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Gender Asset-Ownership Gap, Women's Agency, and Its Implications for Household Inequality

Evidence from Nigeria

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Abstract

The gender asset-ownership gap remains a persistent barrier to inclusive economic growth. While women contribute significantly to agricultural production and household welfare, they continue to face constraints in accessing and controlling productive assets such as land and non-land resources. Using nationally representative panel data from the Nigeria Living Standards Measurement Study-Integrated Surveys on Agriculture (LSMS-ISA) waves 4 and 5, this study examines the role of women's productive asset ownership and empowerment in shaping household income inequality in rural Nigeria. Descriptive evidence shows persistently high intrahousehold inequality, with intrahousehold Gini coefficients averaging approximately 0.70 across survey rounds, despite a modest decline between 2018/19 and 2023/24. Regional patterns reveal particularly pronounced inequality in the North East, where income distributions are heavily skewed and most households exhibit extreme intrahousehold disparities. Employing fixed effects regressions and Blinder-Oaxaca decompositions, the analysis yields three key findings. First, women's land share is associated with reduced intrahousehold income inequality, but this effect is modest and conditional. It becomes meaningful primarily in households where women control more than half of total household farmland, suggesting that small and fragmented landholdings offer limited inequality-reducing potential on their own. Women's control over income and participation in agricultural decision-making emerge as additional and consistently significant drivers of reduced intrahousehold inequality. Second, women's land share has a significant and positive effect on women's income share, with a 10 percentage point increase in female-managed farmland associated with approximately a 0.76 percentage point increase in women's share of household income; women's income control and agricultural decision-making further amplify this effect. Third, Blinder-Oaxaca decompositions reveal that households where women own productive assets have significantly lower intrahousehold inequality and higher women's income shares than those where no woman owns an asset, with differences driven primarily by disparities in women's income control and decision-making authority rather than asset ownership alone. This shifts the policy debate from simply closing gender asset gaps to ensuring women's assets are productive and consolidated with genuine economic agency.

Keywords: Gender inequality, asset ownership, household income inequality, intra-household allocation

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1. Introduction

Income inequality remains a defining challenge of contemporary development. Persistent gender disparities in the control and ownership of productive assets constitute a structural impediment to equitable economic development in low- and middle-income countries, including Nigeria (Doss et al., 2015; Deere & Doss, 2006). Women contribute the majority of labor in agricultural production and household enterprises yet command a disproportionately small share of high-value assets such as land, housing, livestock, and machinery (Oladokun et al., 2018; Ndjobo, 2023). These asymmetries not only curtail women's economic agency and bargaining power within households but also generate allocative inefficiencies, depress agricultural productivity, and entrench intrahousehold income inequality (Croppenstedt et al., 2013; Onyeneke et al., 2023). In Nigeria, where agriculture sustains approximately 70% of rural livelihoods and women perform the bulk of on-farm labor, the disjuncture between labor contribution and asset control is particularly acute (National Bureau of Statistics, 2019; Donkor et al., 2022).

This study addresses a central research question: how do gender gaps in asset ownership and agency influence household income inequality in Nigeria? The motivation goes beyond a general concern with asset inequality. In Nigerian rural households, income gaps between men and women are not merely the product of voluntary specialization or human capital differences; they reflect systematic constraints on women's access to productive assets, their exclusion from high-return economic activities, and crucially, their limited authority to control the income they do earn. This distinction is central to welfare argument for addressing intrahousehold inequality. While unequal earnings across household members may be economically efficient, the absence of women's control over income, irrespective of who earns it, has well-documented negative consequences for household welfare, including food security, child nutrition, and human capital formation (Quisumbing & de la Brière, 2000; Smith et al., 2003). The study therefore focuses not only on the distribution of income earned within the household but also on the mechanisms – specifically, gender gaps in asset ownership and decision-making authority – that determine who exercises meaningful control over that income.

The rationale for examining intrahousehold income inequality rests on evidence that the unitary household model, which treats the household as a single welfare-maximizing unit, and systematically obscures distributional dynamics within the home (Haddad et al., 1997). This

conventional household-level income aggregation masks the fact that income may be earned predominantly by one gender yet spent in ways that reflect the priorities of the other. International evidence robustly demonstrates that female asset ownership and income control positively shift household expenditure patterns toward education, health, and nutrition (Deere et al., 2012), not because women earn more, but because they exercise greater authority over how resources are allocated. This makes the question of who controls income at least as important as the question of who earns it, a distinction that our analysis explicitly preserves.

This study makes three substantive contributions to the literature on gender asset gaps and household welfare. First, it provides nationally representative evidence in Nigeria explicitly linking women's asset ownership, particularly agricultural land, to household income inequality. Leveraging individual-level income data and intrahousehold identifiers from the Nigeria Living Standards Measurement Study-Integrated Surveys on Agriculture (LSMS-ISA) panel waves 4 and 5 (2018/19 and 2023/24), the study constructs intrahousehold Gini coefficients that make previously hidden inequality visible. The analysis reveals alarmingly high within-household inequality (mean Gini 0.70, frequently exceeding 0.90), levels that are systematically masked by conventional household-level aggregation and the unitary-household assumption pervading prior research. Second, the study establishes a critical asymmetry in how women's assets affect different dimensions of inequality. Employing household fixed effects models combined with Blinder-Oaxaca decompositions, the analysis demonstrates that women's land ownership substantially reduces intrahousehold inequality, particularly when women control more than half of household land, exposing fundamental limitations of asset transfer policies when women's landholdings remain small-scale, fragmented, and have low productivity. Third, the study shows that women's agricultural decision-making authority and income control are as important as formal ownership in reducing inequality, shifting the policy debate from simply closing gender asset gaps to ensuring women's assets are productive and paired with real economic agency.

Gender gaps in asset ownership operate through multiple, mutually reinforcing channels. Assets function as durable wealth stocks that enable credit access, productive investment, risk mitigation, and intergenerational transfer, functions that income flows cannot replicate (Abubakar, 2021). When ownership is male-concentrated, income streams follow suit, skewing intrahousehold resource allocation and weakening women's decision-making authority (Adeosun & Owolabi, 2021; Eze & Onyishi, 2024). Recent evidence from southeast Nigeria indicates that resource

ownership disparities account for 56% of the food security gap between male- and female-headed urban farming households, with farm size as the dominant mediator (Onyeneke et al., 2023). In rural contexts, multidimensional poverty affects over 75% of women, driven by deprivations in cropland ownership and access to credit (Ukpe et al., 2024).

