

Mediating Roles of Educational Attainment and Urbanization on the Relationship between Male Self-Employment and Household Welfare in Sub-Saharan Africa applying GSEM

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Abstract

In Sub-Saharan African countries, labor markets are segmented between self-employment and wage employment in formal versus informal settings, with household wealth levels shaped by both human and structural contexts. This study investigated how educational attainment and urbanization mediate the relationship between male self-employment and household wealth using DHS microdata and generalized structural equation modeling (GSEM). Considering survey p weights, and PSU-clustered standard errors, the study estimated a three-equation GSEM in which educational attainment and urbanization are predicted by male self-employment, and household wealth is predicted by self-employment, educational attainment, and urbanization. Male self-employment is negatively associated with educational attainment and urbanization, while both intermediaries are significantly and positively linked with household welfare. The direct effect of male self-employment on household wealth is significantly negative relative to male wage-employment. Urbanization exhibits a larger effect on household wealth than educational attainment. Disintegration designates that about 35% of the total negative relationship between male self-employment and household wealth is mediated, mainly through urbanization. Therefore, interventions that combine literacy and urbanization with rural-urban integration with expansion of infrastructure are possibly to lessen the wealth disadvantage associated with male self-employment and enhance household wealth.

1. Introduction

In Sub-Saharan African (henceforth SSA) countries, self-employment constitutes the majority of the labor force (Fields, 2019; Kingdon et al., 2006), typically male self-employment establishes a substantial share of non-wage labor (Van den Broeck & Kilic, 2019a), often in susceptibility settings serving as a main livelihood strategy for masses of households (see for example, (Cunningham et al., 2024; Davis et al., 2014; Nagler & Naudé, 2017a)). While self-employment is a common livelihood approaches for households in SSA countries, as compared to wage-employed, the question of whether it increases wellbeing or serves as a fallback remains ambiguous. For example, self-employment is related with decreased economic welfare (Kunawotor & Ahiabor, 2025); however, non-farm self-employment is accompanying with wellbeing improvement (Adjognon et al., 2017). Poverty and wellbeing are strongly linked, analyzing the effect of self-employment on wellbeing entails understanding of its influence on poverty. With respect to poverty-self-employment nexus, one of the effective approaches for decreasing poverty is self-employment (Ajide & Dada, 2023). Furthermore, opportunity entrepreneurs and non-agriculture self-employment are a workable route out of poverty even for persons with lower educational and skill attainment; yet, self-employment is significantly and positively related with poverty (Adjei-Mantey & Kunawotor, 2024a). And these contrasting findings might be subject to among others, two important factors: the socio-spatial setting such as the place where the self-employed resides or urbanization, and human capital in the form of the educational attainment of the self-employed.

Education has been found to have mixed correlation with welfare values in SSA countries: education enhances life expectancy (Kouladoum, 2023); education plays negligible role in minimizing poverty (Atangana, 2022); education from primary to tertiary stages has monotonic welfare benefits, and higher human capital is significantly associated with higher household wellbeing (Epo et al., 2025a). Additionally, there has been inconsistent evidence in this region on the relationship between education and access to employment opportunities: skills training programs has improved outcomes relating to employment (Beber et al., 2025); enrollment in higher education has a significant but detrimental effect on employment (Amin & Ntembe, 2020). The complexity of the linkages between self-employment and wellbeing through urbanization are not fully established. Urbanization can transform the structure of employment opportunities for both rural and urban employments (Gutu Sakketa, 2023);

urbanization intensifies the demand for infrastructure access (El-Bouayady et al., 2024; El-bouayady & Radoine, 2023), and with concern of cost-of-living constraints (and henceforth may determine the welfare returns to male self-employment). However, notwithstanding the possible effect of self-employment, education, and urbanization on wellbeing, there is inadequate systematic evidence associating all three in SSA countries, particularly targeting on male self-employment and household wellbeing outcomes.

