home)	# sons (away)	# daughters (away)	# child death	Literate	Edu. y'rs	Primary	Secondary	Emp. own	Emp. farm
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	0.005
	(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)	(0.011)
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	0.003
	(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)	(0.004)
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)	(0.000)	(0.001)	(0.000)	(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***	0.184***
	(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)	(0.070)
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	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	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	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.

Table A13: Estimates of mother status on child labour supply controlling for fertility

	H'rs (OLS)	H'rs (extensive)	H'rs (intensive)	Any labour
Wife 1	0.3398	1.4530***	0.8629	0.0487***
	(0.6201)	(0.3860)	(0.5499)	(0.0126)
Birth rank	-0.4624***	-0.1398	-0.0027	-0.0246***
	(0.1202)	(0.2273)	(0.2943)	(0.0068)
Daughter	-2.8684***	-2.3369***	-3.0734***	-0.0245**
	(0.4114)	(0.3572)	(0.5279)	(0.0110)
# bio. brothers	-1.6699**	-0.7672	-0.5968	-0.0096
	(0.6812)	(0.4679)	(0.6299)	(0.0145)
# bio. sisters	-1.9374***	-0.8253*	-0.3016	-0.0153
	(0.6470)	(0.4466)	(0.5976)	(0.0145)
Mother works	3.2718***	-0.6976	-0.0493	0.0273
	(0.6350)	(0.8942)	(1.3435)	(0.0287)
Mother school	-3.5240***	0.3573	0.8569	0.0158
	(0.6014)	(0.5476)	(0.8662)	(0.0204)
Mother age	0.0952**	0.0111	0.0128	0.0010
	(0.0482)	(0.0404)	(0.0574)	(0.0014)
Mother's assets	-0.0287	-0.0116	0.0025	-0.0005
	(0.0174)	(0.0071)	(0.0149)	(0.0003)
# Mother children	1.5640**	0.5638	0.2263	0.0120
	(0.6731)	(0.4496)	(0.5803)	(0.0141)
Constant	4.6039**	4.5099*	10.0190***	0.3504***
	(1.7894)	(2.5275)	(3.3716)	(0.0798)
N	7,404	7,404	4,034	7,404
# fixed effects	794	1,469	1,189	1,469
within-R squared	0.137	0.136	0.132	0.228

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

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

Age fixed effects are controlled for but estimates are not reported.

Table A14: Falsification test of random mother status on child labour supply

	Hrs (extensive)		Hrs (intensive)		Any labour	
Random wife 1	0.0460	0.0624	0.5255	0.5246	0.0048	0.0128
	(0.2704)	(0.2703)	(0.3584)	(0.3576)	(0.0096)	(0.0084)
Birth rank	-0.1083	-0.1268	-0.0044	0.0019	-0.0235***	-0.0112
	(0.2285)	(0.2296)	(0.2940)	(0.2959)	(0.0067)	(0.0070)
Daughter	-2.3813***	-2.3385***	-3.0829***	-3.0734***	-0.0259**	-0.0342***
	(0.3579)	(0.3577)	(0.5222)	(0.5255)	(0.0110)	(0.0103)
# bio. brothers	-0.0126	-0.1579	-0.2545	-0.3514	0.0104**	-0.0080
	(0.1641)	(0.1741)	(0.2676)	(0.2744)	(0.0048)	(0.0053)
# bio. sisters	-0.1485	-0.2231	-0.0199	-0.0614	0.0019	-0.0036
	(0.1499)	(0.1534)	(0.2318)	(0.2362)	(0.0052)	(0.0051)
Mother works		-0.4917		0.0822		-0.0078
		(0.9173)		(1.3397)		(0.0242)
Mother school		0.3533		0.8877		-0.0098
		(0.5538)		(0.8661)		(0.0203)
Mother age		0.1085***		0.0754*		0.0021**
		(0.0333)		(0.0447)		(0.0010)
Mother's assets		-0.0038		0.0060		0.0000
		(0.0075)		(0.0156)		(0.0004)
Constant	4.7969**	1.6915	10.8701***	7.8535**	0.4013***	1.0230***
	(1.9873)	(2.3589)	(2.6975)	(3.1866)	(0.0565)	(0.0697)
N	7,404	7,404	4,034	4,034	7,404	4,034
# fixed effects	1,469	1,469	1,189	1,189	1,469	1,189
within-R squared	0.131	0.133	0.131	0.132	0.224	0.692

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

Household-wave fixed effects estimates reported.