Empirically, gender gaps are stark and systemic. Women's asset portfolios are smaller, less diverse, and skewed toward low-return categories, while men monopolize land, mechanized equipment, and large livestock (Oladokun et al., 2018; Abubakar, 2021). Institutional barriers such as discriminatory inheritance under customary and Islamic law, exclusion from formal titling, and administrative biases in the 1978 Land Use Act interact with socio-cultural norms to perpetuate male control (Berry, 1993; Ndjobo, 2023). These structural legacies impose efficiency costs: meta-analytic evidence confirms that closing gender gaps in agricultural inputs could increase yields by 20–30% (Akpa et al., 2024). The implications for household income inequality are multidimensional. Male-controlled assets generate male-controlled income, distorting expenditure priorities and undermining investments in child welfare, which are strongly correlated with female resource control (Smith et al., 2003; Onyeneke et al., 2023). In value chains such as cassava processing, women's limited ownership of equipment and storage facilities confines them to low-value nodes, amplifying intrahousehold earnings differentials (Donkor et al., 2022). These dynamics perpetuate intergenerational poverty transmission, as asset-poor mothers transmit constrained opportunity sets to their children (Carter & Barrett, 2006).

By illuminating the central role of asset ownership and income control in perpetuating gender-based income inequalities within Nigerian households, this study seeks to contribute to comprehensive and practical approaches to achieving Sustainable Development Goal targets on gender equality, poverty reduction, and reduced inequalities while informing the design and implementation of national policies and programs aimed at promoting women's economic empowerment and inclusive development.

2. Literature Review

Persistent gender inequalities in land rights, inheritance, and asset ownership continue to shape women's economic and social positioning across diverse contexts. In sub-Saharan Africa, for instance, only 38% of women report owning land – either individually or jointly – compared to

51% of men (Behr et al., 2023). Although Doss et al. (2015) challenge earlier claims that women own just 1–2% of global land, they confirm enduring disparities in access and control. In Ethiopia, land registration programs have reduced some gender gaps; however, female-headed households still hold smaller, less productive plots, which exacerbates vulnerabilities such as food insecurity (Mengesha et al., 2022). Across Ethiopia, Malawi, Niger, Nigeria, Tanzania, and Uganda, men dominate sole ownership, while joint land titles rarely secure women equal rights over land use or income (Slavchevska et al., 2020). Cultural and institutional barriers, including patrilineal inheritance systems, further restrict women's claims and economic autonomy (Akinola, 2018). In Nigeria, entrenched patriarchal land tenure systems continue to deny women secure ownership and control, perpetuating poverty and emphasizing the urgent need for redistributive reforms that promote equity, equality, and productivity (Ajala, 2017).

These gendered disparities in asset ownership have significant intergenerational implications. Women's ownership of land and other productive assets is linked to improved child welfare through enhanced education, nutrition, and long-term human capital formation (Meinzen-Dick et al., 2011; Rehman et al., 2019; Christian et al., 2023). When empowered in asset ownership and decision-making, women strengthen their bargaining power within households, leading to better resource allocation for children's health and schooling (Christian et al., 2023). Meta-analyses confirm that although effect sizes vary, empowered women consistently invest more in nutritious diets, preventive healthcare, and educational opportunities (van der Meulen Rodgers et al., 2018; Rehman et al., 2019; Malapit et al., 2019). Furthermore, asset ownership provides a buffer against economic shocks, thus stabilizing household consumption and reducing the risks of child malnutrition and school dropout during crises (Riddle et al., 2023). However, these pathways are complex and context-dependent; for example, in Ethiopia's Eastern Oromia, women's empowerment in leadership correlates with increased consumption of animal-source foods by children, but empowerment in time-use domains is linked to higher stunting risks, highlighting potential trade-offs between income generation and caregiving responsibilities (Mechlowitz et al., 2023). Importantly, most studies focus on welfare outcomes rather than exploring how women's asset ownership influences broader income distribution patterns, leaving a critical gap in the literature.

Classical development economics emphasizes asset distribution as a key driver of income disparities, with unequal access to productive resources causing divergent household outcomes.

Reviews indicate a relationship between income inequality and economic growth, which is generally negative due to credit market imperfections and suppressed human capital investment, but occasionally positive when savings incentives dominate (Mdingi & Ho, 2021). Asset inequality, particularly in land, exerts a more substantial negative impact on growth than income inequality alone because it constrains the effectiveness of education policy and limits asset accumulation among the poor (Deininger & Olinto, 1999). The example of the United States, where the top 1% controls over 35% of total wealth, demonstrates that concentrated asset ownership hampers social mobility, limits aggregate demand, and threatens social stability (Pfeffer & Schoeni, 2016). Despite this, gender-disaggregated analyses of asset ownership and income inequality are scarce, as most research treats households as homogeneous units, ignoring intrahousehold disparities.

Emerging micro-level evidence challenges the unitary household model. Gender-disaggregated data from living standards measurement surveys (LSMS) reveal that intrahousehold disparities contribute substantially to overall inequality. In Senegal, for example, intrahousehold consumption differences explain 14% of total inequality. In comparison, cell-level data uncover hidden poverty in 13.7% of households classified as non-poor and an 8–9% underestimation of overall poverty (De Vreyer & Lambert, 2021). These findings highlight the limitations of household-level aggregates, especially in polygamous or extended family contexts, where gender control over assets amplifies disparities and distorts poverty measurement.

By explicitly linking women's share of asset ownership to household income inequality, this study addresses an important empirical gap and extends theoretical debates in bargaining models and collective household frameworks. Recent research indicates a persistent gender gap in household bargaining power, with husbands often dominating financial decisions (holding roughly 60% of the weight), influenced by earnings, employment status, and social norms, and resulting in suboptimal outcomes for women (Zhuge & Lang, 2025). Incorporating asset control into these models illustrates how enhancing women's ownership rights can shift intrahousehold bargaining positions, improve resource allocation, and reduce both within- and between-household income disparities. This dynamic is particularly relevant in contexts such as Ethiopia and Nigeria, where patriarchal structures constrain women's economic agency.