Despite the extensive literature on employment, education, urbanization, and wellbeing in SSA countries, the following gaps are apparent: Gender-specific emphasis: few studies examined self-employment with respect to gender differences short of curiosity how that specifically affects household welfare (e.g, (Brixiova & Kangoye, 2017; Nwaka & Ike, 2024a; Van den Broeck & Kilic, 2018, 2019b). Role of educational attainment as mediator: while there is few literatures on education and employment in SSA countries (e.g, (Anowor et al., 2023; Oudanou et al., 2024; Sparreboom, 2017)), there is no research work examines how educational attainment conditions the household welfare returns of male self-employment in SSA countries. Urbanization as contextual mediator: across SSA countries, there is no multi-country evidence on how the urban-rural residence context influences the association between male self-employment and household wellbeing. The micro-data from male modules of the Demographic and Health Surveys (DHS) remain under-utilized to investigative how male self-employment, urbanization and education interact to affect household wellbeing in SSA countries. In order to fill these gaps, this study adopted a unified analytical approach to assess how urbanization and educational attainment mediate the male self-employment–household wellbeing nexus in SSA countries.

Without clarity on what conditions male self-employment foster household wellbeing improvement, development policies promoting male self-employment risk failing to improve household wellbeing or even stimulate inequalities. Controlling the type of occupations, if male self-employment doesn't improve welfare for those with lower education or in rural areas, then blanket self-employment strategies may flop to bring unbiased welfare benefits. Given these varying aspects, this study investigated the way in which urbanization and educational attainment mediate the link between male self-employment and household wellbeing in SSA countries. Using data collected from World Bank and male participants in the DHS across different SSA countries, this study examined the circumstance in which male self-employment results in improved household welfare, and how this outcome is affected by the educational attainment of the respondent and the corresponding place of residence.

2. Data and Methods

2.1 Data Source

This study used a cross-sectional analytical design applying coherent DHS datasets from several SSA countries. Depending on data availability, male respondents between the ages of 15 and 64 who reported their employment status were included in the sampling frame, with an emphasis on differentiating self-employed respondents from wage workers, and unemployed. The data and loads of information are freely available at link. To control the influence of the standard of living of the country with respect to household wellbeing, additionally, we utilized GNI per capita (PPP int. \$) (gross national income transformed to international dollars applying purchasing power parity rates) from World Bank datasets, which is accessible at link.

2.2 Outcome Variable

Household welfare/wellbeing is the outcome variable being analyzed. Standardized Household Wealth Index is a fused measure integrating multiple dimensions and used as a proxy for household welfare status, given that

wealth index is a commonly used indicator of socio-economic status in low- and middle-income countries (Howe et al., 2011). To evaluate a household's overall economic wellbeing, the DHS's household wealth index considers its assets, housing qualities, and access to water and sanitary facilities. It also delivers a long-term outlook of the household's economic status. Standardized Household Wealth Index was calculated from the given household wealth index designed to rank households based on their relative economic status across different groups of male respondents.

2.3 Predictor Variable

In SSA countries, the majority of the economically active residents is self-employed (David et al., 2019). And male self-employment status from DHS dataset is employed as an explanatory variable that implied vital associations with household welfare; self-employment is an important source of household income in the SSA countries. For example, in urban areas, self-employment generates 53 % to household income in Nigeria, 48 % in Niger and 43 % in Tanzania (Nagler & Naudé, 2017b). Self-employment status variable is binary: self-employed versus wage-employed.

2.4 Mediating Variables

Based on country-specific definitions used in DHS surveys, educational attainment and urbanization variables are mediating variables between male self-employment and household welfare. Educational attainment is measured non-categorically in levels. Urbanization is defined as a binary variable that differentiates between urban and rural residence.

2.5 Control Variables

Control variables include individual-household level factors such as age (years), marital status, household size, types of occupation, and access to information (frequency of watching television), as well as country-level factor: GNI per capita (PPP int. \$) in 10,000.