Age fixed effects are controlled for but estimates are not reported.

Table A15: Linking ethnic group between different sources

Name on Map matched to our sample	Matched to updated Atlas	Inheritance code[a]	Population %, Müller et al (UN 1960)
ANGAS	Angas	7	0.60
ARAGO		.	
AUYOKAWA		.	
BACHAMA	Bachama	6	0.10
BAKAKARI	Dakakari	7	0.30
BARGU		.	
BAUCHI		.	
BEDE		.	
BERIBERI	Kanuri (subgroup)	4	In Kanuri
BIROM	Birom	7	0.90
BOKI	Boki	.	0.20
BOLEWA	Bolewa	.	0.20
BUNU		.	
BURA	Bura	7	0.90
BUSA	Bisa	7	0.10
BUTAWA		.	
CHAMBA	Chamba	7	0.40
EDO	Edo	7	1.00
EGBA	Egba	7	3.20
EGEDE		.	
EKITI	Ekiti	6	0.80
EKOI	Ekoi	7	0.20
GBARI	Gbari	6	0.60
GERAWA		.	
GUDE	Gude	7	0.10
GWANDARA		.	
HAUSA	Kanawa-Hausa	7	18.60
IBIBIO	Ibibio	7	4.50
IBO	Ibo	7	15.30
IDOMA	Idoma	7	1.60
IFE	Ife	6	0.60
IGALA	Igala	6	0.70
IGBIRA	Igbira	7	0.70
IJAW	Ijaw	.	1.40
IJEBU	Oyoyoruba (subgroup)	6	In Yoruba
ISOKO	Isoko	7	1.90
ITSEKIRI	Itsekiri	.	0.10
IYALA		.	
JARAWA	Chawai	.	0.10
JEN		.	
JUKUN	Jukun	7	0.10
KADARA	Kadara	7	0.10
KAMBERI		.	
KANURI	Kanuri	4	4.90
KAPSIKI	Kapsiki	6	0.10
KATAB	Katab	7	0.10
KONA	Hona	6	0.04
KORO	Koro	7	0.02
KOYAM	Kanuri (subgroup)	4	In Kanuri
KUKURUKU	Kukuruku	.	0.60
KURAMA, GURE (NE)	Gure	.	0.02
MADA		.	
MAGUZAWA	Maguzawa-Hausa	6	2.00
MAMA		.	
MANGA		.	
MARGI	Margi	7	0.40
MBEMBE		.	
MUMUYE	Mumuye	7	0.20
NGIZIM	Ngizim	.	0.40
NUPE	Nupe	6	1.50
ORRI		.	
RESHE	Reshe	6	0.10
SOKOTO	Bororoful	1	2.70
TANGALE		.	
TERA	Tera	4	0.10
TIENGA		.	
TIV	Tiv	1	4.80
WAKURA		.	
WARJAWA		.	
WURKUM		.	
YAKO	Yako	7	0.20
YERGUM	Yergum	7	0.04
YESKWA		.	
YORUBA	Oyoyoruba	6	12.50
YUNGUR	Yungur	6	0.10
ZUMPER		.	
Total			86.12

[a] The inheritance codes for the Atlas data are:
] 1 = Absence of individual property rights or rule of 4 =Children, with daughters receiving less, 6 =Other patrilineal heirs (e.g., younger brothers), and 7 =Patrilineal (sons).

Table A16: Household-Plot-wave fixed effects estimates of plot-level labor supply (children 5 to 17)

	Log h'rs	H'rs	Share h'rs
Inherit (=1)	0.0383	32.8179***	0.0093*
	(0.0487)	(12.4890)	(0.0053)
Inherit (=1)	0.0839*	27.7316**	0.0141***
	(0.0498)	(13.1966)	(0.0054)
Inherit x Daughter	-0.2687***	29.9727**	-0.0285***
	(0.0937)	(15.2257)	(0.0087)
Daughter (=1)	-0.4561***	-45.2155***	-0.0338***
	(0.0627)	(14.8930)	(0.0054)
Inherit (=1)	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 x Inherit	0.0151	-15.1285	0.0103
	(0.0695)	(13.7925)	(0.0069)
Wife 1 x Daughter	-0.0186	-56.8843***	-0.0078
	(0.0854)	(19.7802)	(0.0077)
Wife 1 x Inherit x Daughter	-0.1425	37.4194**	-0.0166*
	(0.0994)	(18.0630)	(0.0099)
Daughter (=1)	-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
within-R squared	0.203	0.070	0.188

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

Standard errors in parentheses are adjusted for clustering at the household-level. Child and mother characteristics are controlled for.