3. Data and Methods

3.1 Data

This study uses nationally representative data from the LSMS-ISA for Nigeria, focusing on the most recent waves to capture gender gaps in asset ownership, women' agency, and their implications for income inequality. We draw on the General Household Survey–Panel (GHS–Panel) waves 4 (2018/2019) and 5 (2023/2024), conducted by the National Bureau of Statistics in collaboration with the World Bank. These waves provide longitudinal insights into households across Nigeria's 36 states and the Federal Capital Territory, organized into six geopolitical zones: North West, North East, North Central, South West, South East, and South South.

The datasets include detailed information on household income, demographic characteristics, asset ownership, land distribution, and measures of women's empowerment, including income control and decision-making involvement. Key inequality metrics include the intrahousehold and interhousehold Gini coefficients.

3.1.1 Construction and description of the variables of interest

3.1.1.1 Dependent variable

The **intrahousehold Gini coefficient** measures inequality between men and women within a household. A higher value indicates greater disparity between individuals in the same household. We constructed this first by calculating income for each household member based on the income distribution across all income-earning members within that household, including earnings from employment, self-employment, agricultural activities, remittances, transfers, and any other income sources and then disaggregated by gender to account for contributions by men and women within the households. This produces a Gini value between zero (perfect equality, both men and women in the household earn the same) and one (perfect inequality, a particular gender earns everything) for each household. Households with only one gender earning income pose a challenge, as inequality cannot be calculated from a single observation. Thus, we excluded this type of household from our analysis. Where income is reported as jointly owned by multiple household members, we allocate it equally among all listed owners, a pragmatic convention in the welfare measurement literature that treats the individual as unit of analysis and also assumes equal sharing of resources within a household (OECD, 2013).

Women's income share is measured as the proportion of total household income earned by female members, calculated as the ratio of women's total income to combined household income. The share is bounded between zero and one, where zero indicates that women contribute nothing to household income, and one indicates that women are the sole earners. The measure thus captures the relative economic contribution of women to the household income pool across both survey waves.

3.1.1.2 Key explanatory variables

The explanatory variables used in this study include women's share of land, female-headed households, household size, age of household head, total tropical livestock units, farm-only household, years of schooling of household head, use of mobile phones, access to the internet, women's involvement in agricultural decision-making, women's control over income, and rural vs. urban residence.

Women's land share is measured as the proportion of total household farmland area under exclusive female control. A plot is classified as women-controlled only when all individuals listed as plot managers are female; plots on which any male is recorded as a manager including jointly managed plots are excluded. This conservative definition ensures the measure captures plots under women's sole control rather than mere involvement in plot management.

Women's asset ownership is measured as a binary indicator equal to one if at least one female member of the household owns any productive asset, including land, livestock, or agricultural capital.

Women's participation in agricultural decision-making is measured as a binary indicator equal to one if at least one female household member makes decisions over crop or livestock production activities. Decision-making is identified across five domains drawn from both the post-planting and postharvest questionnaires: (i) plot-level crop management decisions; (ii) seed input decisions; (iii) harvest management decisions; (iv) decisions over inorganic fertilizer purchases; and (v) sales of processed crops. Livestock decision-making covers decisions over the keeping and management of animals.

Women's control over income is measured as a binary indicator equal to one if at least one female household member is listed as a decision-maker over income from at least one source. Income control is identified across five domains: (i) control over harvest income from annual crops; (ii)

control over proceeds from crop sales to the primary buyer; (iii) control over proceeds from crop sales to a secondary buyer; (iv) control over business income, identified from the non-farm enterprise module; (v) control over wage income from employment; and (vi) control over other income sources, including transfers and remittances.

The **tropical livestock unit (TLU)** is a standardized metric that converts heterogeneous animal holdings into comparable units by weighting each species according to its metabolic weight relative to a 250 kg steer. TLUs is used here as a proxy for household livestock wealth. Following standard FAO conventions, TLU coefficients are assigned as follows: 0.5 for cattle and large ruminants, 0.7 for donkeys and horses, 0.3 for camels, 0.2 for pigs, 0.1 for small ruminants (sheep and goats), and 0.01 for poultry and other small animals. The household TLU is then calculated as the sum, across all species, of the number of animals owned multiplied by the corresponding coefficient, yielding a single continuous index of livestock wealth used as a control variable in the analysis.

3.2 Econometric specification

3.2.1 Fixed effects model

To estimate the causal impact of gendered asset ownership on intrahousehold income inequality, we employed a fixed effect model, as specified in equation (1):

$$Y_{ih} = \alpha + \beta_1 \, women\ land\ share_{ih} + \beta_2 X_{ih} + \gamma_t + \delta_i + \epsilon_{ih} \qquad (1)$$

where Y_{ih} is the inequality measure (Gini) for household h in zone i; *women's land share*$_{ih}$ is the key predictor; X_{ih} is the vector of controls; γ_t are wave dummies; δ_i are household fixed effects; and ϵ_{ih} is the idiosyncratic error. Standard errors are estimated using robust, clustered household-level standard errors to address potential heteroskedasticity and within-household correlation in the error terms. This approach accounts for the possibility that multiple observations from the same household may be correlated due to shared household characteristics, farming practices, or unobserved household-specific factors.

To test for potential endogeneity of the *women's land share* variable in our fixed effects model, we employ the Durbin-Wu-Hausman test. This involves a two-stage procedure: (1) regressing the potentially endogenous variable on all exogenous variables and instruments, and (2) including the residuals from the first stage in the main regression. If the residuals are statistically insignificant, the variable can be treated

as exogenous (see Appendix 1). Thus, we relied on the fixed effect model for our final estimates.

3.2.2 Decomposition analysis

To dissect the mechanisms, we implement Blinder-Oaxaca (BO) decompositions, decomposing by whether a woman in the household owns assets. In a fixed effect model, the unexplained component includes differences in average fixed effects, which capture both potential discrimination and unobserved time-invariant factors.