Table 1
, Variables Descriptions

Variables	Descriptions	Data Source
Outcome Variable		
Household Welfare Status (Standardized Household Wealth)	Continuous Variable	DHS
Predictor Variable		
Male Self-Employment Status	1, Wage employed =Reference 2, Self-employed	DHS
Mediating Variables		
Educational Attainment	Continuous Variable (Levels)	DHS
Urbanization	1, Rural =Reference 2, Urban	DHS
Control variables		
Age	Continuous Variable	DHS
Marital Status	0, Never Married/in Union =Reference 1, Married/in Union 2, Living with partner	DHS
Household Size	Continuous Variable	DHS
Types of Occupation	0, Others = Reference 1, Professional/technical/managerial 2, Clerical 3, Sales 4, Agricultural – self-employed/employee 5, Agricultural – employee 6, Household and domestic 7, Services/Sales 8, Skilled manual 9, Unskilled manual	DHS
Access to information (Frequency of watching television)	0, Not at all =Reference 1, Less than once a week	DHS
Source: DHS and World Bank datasets, 2026		

Variables	Descriptions	Data Source
	2, At least once a week 3, Almost every day	
GNI per capita (PPP int. \$) in 10,000	Continuous Variable	World Bank
Source: DHS and World Bank datasets, 2026		

2.6 Data Analysis

Beside the computation of the descriptive and bivariate analysis, mediation analysis was undertaken by using generalized structural equation modeling (GSEM) to assess the direct and indirect effects of male self-employment on household wellbeing through educational attainment and urbanization pathways. Sensitivity analysis would evaluate how robust the findings are over other welfare measure (asset ownership), and alternative model specification. All analyses were undertaken by using STATA version 17.0 software. Appropriate sampling weights and survey design were applied to ensure the representativeness and accurate variance estimation of the given DHS dataset.

3. Results, and Discussion

3.1.1 Descriptive Statistics

Table 2
, Descriptive statistics (mean, SD, median, min, max) of the variables of the analysis

Standardized Household Wealth	Mean	SD	Min	Max	Median
	.0003568	1.000028	-2.318602	8.466493	-.3056807
Educational Attainment	1.292363	.8577317	0	3	1
Urbanization	1.320768	.4667753	1	2	1
Male Self-employed	1.522558	.4994946	1	2	2
N	67382				
Source: DHS datasets, 2026					

Table 2 presents summary statistics for the main variables employed in the analysis, constructed on a sample of 67,382 male respondents. The Household Wealth, standardized with a mean about zero (Mean = 0.0004; SD $\approx$ 1), exhibits considerable variation among households. The wide range (Min = - 2.32; Max = 8.47) implies considerable wealth disparity, with some households signifying enormously low levels of wealth while others are situated significantly above average. More than half of the sample falls below the mean wealth score, conferring to the negative median (-0.31), suggesting a commonly low-wealth distribution in many SSA countries.

Educational attainments are moderate, with an average score of 1.29 (SD = 0.86) on a 0–3 scale across male respondents. The median value of 1 specifies that a large proportion of the respondent is concentrated in the lower-to-middle educational attainment groups. Similarly, the whole range (0–3) displays substantial variation, making it suitable for mediation analysis.

Urbanization, indicated on a binary or categorical scale (1–2), has a mean value of 1.32 (SD = 0.47), showing that majority of respondents reside in less urbanized regions (median = 1). This distribution displays that men in the surveyed regions had little exposure to urbanization, which is consistent with the structure of many SSA contexts where urban-oriented employment remains low.

The distribution of male self-employment status (1 = wage-employed, 2 = non-wage/self-employed) shows a mean of 1.52 (SD = 0.50) and a median of 2, suggesting that somewhat more than half of the male respondents are engaged in self-employment. Nevertheless, the mean's proximity to the cut-point value of 1.5 shows that the sample continued comparatively balanced between male wage-employed and male self-employed groups. This stable distribution rises the appropriateness of the variable for modeling variations in wealth outcomes.