Table A17: Household-wave fixed effects of plot-level Inheritance

	Inherits (=1)
Wife 1	0.0864***
	(0.0321)
Wife 1 x Daughter	-0.0786**
	(0.0326)
Daughter (=1)	-0.0765**
	(0.0323)
Log area	0.0070
	(0.0090)
Hired lab. days	-0.0003
	(0.0002)
Exchange lab. days	-0.0001
	(0.0031)
Irrigated (=1)	0.1717
	(0.1044)
Distance in (kms) to HH	-0.0007*
	(0.0004)
Plot Elevation (m)	0.0002
	(0.0008)
Potential Wetness Index	-0.0099***
	(0.0031)
Fertilizer (=1)	0.0076
	(0.0246)
Pesticide (=1)	0.0201
	(0.0291)
Animal tractation (=1)	0.0076
	(0.0478)
Constant	0.3920
	(0.3508)
N	4,759
# fixed effects	1,076
within-R squared	0.051

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

Standard errors in parentheses are adjusted for clustering at the household-level. Child and mother characteristics are controlled for.

Table A18: Fixed effects estimates of first wife difference if mothers can inherit, GREG data

	H'rs (extensive)	H'rs (intensive)	Any labour	Edu. attending	Edu. ever att.	Literate	Years edu.
Wife 1 × Mother ($\boldsymbol{\delta_1}$)	2.9150***	2.0702**	0.0267	0.0592***	0.0660***	0.0065	-0.2999**
	(0.7300)	(0.9425)	(0.0233)	(0.0205)	(0.0187)	(0.0222)	(0.1426)
Wife 1 × Daughter (δ_2)	0.4525	0.5682	-0.0087	0.0157	-0.0014	-0.0281	-0.0953
	(0.6669)	(0.9820)	(0.0247)	(0.0252)	(0.0189)	(0.0248)	(0.1471)
Wife 1 × Mother × Daughter (δ_3)	-3.8298***	-3.6435***	-0.0345	-0.0835***	-0.0535**	-0.0072	0.0914
	(0.8920)	(1.2679)	(0.0289)	(0.0275)	(0.0230)	(0.0279)	(0.1702)
Wife 1 ($\boldsymbol{\beta_1}$)	0.7454	0.4014	0.0490***	-0.0246	-0.0175	0.0243	0.2581**
	(0.5742)	(0.7842)	(0.0188)	(0.0189)	(0.0141)	(0.0182)	(0.1240)
Daughter (β_3)	-1.4503***	-2.2400***	-0.0100	-0.0456***	-0.0298**	-0.0153	-0.0862
	(0.4081)	(0.6109)	(0.0144)	(0.0145)	(0.0125)	(0.0147)	(0.0819)
$\boldsymbol{\beta_1 + \delta_1}$	3.660	2.472	0.076	0.035	0.048	0.031	-0.042
SE($\beta_1 + \delta_1$)	0.607	0.829	0.020	0.018	0.017	0.019	0.119
$\boldsymbol{\beta_1 + \delta_2}$	1.198	0.970	0.040	-0.009	-0.019	-0.004	0.163
SE($\beta_1 + \delta_2$)	0.586	0.823	0.020	0.024	0.015	0.020	0.117
$\boldsymbol{\beta_1 + \delta_1 + \delta_2 + \delta_3}$	0.283	-0.604	0.033	-0.033	-0.006	-0.005	-0.046
SE($\beta_1 + \delta_1 + \delta_2 + \delta_3$)	0.559	0.854	0.019	0.019	0.017	0.021	0.123
N	7,404	4,034	7,404	7,404	7,226	7,164	7,180
#fixed effects	1,469	1,189	1,469	1,469	1,461	1,458	1,460
within-R squared	0.142	0.138	0.228	0.114	0.139	0.258	0.506

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

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

The binary variable 'Spouse' is equal to one if the inheritance system is 'Spouses and children with daughters receiving less'.