Group A: $Y_{it}^{A} = X_{it}^{A}\beta_{A} + \alpha_{i}^{A} + \epsilon_{it}^{A}$ (2)

Group B: $Y_{it}^{B} = X_{it}^{B}\beta_{B} + \alpha_{i}^{B} + \epsilon_{it}^{B}$ (3)

where i indexes individuals, t indexes time, X_{it} are time-varying covariates, α_i are individual fixed effects (capturing time-invariant unobserved heterogeneity), and β_g are estimated via within-group transformation (demeaning). Groups A and B reflect the decomposition groups, that is, households where women own assets and those who reside in rural areas.

The mean outcomes are $\bar{Y}g = \bar{X}g\beta_g + \bar{\alpha}_g$ (4)

Where $\bar{\alpha}_g$ is the average fixed effect for the group g.

The total difference $\Delta = \bar{Y}_A - \bar{Y}_B$ is decomposed into explained (endowments, based on time-varying covariates), coefficient differences, and the difference in average fixed effects.

4. Results and Discussion

4.1 Descriptive statistics

Table 1 presents summary statistics for the pooled sample and separately for waves 4 and 5. The average total household income is ₦422,635, rising substantially from ₦300,067 in wave 4 to ₦546,925 in wave 5, suggesting meaningful income growth across survey rounds. Households are relatively large, averaging 6.8 persons, and are predominantly male-headed, with female-headed households accounting for only 12% of the sample. Household heads are on average around 51 years old, with slightly older heads in wave 5 (52.5 years) compared to wave 4 (49.3 years). Mean years of schooling among household heads is approximately nine years and remains stable across waves.

Farming dominates as the primary livelihood activity, with nearly 80% of households engaged solely in farming, though this share declines modestly from 82% in wave 4 to 78% in wave 5, possibly reflecting a gradual diversification into non-farm activities. TLU exhibit a pronounced decline across rounds, falling sharply from 3.78 in wave 4 to 0.19 in wave 5, which may reflect seasonal variation, livestock sales, or differences in the composition of sampled households between rounds. Average total land size is 1.47 ha, increasing slightly from 1.31 ha in wave 4 to 1.63 ha in wave 5. Women's landholdings remain small in absolute terms – averaging just 0.10 ha – and account for roughly 11% of total household land, though the share rises from 10% in wave 4 to 12% in wave 5, suggesting incremental progress in women's land access over time.

Mobile phone ownership is nearly universal at 96%, with negligible variation across waves. Internet use, however, is considerably lower at 38% for the pooled sample, pointing to a persistent digital divide between basic mobile connectivity and broadband or data access. On women's empowerment, a large majority of households report women owning productive assets (87%), making agricultural decisions (75%), and controlling income (71%). Notably, while asset ownership and agricultural decision-making decline slightly from wave 4 to wave 5, women's income control increases from 68% to 74%, suggesting growing financial autonomy even as other dimensions of empowerment show marginal reductions.

In terms of the outcome variables, the pooled intrahousehold Gini coefficient is 0.70, indicating high inequality in resource distribution within households. This inequality declines from 0.72 in wave 4 to 0.67 in wave 5, pointing to a modest improvement in intrahousehold equity over time. Women's income share averages 35% in the pooled sample, rising from 33% in wave 4 to 37% in wave 5, a trend consistent with the observed gains in women's income control, though women's income still falls well short of parity, which underscores the persistence of gender-based economic disparities within rural Nigerian households.

Table 1: Descriptive statistics

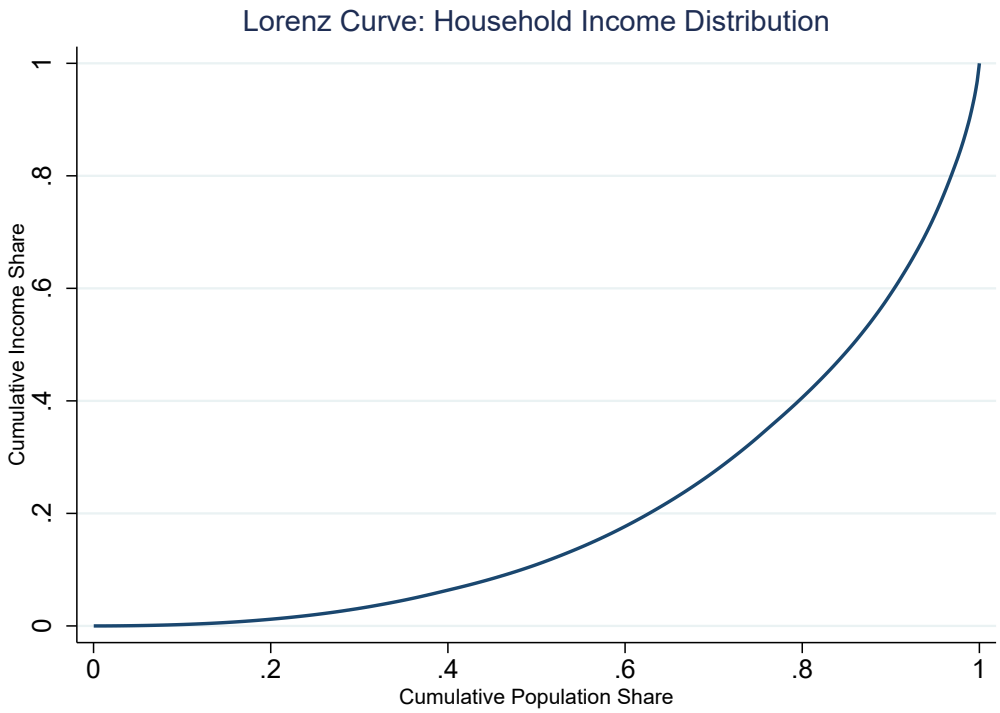
	Pooled (n = 4,155)	Wave 4 (n = 2,092)	Wave 5 (n = 2,063)
A. Household Economics			
Total household income (naira)	422,634.6	300,067.4	546,924.8
Household size	6.8075	6.6042	7.0136
Female-headed household	0.1235	0.1114	0.1357
Age of household head (years)	50.8599	49.2878	52.4542
Years of schooling	8.7199	8.6640	8.7765
B. Farm & Livelihood Characteristics			
Involved in farm only	0.7988	0.8184	0.7790
Tropical Livestock Units (TLU)	1.9969	3.7835	0.1851
Total land size (hectares)	1.4675	1.3080	1.6292
Women's land (hectares)	0.0982	0.0748	0.1219
Women's land share	0.1095	0.0953	0.1238
C. Technology Access			
Use mobile phone	0.9555	0.9565	0.9544
Use internet	0.3832	0.3781	0.3883
D. Women's Empowerment			
Women own productive assets	0.8700	0.8939	0.8459
Women make agricultural decisions	0.7483	0.7682	0.7281
Women control income	0.7126	0.6826	0.7431
E. Outcome Variables			
Intrahousehold Gini coefficient	0.6990	0.7245	0.6732
Women's income share	0.3476	0.3271	0.3684