General, the descriptive statistics imply considerable heterogeneity among the respondents in wealth, educational attainment, place of residence, and employment categories. Such heterogeneity delivers a robust empirical basis for investigating how educational attainment and urbanization mediate the association between male self-employment and household welfare.

The given bar chart describes the average household wealth levels for two clusters of male respondents: wage-employed and self-employed. A strong difference is evident. Wage-employed men hold a positive mean wealth level (around + 0.22), signifying that households with wage earners tend to embrace above-average wealth comparative to the sample distribution. In contrast, self-employed males have an evidently lower mean wealth score (about – 0.20), which is below the average wealth score. This difference suggests that male self-employment, which is prevalent in SSA countries, is associated to comparatively low household welfare/wealth. Conversely, the higher mean wealth among wage-employed men indicates the comparative higher asset possession typically linked with wage employment. This expressive pattern gives preliminary support to the proposition that employment type is a significant influencer of household welfare/wealth and lays the base for the mediation research involving educational attainment and urbanization.

There are clear distributional differences between literacy stages in the density plot of household wealth stratified by educational attainment. Male respondents with no formal education display a distribution concentrated at the lower end of the standardized household wealth index, with the density peak is located well below the standardized mean. This indicates that the deprived segments of the wealth distribution are disproportionately categorized among households with less educated men. The density curves increasingly shift rightward as educational accomplishment increases, signifying greater household welfare/wealth. Male respondents with primary and secondary education imply distributions centered closer to the mean, though still demonstrating considerable overlay with the lower-education categories. Male respondents with the highest level of education had a distinct distribution; the density curve moves further to the right and shows a longer upper tail, demonstrating both higher average wealth and bigger likelihood for rising economic mobility. The extensive positive association between educational attainment and standardized household wealth index is emphasized by this set's least overlap with the no-education group. The widening distance between the curves also implies that educational disparities translate straight into wealth inequalities, strengthening the importance of literacy as a crucial mediator in socioeconomic outcomes.

The density plot of household wealth by urbanization displays notable differences in the wealth distribution of urban and rural residences. The density map reveals that the wealth/welfare levels of urban households are dependably higher than those of rural households, with the urban distribution shifted rightward and more

disseminated. In contrast, rural households are concentrated below the mean, which reflects structural inequalities in the wealth possession. This pattern emphasizes the continuing significance of urbanization as a significant determinant of household wealth/welfare.

3.1.2 Regression Analysis

Table 3

, GSEM (Generalized structural equation model) analyzing the mediating roles of educational attainment and urbanization on the relationship between male self-employment and household welfare in Sub-Saharan Africa

Standard errors in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Response: Educational Attainment		Employment Status		Base
Employment Status	Base	Male Wage-Employed		
Male Wage-Employed		Male Self-Employed	-0.0438***	
			(0.00563)	
Male Self-Employed	-0.0556***	Age	0.00259***	
	(0.00875)		(0.000229)	
Age	-0.000774*	Marital Status		
	(0.000378)	Never in union	Base	
Marital Status		Married	-0.0280***	
Never in union	Base		(0.00622)	
Married	-0.0963***	Living with partner	-0.00144	
	(0.00911)		(0.00998)	
Living with partner	-0.0297	Types of Occupation		
	(0.0152)	Others	Base	
Types of Occupation		Professional/technical/managerial	0.157***	
Others	Base		(0.0331)	
Professional/technical/managerial	0.778***	Clerical	0.196***	
	(0.0290)		(0.0356)	
Clerical	0.421***	Sales	0.207***	
	(0.0344)		(0.0325)	
Sales	0.0244	Agricultural - self-employed/employee	-0.175***	
	(0.0292)		(0.0319)	
Agricultural - self-employed/employee	-0.266***	Agricultural - employee	-0.165***	
	(0.0275)		(0.0319)	
Agricultural - employee	-0.301***	Household and domestic	0.155**	
	(0.0315)		(0.0563)	
		Services/Sales	0.168***	
Standard errors in parentheses				
* p < 0.05, ** p < 0.01, *** p < 0.001				