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

Table A19: Fixed effects estimates of first wife difference if children can inherit, GREG data

	H'rs (extensive)	H'rs (intensive)	Any labour	Edu. attending	Edu. ever att.	Literate	Years edu.
Wife 1 × Children ($\boldsymbol{\delta_1}$)	-2.0226***	-1.2374	-0.0149	-0.0708***	-0.0641***	-0.0153	0.2198
	(0.7379)	(0.9851)	(0.0235)	(0.0211)	(0.0189)	(0.0224)	(0.1481)
Wife 1 × Daughter (δ_2)	-2.9144***	-2.6266***	-0.0328	-0.0598***	-0.0549***	-0.0374*	-0.0443
	(0.6397)	(0.8891)	(0.0225)	(0.0200)	(0.0176)	(0.0210)	(0.1265)
Wife 1 × Children × Daughter (δ_3)	3.3034***	3.0662**	0.0121	0.0784***	0.0649***	0.0146	0.0038
	(0.9120)	(1.3137)	(0.0298)	(0.0286)	(0.0235)	(0.0287)	(0.1749)
Wife 1 ($\boldsymbol{\beta_1}$)	3.0876***	2.0162***	0.0694***	0.0350*	0.0419***	0.0337*	0.0155
	(0.5531)	(0.7525)	(0.0184)	(0.0179)	(0.0155)	(0.0179)	(0.1121)
Daughter (β_3)	-1.4646***	-2.2496***	-0.0099	-0.0456***	-0.0302**	-0.0153	-0.0856
	(0.4084)	(0.6115)	(0.0144)	(0.0144)	(0.0124)	(0.0147)	(0.0819)
$\boldsymbol{\beta_1 + \delta_1}$	1.065	0.779	0.054	-0.036	-0.022	0.018	0.235
SE($\beta_1 + \delta_1$)	0.640	0.904	0.021	0.020	0.015	0.020	0.137
$\boldsymbol{\beta_1 + \delta_2}$	0.173	-0.610	0.037	-0.025	-0.013	-0.004	-0.029
SE($\beta_1 + \delta_2$)	0.512	0.772	0.018	0.019	0.016	0.020	0.116
$\boldsymbol{\beta_1 + \delta_1 + \delta_2 + \delta_3}$	1.454	1.218	0.034	-0.017	-0.012	-0.004	0.195
SE($\beta_1 + \delta_1 + \delta_2 + \delta_3$)	0.667	0.941	0.022	0.025	0.016	0.022	0.126
N	7,404	4,034	7,404	7,404	7,226	7,164	7,180
#fixed effects	1,469	1,189	1,469	1,469	1,461	1,458	1,460
within-R squared	0.140	0.136	0.228	0.114	0.139	0.258	0.505

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

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

The binary variable 'Children' is equal to one if the inheritance system is either 'Children with daughters receiving less' or 'Patrilineal'.

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

Table A20: Fixed effects estimates of first wife difference if sons can inherit, GREG data

	H'rs (extensive)	H'rs (intensive)	Any labour	Edu. attending	Edu. ever att.	Literate	Years edu.
Wife 1 × Patri. ($\boldsymbol{\delta_1}$)	-1.8467**	-1.8966*	-0.0002	-0.0700***	-0.0450**	-0.0100	0.1474
	(0.8315)	(1.1408)	(0.0262)	(0.0236)	(0.0211)	(0.0252)	(0.1653)
Wife 1 × Daughter (δ_2)	-2.4905***	-2.3848***	-0.0284	-0.0537***	-0.0455***	-0.0371*	-0.0741
	(0.5857)	(0.8520)	(0.0208)	(0.0193)	(0.0165)	(0.0201)	(0.1204)
Wife 1 × Patri. × Daughter (δ_3)	3.1723***	3.5545***	-0.0007	0.0927***	0.0572**	0.0205	0.1292
	(0.9732)	(1.2860)	(0.0340)	(0.0321)	(0.0259)	(0.0321)	(0.1925)
Wife 1 ($\boldsymbol{\beta_1}$)	2.7791***	2.0090***	0.0637***	0.0248	0.0283**	0.0302*	0.0665
	(0.4922)	(0.6873)	(0.0168)	(0.0169)	(0.0142)	(0.0165)	(0.1051)
Daughter (β_3)	-1.4453***	-2.2194***	-0.0099	-0.0456***	-0.0302**	-0.0153	-0.0814
	(0.4089)	(0.6097)	(0.0144)	(0.0144)	(0.0124)	(0.0147)	(0.0818)
$\boldsymbol{\beta_1 + \delta_1}$	0.932	0.112	0.063	-0.045	-0.017	0.020	0.214
SE($\beta_1 + \delta_1$)	0.815	1.142	0.025	0.023	0.019	0.023	0.161
$\boldsymbol{\beta_1 + \delta_2}$	0.289	-0.376	0.035	-0.029	-0.017	-0.007	-0.008
SE($\beta_1 + \delta_2$)	0.477	0.737	0.017	0.018	0.014	0.018	0.108
$\boldsymbol{\beta_1 + \delta_1 + \delta_2 + \delta_3}$	1.614	1.282	0.034	-0.006	-0.005	0.004	0.269
SE($\beta_1 + \delta_1 + \delta_2 + \delta_3$)	0.831	1.025	0.025	0.028	0.019	0.024	0.141
N	7,404	4,034	7,404	7,404	7,226	7,164	7,180
#fixed effects	1,469	1,189	1,469	1,469	1,461	1,458	1,460
within-R squared	0.139	0.136	0.228	0.114	0.138	0.258	0.505