Note: All values are means. Income is measured in Nigerian naira. TLU is a standardized index of livestock wealth. Women's land share is the proportion of total household farmland under exclusive female management. Intrahousehold Gini coefficient measures income inequality within the household. Women's income share is the proportion of total household income earned by female members.

Source: Authors' calculation based on Nigeria LSMS-ISA wave 4 (2015/16) and wave 5 (2018/19).

Figure 1 presents the Lorenz curve for the pooled household income distribution. The curve bows sharply below the line of perfect equality throughout, signaling pronounced income concentration. The bottom 60% of households account for barely 10–15% of total income, while the richest fifth capture an estimated 40–50%, a pattern consistent with the high intrahousehold Gini coefficients reported in Table 1 (mean ≈ 0.70). This steep income gradient, rooted in the unequal distribution of productive assets that characterizes rural Nigerian agrarian economies, provides the motivation for the analysis that follows: where productive assets are concentrated in male hands, income inequality is reinforced; expanding women's asset ownership and income control has the potential to shift resources toward the majority of households clustered at the lower end of the distribution.

Figure 1: Lorenz curve: Household income distribution



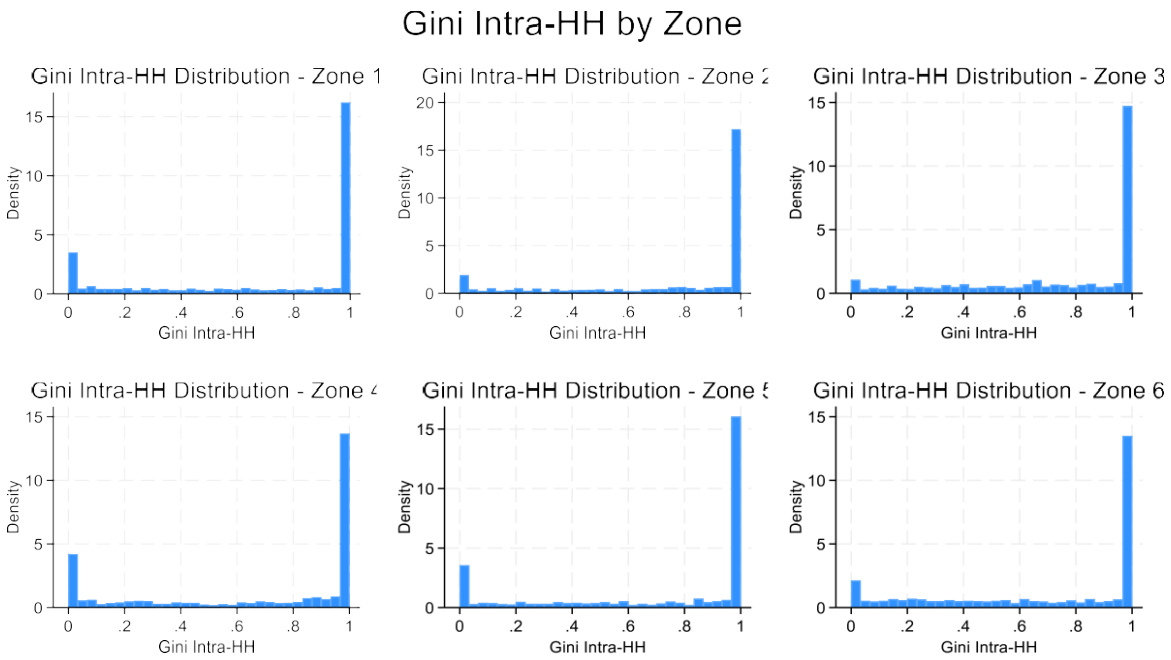
Source: Author's calculations.

Similarly, Figure 2 shows the distribution of intrahousehold Gini coefficients (Gini Intra-HH) across Nigeria's six geographic zones. The intrahousehold Gini measures income inequality within households, typically reflecting disparities in income between men and women within the households. Across all zones, the distributions are highly skewed toward 1, indicating that

many households have very high intrahousehold inequality, as most households have a Gini above 0.7. A large share is above 0.9, meaning one spouse (often the man) may control most household resources.

Compared with the other regions, the North East (Zone 3) shows more pronounced inequality, often characterized by high levels of poverty, malnutrition, and food insecurity, with only a minority showing equitable intrahousehold resource distribution. The South West (Zone 6) and South East (Zone 4) have marginally more households with moderate rather than extreme inequality. This coud be due to greater female education and higher female labor-force participation in these southern regions of Nigeria.

Figure 2: Gini intrahousehold income inequality by Zone



Source: Author's calculations.

Note: Zone 1= North Central; Zone 2=North East; Zone 3=North West; Zone 4=South East; Zone 5= South South; Zone 6= South West

4.2. Determinants of household income inequality

We used fixed effects regressions to estimate the drivers of intrahousehold inequality (Table 2). The results reveal several significant predictors of intrahousehold income inequality. Female-headed households exhibit significantly higher inequality, suggesting they may face more unequal internal resource allocation and are likely to experience greater intrahousehold inequality. One

likely reason for this is that female-headed households are often vulnerable and disproportionately represented among the poorest of the poor (Liu et al., 2017; Budlender, 2003), which reinforces income inequality within households. This is plausible, especially as in typical patriarchal societies, households dictate gender roles and place constraints on women's decision-making abilities, social mobility, workforce participation, and care responsibilities (Moghadam, 2015; Spierings, 2015), further reinforcing disparities in income within the households.