Household and domestic	-0.0168
	(0.0741)
Services/Sales	0.0302
	(0.0285)
Skilled manual	-0.00167
	(0.0288)
Unskilled manual	-0.117***
	(0.0295)
Household Size	-0.00851***
	(0.00121)
Frequency of Watching Television	
Not at all	Base
Less than once a week	0.282***
	(0.0115)
At least once a week	0.417***
	(0.0119)
Almost every day	0.654***
	(0.0119)
GNI per capita	-0.717***
	(0.0309)
Constant	1.356***
	(0.0322)

Employment Status	Base
Male Wage-Employed	
	(0.0306)
Skilled manual	0.150***
	(0.0318)
Unskilled manual	0.0866**
	(0.0326)
Household Size	-0.00537***
	(0.000952)
Frequency of Watching Television	
Not at all	Base
Less than once a week	0.0927***
	(0.00767)
At least once a week	0.196***
	(0.00916)
Almost every day	0.326***
	(0.0106)
GNI per capita	0.0625
	(0.0358)
Constant	1.238***
	(0.0332)

Response: Standardized Household Wealth

Standard errors in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Educational Attainment	0.211^{***}
	(0.00651)
Urbanization	0.715 ^{***}
	(0.0198)
Employment Status	Base
Male Wage-Employed	-0.0814 ^{***}
Male Self-Employed	
	(0.00838)
Age	0.00451 ^{***}
	(0.000354)
Marital Status	
Never in union	Base
Married	0.00389
	(0.00948)
Living with partner	-0.131 ^{***}
	(0.0158)
Types of Occupation	
Others	Base
Professional/technical/managerial	0.349 ^{***}
	(0.0316)
Clerical	0.335 ^{***}
	(0.0405)
Sales	0.281 ^{***}
	(0.0293)
Agricultural - self-employed/employee	-0.0195
	(0.0279)
Agricultural - employee	-0.211 ^{***}
	(0.0296)
Household and domestic	0.618 ^{***}
Standard errors in parentheses	
* p < 0.05, ** p < 0.01, *** p < 0.001	

Educational Attainment	0.211^{***}
	(0.00651)
	(0.110)
Services/Sales	0.183 ^{***}
	(0.0340)
Skilled manual	0.201 ^{***}
	(0.0297)
Unskilled manual	0.0946 ^{**}
	(0.0332)
Number of household members (total listed)	0.00368 [*]
	(0.00163)
Frequency of Watching Television	
Not at all	Base
Less than once a week	0.165 ^{***}
	(0.0115)
At least once a week	0.355 ^{***}
	(0.0131)
Almost every day	0.756 ^{***}
	(0.0152)
GNI Per capita	-0.368 ^{***}
	(0.0462)
Constant	-1.515 ^{***}
	(0.0399)
/	
Var (e. educational attainment)	0.486 ^{***}
	(0.00379)
Var (e. urbanization)	0.147 ^{***}
	(0.00207)
Standard errors in parentheses	
* p < 0.05, ** p < 0.01, *** p < 0.001	

Educational Attainment	0.211^{***}
	(0.00651)
Var (e. stad household wealth)	0.443 ^{***}
	(0.00905)
Observations	67382

Standard errors in parentheses	
* p < 0.05, ** p < 0.01, *** p < 0.001	

This Generalized Structural Equation Model (GSEM) examined the intermediating roles of educational attainment and urbanization in the relationship between male self-employment (compared to wage-employment) and household welfare. The model estimated three synchronized equations with Gaussian family and identity link, survey p-weights and clustered standard errors (Ses) at primary sampling unit (PSU); coefficients are conditional associations net of socio-demographic and economic covariates.

Relative to male wage-employment, male self-employment has a significant negative direct effect on educational attainment (coef: -0.0556, $p < 0.001$). This suggests that, after adjusting for covariates, self-employed males have to some extent lower educational attainment than the wage-employed base group. Educational attainment is directly and significantly associated with higher household wealth (coef: 0.211, $p < 0.001$), confirming education's positive contribution to welfare enhancement. Hence, though male self-employment might slightly weaken educational accomplishment, any increase in educational fulfillment significantly boosts household welfare.