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

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

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

Table A21: Fixed effects estimates of first wife difference if children can inherit, ATLAS data

	H'rs (extensive)	H'rs (intensive)	Any labour	Edu. attending	Edu. ever att.	Literate	Years edu.
Wife 1 × Children ($\boldsymbol{\delta_1}$)	0.5910	1.2816	0.0196	-0.0007	0.0040	0.0251	-0.1162
	(0.7675)	(0.9649)	(0.0238)	(0.0208)	(0.0191)	(0.0217)	(0.1445)
Wife 1 × Daughter (δ_2)	-1.5821**	-1.6365*	-0.0181	-0.0237	-0.0302	-0.0299	-0.1453
	(0.7146)	(0.9634)	(0.0250)	(0.0231)	(0.0187)	(0.0234)	(0.1443)
Wife 1 × Children × Daughter (δ_3)	-0.3178	0.1389	-0.0196	-0.0160	-0.0040	-0.0046	0.1944
	(0.9334)	(1.3277)	(0.0292)	(0.0275)	(0.0234)	(0.0278)	(0.1725)
Wife 1 ($\boldsymbol{\beta_1}$)	2.0447***	0.9689	0.0537***	0.0081	0.0154	0.0155	0.1638
	(0.6016)	(0.7844)	(0.0195)	(0.0181)	(0.0155)	(0.0175)	(0.1194)
Daughter (β_3)	-1.4371***	-2.2193***	-0.0100	-0.0454***	-0.0300**	-0.0152	-0.0816
	(0.4091)	(0.6108)	(0.0144)	(0.0144)	(0.0124)	(0.0147)	(0.0816)
$\boldsymbol{\beta_1 + \delta_1}$	2.636	2.250	0.073	0.007	0.019	0.041	0.048
SE($\beta_1 + \delta_1$)	0.600	0.844	0.020	0.020	0.016	0.019	0.124
$\boldsymbol{\beta_1 + \delta_2}$	0.463	-0.668	0.036	-0.016	-0.015	-0.014	0.018
SE($\beta_1 + \delta_2$)	0.591	0.897	0.020	0.021	0.017	0.020	0.122
$\boldsymbol{\beta_1 + \delta_1 + \delta_2 + \delta_3}$	0.736	0.753	0.036	-0.032	-0.015	0.006	0.097
SE($\beta_1 + \delta_1 + \delta_2 + \delta_3$)	0.574	0.807	0.020	0.021	0.015	0.020	0.120
N	7,404	4,034	7,404	7,404	7,226	7,164	7,180
#fixed effects	1,469	1,189	1,469	1,469	1,461	1,458	1,460
within-R squared	0.137	0.135	0.228	0.112	0.137	0.259	0.505

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

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

The binary variable 'Children' is equal to one if the inheritance system is either 'Children with daughters receiving less' or 'Patrilineal'.

Age fixed effects are controlled for but estimates are not reported.