Livestock ownership also contributes positively to intrahousehold inequality, suggesting that livestock wealth may not be shared equitably among household members. This could be due to the gender divide in livestock ownership. Traditionally, men dominate the large livestock sector, mainly because it is labor-intensive and does not offer flexibility around the domestic responsibilities culturally assigned to women (Elias et al. 2024; Sunderland et al. 2014). Large and profitable animals, such as cattle, camels, and buffalo, which generate higher value for sales and income, are often unilaterally owned by men. For instance, cross-country analyses in Kenya, Tanzania, and Mozambique show unequal sharing of livestock among men and women, with women only managing higher shares of income from smaller-scale operations, such as poultry farming and egg production (Hovorka, 2012), but commercialization of large livestock animals, with larger income implications, resting with men (Elias et al. 2024; Njuki & Sangiga 2013). This implies that higher household total livestock holdings may not translate into gains in reducing intrahousehold inequality, especially when men primarily control holdings.

As expected, education plays a critical role, with each additional year of schooling for the household head associated with a reduction in intrahousehold inequality. Where household heads have higher education, equitable resource allocation, greater bargaining power, and investments in human capital, disparities in consumption, welfare, or income potential within households are better mitigated. Rural households are also found to be associated significantly with higher inequality than urban households. Women's involvement in agricultural decision-making statistically reduces intrahousehold inequality. This implies that when women are allowed to participate in making in agricultural decisions, inequality in households income tends to decrease, underscoring the importance of women's empowerment in resource distribution. Decision-making authority can reshape resource flows and reduce bias in allocating resources to women (Amugsi et al. 2016; Malapit & Quisumbing 2015).

Table 2: Fixed effect regression results in intrahousehold inequality

	Intrahousehold inequality	
Variables	Fixed effects model Coefficient	Standard error
Share of land owned by women	−0.005	(0.037)
Female head*	0.187***	(0.050)
Household size	0.005	(0.004)
Age of household head	−0.002*	(0.001)
TLU coefficient	0.005**	(0.003)
Involved in farm only	0.026	(0.020)
Years spent in school	−0.007**	(0.003)
Use a mobile phone	−0.019	(0.042)
Women involved in agriculture decision-making	−0.141***	(0.017)
Women's control over income	−0.272***	(0.017)
Constant	1.108***	(0.091)
Observations	4,155	4,155
Number of households	2,157	2,157
R-Squared	0.156	0.354

Note: *Female headship should be interpreted as a correlate rather than a causal determinant of intrahousehold inequality.
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' calculations.

For robustness, using share of women's household income, the results in Table 3 reveal that women's land share is positively and significantly associated with women's income share. This is consistent with the hypothesis that securing women's control over productive resources translates into greater economic returns. A 10-percentage point increase in the share of household farmland under exclusive female management is associated with approximately a 0.76 percentage point increase in women's income share, underscoring the role of land rights as a foundational channel through which gender equity in agriculture operates.

Conversely, similar to findings on intrahousehold income inequality, total livestock wealth measured by the TLU index is negatively and significantly associated with women's income share, suggesting that livestock wealth does not accrue equitably to women within the household. This is consistent with well-documented patterns of gendered livestock ownership in Nigerian farming systems, where men predominantly control large and commercially

valuable animals, reinforcing rather than reducing intrahousehold income disparities.

Women's control over income emerges as the strongest predictor in the model, associated with a 24.5 percentage point increase in women's income share, reflecting its role as a substantively important marker of intrahousehold bargaining power. Women's involvement in agricultural decision-making is similarly positive and significant. Participation in crop or livestock production decisions is associated with a 5.8 percentage point higher women's income share, which confirms that agency has measurable consequences for women's economic standing within the household.

These findings underscore that structural factors expanding women's control over resources and decision-making, land rights, income authority, and participation in agricultural decisions are the primary drivers of women's income share in rural Nigerian households, while livestock wealth reinforces male income dominance.

Table 3: Fixed effects (within) regression: determinants of women's income share

Variable	Coefficient	Robust SE
Women's land share	0.0758**	(0.0318)
Household size	0.0009	(0.0031)
Age of household head	0.0005	(0.0011)
Tropical livestock unit	−0.0050**	(0.0022)
Involved in farm only	0.0026	(0.0176)
Years spent in school	0.0016	(0.0024)
Use mobile phone	−0.0483	(0.0321)
Women involved in agricultural decision-making	0.0576***	(0.0155)
Women have control over income	0.2454***	(0.0140)
Constant	0.1318*	(0.0743)
Observations	4,155	
Number of households	2,157	
R-squared (within)	0.1513	

Note: *** p<0.01, ** p<0.05, * p<0.10. Standard errors in parentheses are robust and clustered at the household (hhid) level.
Source: Authors' calculations.

4.3 Blinder-Oaxaca decomposition of intrahousehold income based on asset-ownership status by women

Table 4 reports a Blinder-Oaxaca decomposition of the intrahousehold Gini coefficient between two groups of households defined by women's productive asset ownership. Group 1 (women own assets = 1) comprises households in which at least one female member owns land, livestock, or agricultural capital; Group 2 (women own assets = 0) comprises households with no female asset owner. The decomposition partitions the mean difference in the intrahousehold Gini into three components: differences in observed household characteristics (endowments); differences in the associations between those characteristics and the outcome (coefficients); and an interaction term. This analysis complements the fixed effects regression by explaining descriptively why asset-owning households have lower intrahousehold inequality, rather than identifying a causal effect. Standard errors are clustered at the household level.