After controls and compared to male wage employment, male self-employment has a negative direct effect on being the residence of urban areas (coef: -0.0438, $p < 0.001$). However, being an urban residence has a sizable and positive direct effect on household welfare (coef: 0.715, $p < 0.001$). This designates that urbanized contexts considerably raise household welfare.

Table 4
, Direct, Indirect, and Total Effects of Male Self-Employment on Household Wealth

Indirect Educational Attainment	Coefficient
	– .0117265***
	(.0018968)
Indirect Urbanization	– .0313293***
	(.0042029)
Direct	– .0814266***
	(.0083758)
Total	– .1244824***
	(.0090492)
Standard errors in parentheses	
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$	

Subsequently accounting for the intermediating effects of educational attainment and urbanization, male self-employment holds a significant negative direct effect on household welfare (coef: -0.0814, $p < 0.001$). The Mediation Effect: total effect of male self-employment on household welfare is the sum of its direct effect and its indirect effects via educational attainment and urbanization.

- Indirect via educational attainment: $(-0.0556) * (0.211) = -0.0117$
- Indirect via urbanization: $(-0.0438) * (0.715) = -0.0313$
- Total Indirect Effect: ≈ -0.0430
- Total Effect (Direct + Indirect): $-0.0814 + (-0.0430) \approx -0.1244$

Roughly 35% of the total negative effect of being male self-employed (compared to being wage-employed) on household wealth is mediated through the combined suppression of educational attainment and urbanization. Given the larger direct effect, therefore, there must be other unmeasured mechanisms or factors such as among others, job security, reimbursements, access to credit, market linkage, sector-specific influences not comprised in the occupation dummies associated with male self-employment to negatively affecting household welfare in comparison to household wealth through wage-employment.

3.2 Discussion

The findings of this study revealed a nuanced mediation procedure that prompts significant inquiries about the assumption that male self-employment intrinsically leads to household welfare enhancement.

The principal finding is that, in this analysis, male self-employment is negatively associated with educational attainment and urbanization, which in turn suppress household wealth in SSA countries. This proposes that, within SSA countries context, male self-employment appears more prevalent amongst less-educated and rural residents, potentially showing necessity-driven initiative rather than opportunity-driven self-employment (Margolis, 2014;

Nwaka & Ike, 2024b). Furthermore, the findings correspond with segmented labor market scheme, which posits that self-employment often exist in the informal, lower-status sector of the economy (Fidèle et al., 2023; Poschke, 2025), in other way wage-employment might allow individuals to afford greater autonomy in educational growth and urban engagement. This segmented labor market or dual economy account is supported by the finding of this study from the effect of the types of occupations on household wealth: the non-farm sectors such as professionals, clerical, sales, services implanted in urban networks yielding higher household wealth, whereas agricultural employment align with lower household wealth (De la O Campos et al., 2025).

The robust and positive effect of educational attainment (0.211) and particularly urbanization (0.715) on household wealth underscores foundational principles within classic development paradigms. These results affirm that human capital, as indicated by educational attainment, alongside the structural framework characterized by urbanization, serve as critical determinants of household wealth (Abay et al., 2022; Epo et al., 2025b). The urbanization coefficient in the household wealth equation dominates the educational attainment effect. This points to the preeminence of structural context: urbanization which is associated with access to markets, amenities, networks, and differentiated earning streams, above and beyond individual human capital.