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

Table A22: Fixed effects estimates of first wife difference if sons can inherit, ATLAS data

	H'rs (extensive)	H'rs (intensive)	Any labour	Edu. attending	Edu. ever att.	Literate	Years edu.
Wife 1 × Patri. ($\boldsymbol{\delta_1}$)	0.9157	2.1292**	0.0378	-0.0021	0.0066	0.0248	-0.0829
	(0.7685)	(0.9724)	(0.0235)	(0.0210)	(0.0193)	(0.0220)	(0.1444)
Wife 1 × Daughter (δ_2)	-1.3086*	-0.8737	-0.0157	-0.0237	-0.0296	-0.0316	-0.1157
	(0.7057)	(0.9480)	(0.0244)	(0.0223)	(0.0180)	(0.0228)	(0.1396)
Wife 1 × Patri. × Daughter (δ_3)	-0.9037	-1.3864	-0.0265	-0.0171	-0.0057	-0.0021	0.1505
	(0.9366)	(1.3360)	(0.0291)	(0.0274)	(0.0235)	(0.0278)	(0.1724)
Wife 1 ($\boldsymbol{\beta_1}$)	1.9221***	0.6258	0.0466**	0.0087	0.0145	0.0169	0.1425
	(0.5897)	(0.7667)	(0.0191)	(0.0175)	(0.0149)	(0.0172)	(0.1153)
Daughter (β_3)	-1.4439***	-2.2452***	-0.0101	-0.0454***	-0.0300**	-0.0152	-0.0819
	(0.4087)	(0.6095)	(0.0144)	(0.0144)	(0.0124)	(0.0147)	(0.0816)
$\boldsymbol{\beta_1 + \delta_1}$	2.838	2.755	0.084	0.007	0.021	0.042	0.060
SE($\beta_1 + \delta_1$)	0.613	0.870	0.020	0.021	0.017	0.020	0.129
$\boldsymbol{\beta_1 + \delta_2}$	0.613	-0.248	0.031	-0.015	-0.015	-0.015	0.027
SE($\beta_1 + \delta_2$)	0.573	0.892	0.019	0.020	0.016	0.020	0.120
$\boldsymbol{\beta_1 + \delta_1 + \delta_2 + \delta_3}$	0.625	0.495	0.042	-0.034	-0.014	0.008	0.094
SE($\beta_1 + \delta_1 + \delta_2 + \delta_3$)	0.590	0.806	0.020	0.022	0.016	0.021	0.122
N	7,404	4,034	7,404	7,404	7,226	7,164	7,180
#fixed effects	1,469	1,189	1,469	1,469	1,461	1,458	1,460
within-R squared	0.138	0.135	0.229	0.112	0.137	0.259	0.505

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

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

Age fixed effects are controlled for but estimates are not reported.

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

Table A23: Estimates of first wife differential in child labour supply by ethnic groups

	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	1.6352**	2.2370
	(-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	0.9276	-1.1063
	(1.98)	(-1.07)	(1.13)	(-0.11)	(-0.00)	(-2.17)	(2.20)	(-1.64)	(-1.60)	(1.46)	(-1.21)
Daughter	-4.4851**	-1.7550	0.7325	-3.8925***	-4.1406***	1.8724	-1.1805	0.0061	-0.8294	1.7430	-0.8514
	(-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	-1.7970***	-0.9729
	(-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	-1.2680	0.1810
	(-0.31)	(-0.47)	(-0.77)	(-0.70)	(-1.80)	(-0.23)	(-0.53)	(-0.11)	(-1.28)	(-1.58)	(0.24)
Mother works	-17.5115***	12.5416	0.8656	-0.3977	1.0822	3.0831	0.9137	-11.0897***	0.6311	2.8585*	0.4602
	(-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	0.0321	-3.6746*
	(-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	0.0888	0.1104
	(1.96)	(-0.34)	(0.11)	(0.56)	(0.24)	(-0.04)	(-0.77)	(-2.62)	(-0.01)	(0.70)	(0.73)
Mother's assets	-0.2149	1.4218	0.0292	-0.1093	-0.0004	0.1077	-0.0406	-0.0395	-0.0383	-0.0663	-0.0119*
	(-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	3.1742	19.0586	-0.3737	47.4303***	11.9661	-0.3816	5.0420
	(-1.70)	(0.54)	(-0.52)	(-0.10)	(0.83)	(1.62)	(-0.06)	(3.13)	(1.19)	(-0.05)	(0.53)
N	232	158	162	720	2,833	308	856	480	519	269	420
#fixed effects	40	31	26	134	545	67	174	97	111	53	94
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

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

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

Age fixed effects are controlled for but estimates are not reported.