The decomposition reveals a statistically significant gap in intrahousehold inequality between the two groups. Households where women own productive assets have a mean Gini coefficient of 0.685, compared to 0.793 in households where no woman owns an asset, a difference of −0.109 and statistically significant at 1%. This gap indicates that households with female asset ownership have meaningfully more equitable internal income distributions. The endowments component accounts for more than the full gap (−0.111, 101.87%), meaning that observable differences in household characteristics alone more than explain the inequality difference between the two groups. The coefficients component (−0.008) and interaction term (0.010) are both small and statistically insignificant, indicating that the two groups do not differ meaningfully in how their characteristics translate into intrahousehold inequality and the gap is driven entirely by who they are, not by differences in returns to those characteristics.

Among the individual variable contributions to the endowments component, women's control over income is the largest single contributor (−0.082, statistically significant at 1%), followed closely by women's involvement in agricultural decision-making (−0.065, also statistically significant at 1%). Together, these two variables account for more than the entire endowments gap, with other variables providing partial offsets. Female headship contributes positively to the endowments component (0.025, statistically significant at 5%), reflecting that female-headed households tend to have higher women's asset ownership but are also associated with higher intrahousehold inequality, consistent with the fixed effects finding discussed earlier. In the coefficients component, the age of the

household head is the only statistically significant contributor (−0.167, at 1%), suggesting that the returns to demographic characteristics differ between asset-owning and non-asset-owning households, though this component does not drive the overall gap.

Table 4: Blinder-Oaxaca decomposition of intrahousehold income inequality by women's productive asset ownership

Dependent variable: Intrahousehold Gini coefficient			
	Levels (X) of determinants	**Effects (β) of determinants**	**Interactions**
Group 1 (women own assets=1)	0.685***		
Group 2 (women own assets=0)	0.793***		
Difference	−0.109***		
Differences attributed to component	−0.111***	−0.008	0.010
Percent of component	101.87%	7.10%	−8.97%
Contribution of each variable to the component of the difference (N = 4,155)			
Female-headed household	0.025**	0.002	0.009
Household size	−0.000	−0.033	0.000
Age of household head	0.004	−0.167***	−0.009**
TLU coefficient	0.008	−0.001	−0.001
Farm only	0.001	0.012	−0.001
Years of schooling	−0.003	0.016	0.002
Use of mobile phone	−0.000	0.013	0.001
Women make agricultural decisions	−0.065***	−0.002	−0.003
Women control income	−0.082***	0.027†	0.013†
Rural	0.001	0.033	−0.002

Note: *** p<0.01, ** p<0.05, * p<0.1, † p<0.10 (marginal). Robust standard errors clustered at the household level.

own_asset_women = 1 if at least one female household member owns land, livestock, or agricultural capital; = 0 otherwise. The endowments (Levels X) component reflects the portion of the gap attributable to differences in observed characteristics evaluated at Group 2 coefficients. The coefficients (Effects β) component captures differences in returns to characteristics. The interaction term captures the joint effect of differences in both characteristics and returns. Group means reported in the Levels (X) column for presentational clarity.

Source: Authors' calculations.

Overall, these results consistently show that households where women own productive assets have lower intrahousehold income inequality primarily because they are also households where women exercise decision-making power and control income. Asset ownership appears to operate as a gateway to agency, and it is that agency, rather than ownership alone, that compresses the intrahousehold income distribution. This finding aligns with Mishra and Gam (2016), who find that women's access to productive assets improves intrahousehold empowerment and decision-making over resource allocation. Similarly, evidence from Viet Nam shows that women's land ownership can reduce intrahousehold disparities by increasing their bargaining power, though effects are

conditional on whether titles are held solely or jointly and on broader cultural context (Nguyen and Le, 2022).

From Table 5, the gap in women's income share between households where women own productive assets and those where they do not is substantial and statistically significant: households where women own assets record a women's income share of 0.370, compared with 0.195 for households where women own no assets, producing a difference of 0.175. This gap is predominantly explained by endowments and differences in observed household characteristics, which account for 68.6% of the total gap (endowments and household characteristics), with coefficient and interaction effects contributing a further 13.0% and 18.4% respectively, though both are only marginally significant. This suggests that while the bulk of the income share gap reflects women in asset-owning households simply having better productive endowments, there is some evidence that the returns to those characteristics also differ modestly across the two groups.

Within the endowment component, women's control over income is the dominant driver, contributing 0.080 to the explained gap and confirming that asset-owning women are substantially more likely to exercise authority over household income streams. Women's participation in agricultural decision-making similarly contributes positively (0.021), reinforcing the notion that asset ownership is bundled with broader empowerment endowments that together improve women's income position. Livestock wealth, by contrast, exerts a small negative endowment effect (−0.006), consistent with the fixed effects results and the pattern documented across sub-Saharan Africa, where larger livestock holdings tend to concentrate income in male hands, partially offsetting the income gains associated with women's asset ownership.

Interestingly, the coefficient component for women's income control is negative (−0.018), suggesting that among households where women do not own assets, the returns to income control, where it exists, are actually higher than in asset-owning households. This points to a possible substitution effect: in households where women lack productive assets, control over income may serve as a more critical and high-return channel for asserting economic influence, whereas among asset-owning women it operates alongside other empowerment mechanisms and thus carries a smaller marginal return. A similar pattern emerges for mobile phone use, where the negative coefficient effect (−0.071) suggests that digital access translates into larger income gains for non-asset-owning women, possibly because it compensates for their more limited access to markets and information.

Table 5: Blinder-Oaxaca decomposition of women's income share by women's productive asset ownership

Dependent variable: Women's income share

	Levels (X) of Determinants	Effects (β) of Determinants	Interactions
Group 1 (women own assets = 1)	0.370***		
Group 2 (women own assets = 0)	0.195***		
Difference	−0.175***		
Differences attributed to component	0.120***	0.023†	0.032†
Percent of component	68.61%	12.99%	18.40%
Contribution of each variable to the component of the difference (N = 4,155)			
Female-headed household	0.021	0.005	0.020
Household size	0.001	0.028	−0.000
Age of household head	0.003	0.041	0.002
TLU coefficient	−0.005	0.004	0.002
Farm only	0.001	0.026	−0.002
Years of schooling	0.001	0.019	0.003
Use of mobile phone	0.002	−0.070*	−0.004
Women make agricultural decisions	0.021*	0.011	0.016
Women control income	0.080***	−0.018†	−0.009†
Rural	−0.001	−0.074*	0.003

Note: *** p<0.01, ** p<0.05, * p<0.10, † p<0.10 (marginal). Robust standard errors clustered at the household level.

own_asset_women = 1 if at least one female household member owns land, livestock, or agricultural capital; = 0 otherwise. The endowments (Levels X) component reflects the portion of the gap attributable to differences in observed characteristics evaluated at Group 2 coefficients. The coefficients (Effects β) component captures differences in returns to characteristics. The interaction term captures the joint effect of differences in both characteristics and returns. Group means reported in the Levels (X) column for presentational clarity.