Table A24: Estimates of mother status and child labour using different outlier adjustment methods

	Hrs (extensive)	Log(H'rs + 1))	Log(H'rs+$\sqrt{\text{H'rs}^2+1}$)	H'rs winzorised[a]	Trimmed p95[b]
Wife 1	1.5393***	0.1479***	0.1779***	1.2350***	0.6393**
	(0.3856)	(0.0350)	(0.0421)	(0.3324)	(0.2947)
Birth rank	-0.1478	-0.0190	-0.0232	-0.0858	-0.1667
	(0.2281)	(0.0184)	(0.0220)	(0.1802)	(0.1544)
Daughter	-2.3494***	-0.1850***	-0.2132***	-2.1640***	-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**	-0.2433**
	(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	0.3407	0.0530	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	5.3243**	0.6256***	0.7635***	4.1239*	3.0690
	(2.5246)	(0.2145)	(0.2564)	(2.1090)	(1.8666)
N	7,404	7,404	7,404	7,404	7,048
# fixed effects	1,469	1,469	1,469	1,469	1,453
within-R squared	0.136	0.194	0.195	0.144	0.128

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

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

Age fixed effects are controlled for but estimates are not reported.

[a] Values that exceed the 95$^{\text{th}}$ percentile at the geopolitical wave-zone-level are replaced by the 95$^{\text{th}}$ percentile value.

[b] Values that exceed the 95$^{\text{th}}$ percentile at the geopolitical wave-zone-level are excluded.

Table A25: Correlates of hours of work (extensive margin) in Polygamous households

	Poisson[a]	Mundlak[b]	Honoré[c]	Any labour[d]
Wife 1	0.1389***	2.9197***	3.5578***	0.0500***
	(0.0345)	(0.4747)	(0.7474)	(0.0094)
N	6,126	7,404	7,404	7,404

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

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.

Table A26: Fixed effects estimates of mother status on child labour supply in polygamous households (bootstrapped standard errors)

	Hrs (extensive)		Hrs (intensive)		Any labour	
Wife 1	3.2180***	1.5393***	2.3163***	0.9035	0.0172	0.0506***
	(0.4223)	(0.5375)	(0.5009)	(0.7131)	(0.0132)	(0.0169)
Birth rank		-0.1478		-0.0046		-0.0248***
		(0.2152)		(0.3201)		(0.0062)
Daughter		-2.3494***		-3.0771***		-0.0247**
		(0.3908)		(0.5725)		(0.0123)
# bio. brothers		-0.2403		-0.3941		0.0016
		(0.2439)		(0.3631)		(0.0070)
# bio. sisters		-0.3090		-0.1027		-0.0044
		(0.2249)		(0.3328)		(0.0072)
Mother works		-0.7534		-0.0566		0.0261
		(1.1900)		(1.7561)		(0.0387)
Mother school		0.3407		0.8469		0.0155
		(0.7636)		(1.2178)		(0.0268)
Mother age		0.0101		0.0119		0.0009
		(0.0544)		(0.0757)		(0.0019)
Mother's assets		-0.0106		0.0029		-0.0004
		(0.0105)		(0.0265)		(0.0004)
Constant	6.8662***	5.3243*	14.4202***	10.3684**	0.3511***	0.3677***
	(0.3157)	(2.9563)	(0.5204)	(4.3267)	(0.0107)	(0.0881)
N	7,404	7,404	4,034	4,034	7,404	7,404
# fixed effects	1,469	1,469	1,189	1,189	1,469	1,469
within-R squared	0.023	0.136	0.012	0.132	0.000	0.228

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

Cluster (mother)-bootstrapped standard errors in parentheses using 400 repetitions.

Household-wave fixed effects estimates reported.

Age fixed effects are controlled for but estimates are not reported.