Source: Authors' calculations.

These findings point to an important nuance in the relationship between asset ownership and women's income. The dominance of the endowment effect confirms that the income share gap between the two groups is driven primarily by differences in what women bring to the household economy, their control over income, their participation in decisions, and their access to resources, rather than by differences in how those characteristics are rewarded. This implies that policies targeting women's asset ownership alone may be insufficient if they are not accompanied by

complementary interventions that strengthen women's decision-making authority and income control. Asset ownership matters, but its income returns are contingent on the broader empowerment environment in which it is embedded.

5. Conclusion and Policy Implications

This paper empirically examines the impact of the gender asset-ownership gap on income inequality, using two waves of nationally representative LSMS–ISA data for Nigeria. Our analysis shows that income inequality, measured using the Gini coefficient, remains high within and between households, despite a slight decline over time. Specifically, intrahousehold inequality fell marginally from 0.73 to 0.70 between 2018/2019 and 2023/2024.

Regional disaggregation further reveals that income distributions across all geopolitical zones (North Central, North East, North West, South East, South South, and South West) are highly skewed toward 1. Most households have intrahousehold Gini values above 0.7, and a substantial share exceed 0.9, indicating that one spouse, typically the man, controls a disproportionate share of household resources. Inequality is particularly pronounced in the North East.

Using fixed effects models, we find that women's land share is associated with reduced intrahousehold income inequality, but this effect is modest and conditional. It becomes meaningful primarily in households where women control more than half of total household farmland, suggesting that small and fragmented landholdings offer limited inequality-reducing potential on their own. Similarly, women's involvement in agricultural decision-making is strongly associated with lower intrahousehold income inequality, underscoring the importance of decision-making authority in reshaping resource flows and mitigating gender biases. Women's control over income is an additional dominant driver of reduced intrahousehold inequality.

Regarding women's income share, we find that women's land share is positively and significantly associated with women's income share, with a 10 percentage point increase in female-managed farmland associated with approximately a 0.76 percentage point increase in women's income share. Women's income control and agricultural decision-making further amplify this effect.

The Blinder-Oaxaca decomposition analyses confirm that households in which women own assets exhibit more equitable income distribution and higher women's income shares than those where no woman owns an asset. These differences are driven primarily by disparities in women's income

control and decision-making authority, rather than asset ownership alone and women's involvement in decision-making. The findings underscore that expanding women's agency through land rights, income authority, and decision-making participation is more consequential for household income equality than asset accumulation in isolation.

The findings demonstrate that gender disparities in asset ownership and decision-making authority play a significant role in shaping income inequality in Nigeria. Policies that strengthen women's access to and control over productive assets, particularly land, can reduce household inequality by increasing women's bargaining power and improving the equity of resource allocation. Expanding women's involvement in agricultural decision-making can further reinforce these effects by influencing how income and resources are distributed within households. These interventions are particularly important given that women's agency, rather than ownership status alone, emerges as the primary mechanism through which gender-equitable outcomes are achieved.

The findings underscore that gender disparities in asset ownership and decision-making authority are central drivers of income inequality in Nigeria. Strengthening women's access to and control over productive assets, particularly land, can meaningfully reduce household inequality by enhancing women's bargaining power and promoting more equitable resource allocation within households. Yet asset ownership alone is not sufficient. Women's involvement in agricultural decision-making emerges as an equally critical pathway, shaping how income and resources are distributed and amplifying the equity gains associated with ownership. Policies targeting women's empowerment must therefore go beyond expanding ownership rights to actively cultivating women's authority over productive and financial decisions

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Appendix 1: Endogeneity Test for Women's Land Share

Variable	Stage 1: First-Stage Regression		Stage 2: Endogeneity Test	
	DV: women_land_share		DV: gini_intrahh	
women_land_share	–		-0.158	(0.249)
v_hat (residuals)	–		**0.180**	**(0.253)**
Female household head	0.358***	(0.019)	0.199**	(0.096)
Household size	-0.003*	(0.002)	0.004	(0.003)
Household head age	-0.002***	(0.001)	-0.001	(0.001)
TLU coefficient	-0.009***	(0.001)	0.003	(0.003)
Farm only	0.031***	(0.010)	0.010	(0.017)
Years of education	-0.000	(0.002)	-0.006**	(0.002)
Use of mobile phone	-0.040**	(0.020)	-0.027	(0.037)
Use internet	0.009	(0.009)	-0.014	(0.015)
Women make agricultural decision	0.050***	(0.009)	-0.112***	(0.019)
Women control income	0.010	(0.009)	-0.250***	(0.014)
Women own asset	0.030***	(0.010)	-0.007	(0.019)
Constant	0.108***	(0.041)	1.075***	(0.078)
Observations	6,314		6,314	
Number of groups	3,157		3,157	
R^2 (within)	0.150		0.129	
R^2 (between)	0.348		0.181	
R^2 (overall)	0.277		0.158	
F-statistic	46.20***		41.54***	

Note*:* Standard errors in parentheses (robust standard errors clustered at household level in Stage 2). *** p<0.01, ** p<0.05, * p<0.1. Both models estimated using fixed effects (within) regression with household fixed effects. *total_land* omitted in Stage 2 due to collinearity.

Appendix 2: Fixed effect estimates of women land share impact on intrahousehold inequality when women land share>0.5

	Intrahousehold inequality
Women's land share	-1.225***
	(0.535)
Household characteristics	Yes
Household fixed effects	Yes
R squared	0.182
N	383

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