Table A27: Estimates of mother status on child labour supply in polygamous households, children aged 5 to 15

	H'rs (extensive)			H'rs (intensive)			Any labour		
Wife 1	2.6965***	1.4728***	1.4663***	2.1304***	1.3511***	1.2485**	0.0739***	0.0621***	0.0645***
	(0.2846)	(0.2953)	(0.3614)	(0.4037)	(0.4127)	(0.5206)	(0.0109)	(0.0111)	(0.0140)
Birth rank		-0.0620	-0.0552		0.2956	0.3136		-0.0254***	-0.0251***
		(0.2324)	(0.2330)		(0.3163)	(0.3168)		(0.0084)	(0.0084)
Daughter		-1.8609***	-1.8466***		-2.6957***	-2.6703***		-0.0307**	-0.0301**
		(0.3495)	(0.3489)		(0.5329)	(0.5379)		(0.0125)	(0.0125)
# bio. brothers		-0.0809	-0.0898		-0.1441	-0.1594		0.0006	0.0004
		(0.1443)	(0.1455)		(0.2372)	(0.2398)		(0.0052)	(0.0053)
# bio. sisters		-0.2603*	-0.2574*		-0.1995	-0.1632		-0.0038	-0.0037
		(0.1484)	(0.1486)		(0.2642)	(0.2669)		(0.0062)	(0.0062)
Mother works			-0.4546			-1.2655			0.0242
			(0.8773)			(1.5376)			(0.0328)
Mother school			0.4919			1.5044*			0.0252
			(0.5102)			(0.8631)			(0.0229)
Mother age			0.0177			0.0204			0.0001
			(0.0417)			(0.0639)			(0.0016)
Mother's assets			-0.0111*			0.0032			-0.0006*
			(0.0065)			(0.0135)			(0.0003)
Constant	6.2285***	4.3458**	3.8302	13.3813***	9.1947***	8.5438**	0.3853***	0.4268***	0.3970***
	(0.1452)	(1.9102)	(2.4883)	(0.2251)	(2.6812)	(3.6877)	(0.0055)	(0.0670)	(0.0918)
N	6,179	6,179	6,179	3,225	3,225	3,225	6,179	6,179	6,179
# fixed effects	1,442	1,442	1,442	1,098	1,098	1,098	1,442	1,442	1,442
within-R squared	0.020	0.116	0.116	0.012	0.099	0.100	0.009	0.154	0.154

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

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

Age fixed effects are controlled for but estimates are not reported.

Table A28: Fixed effects estimates of mother status on educational outcomes, children aged 5 to 15

	Attends			Ever attended			Literate		
Wife 1	0.0580***	0.0134	-0.0008	0.0549***	0.0062	-0.0002	0.1061***	0.0210*	0.0122
	(0.0097)	(0.0118)	(0.0144)	(0.0089)	(0.0085)	(0.0112)	(0.0114)	(0.0115)	(0.0145)
Birth rank		-0.0010	-0.0006		-0.0039	-0.0037		0.0095	0.0096
		(0.0072)	(0.0072)		(0.0067)	(0.0067)		(0.0075)	(0.0076)
Daughter		-0.0565***	-0.0559***		-0.0442***	-0.0439***		-0.0262**	-0.0261**
		(0.0113)	(0.0114)		(0.0100)	(0.0100)		(0.0118)	(0.0118)
# bio. brothers		-0.0007	-0.0019		0.0032	0.0026		0.0061	0.0056
		(0.0063)	(0.0064)		(0.0041)	(0.0042)		(0.0054)	(0.0055)
# bio. sisters		0.0043	0.0039		0.0060	0.0059		0.0037	0.0034
		(0.0069)	(0.0069)		(0.0047)	(0.0047)		(0.0060)	(0.0060)
Mother works			0.0252			0.0020			0.0131
			(0.0307)			(0.0247)			(0.0284)
Mother school			0.0246			0.0066			0.0024
			(0.0247)			(0.0205)			(0.0243)
Mother age			0.0019			0.0011			0.0009
			(0.0014)			(0.0012)			(0.0014)
Mother's assets			0.0002			-0.0001			0.0004
			(0.0003)			(0.0002)			(0.0004)
Constant	0.6267***	0.3842***	0.2931***	0.7213***	0.5134***	0.4730***	0.3878***	0.0815	0.0413
	(0.0050)	(0.0611)	(0.0829)	(0.0046)	(0.0561)	(0.0708)	(0.0059)	(0.0616)	(0.0794)
N	6,179	6,179	6,179	6,025	6,025	6,025	5,963	5,963	5,963
# fixed effects	1,442	1,442	1,442	1,432	1,432	1,432	1,428	1,428	1,428
within-R squared	0.007	0.132	0.133	0.009	0.147	0.147	0.021	0.234	0.235

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

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

Age fixed effects are controlled for but estimates are not reported.