The continuing adverse direct effect of male self-employment on household welfare, even after accounting for mediating factors of educational attainment and urbanization, is a matter of significant importance. This implies that, net of its effect on education and urbanization, male self-employment fundamentally poses certain disadvantages within SSA countries setting (Adjei-Mantey & Kunawotor, 2024b; McCullough, 2017). These disadvantages may stem from factors such as: a) the greater insecurity or irregularity of self-employment relative to wage-based jobs (Auguste et al., 2023) b) engagement in low-value-added subsistence activities commonly associated with agricultural or informal employment, or c) the limited access to capital and credit (Endris & Kassegn, 2022), and lack of social protection (Bamu Pamhidzai et al., 2022). Additionally, the corresponding disadvantage of self-employment is interrelated with the given DHS datasets where self-employment in SSA countries is frequently necessity-driven rather than opportunity-driven.

3.3 Robustness Check

Cluster-robust standard errors for intra-class correlation within PSUs are accounted, and the large sample size ($N = 67,382$) offers robust estimates. To validate our main estimation results, we re-estimated the main GSEM with country fixed effects. And the re-estimation findings are robust and consistent with the main estimation results. The results of the GSEM (Generalized Structural Equation Model, Country Fixed Effect) are found in Table 5 at the appendix.

Table 5

, GSEM (Generalized Structural Equation Model, Country Fixed Effect) evaluating the mediating roles of educational attainment and urbanization on the relationship between male self-employment and household welfare in Sub-Saharan Africa

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Response: Educational Attainment		Response: Urbanization (Types of Places of Residence)	
Employment Status	Base	Employment Status	
Male Wage-Employed		Male Wage-Employed	
Male Self-Employed	-0.0434 ^{***}	Male Self-Employed	-0.0483 ^{***}
	(0.00863)		(0.00508)
Age	-0.00127 ^{***}	Age	0.00227 ^{***}
	(0.000363)		(0.000223)
Marital Status		Marital Status	
Never in union	Base	Never in union	Base
Married	-0.0712 ^{***}	Married	-0.0258 ^{***}
	(0.00901)		(0.00622)
Living with partner	-0.00737	Living with partner	-0.0154
	(0.0140)		(0.00869)
Types of Occupation		Types of Occupation	
Others	Base	Others	Base
Professional/technical/managerial	0.676 ^{***}	Professional/technical/managerial	0.121 ^{***}
	(0.0245)		(0.0257)
Clerical	0.279 ^{***}	Clerical	0.165 ^{***}
	(0.0306)		(0.0283)
Sales	-0.0604 [*]	Sales	0.165 ^{***}
	(0.0240)		(0.0249)
Agricultural - self-employed/employee	-0.324 ^{***}	Agricultural - self-employed/employee	-0.217 ^{***}
	(0.0232)		(0.0257)
Agricultural - employee	-0.468 ^{***}	Agricultural - employee	-0.160 ^{***}
Standard errors in parentheses			
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$			

	(0.0267)		(0.0270)
Household and domestic	-0.0258	Household and domestic	0.212 ^{***}
	(0.0728)		(0.0505)
Services/Sales	-0.0522 [*]	Services/Sales	0.164 ^{***}
	(0.0238)		(0.0256)
Skilled manual	-0.105 ^{***}	Skilled manual	0.123 ^{***}
	(0.0242)		(0.0246)
Unskilled manual	-0.177 ^{***}	Unskilled manual	0.0727 ^{**}
	(0.0237)		(0.0267)
Household Size	-0.00655 ^{***}	Household Size	-0.00738 ^{***}
	(0.00116)		(0.000901)
Frequency of Watching Television	Base	Frequency of Watching Television	
Not at all		Not at all	Base
Less than once a week	0.290 ^{***}	Less than once a week	0.105 ^{***}
	(0.0111)		(0.00764)
At least once a week	0.409 ^{***}	At least once a week	0.209 ^{***}
	(0.0118)		(0.00881)
Almost every day	0.639 ^{***}	Almost every day	0.346 ^{***}
	(0.0118)		(0.0101)
GNI per capita	-2.816 ^{**}	GNI per capita	1.748
	(0.886)		(1.077)
Country		Country	
Benin	Base	Benin	Base
Congo.R	0.323 [*]	Congo.R	0.353
Standard errors in parentheses			
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$			

	(0.154)		(0.184)
Eswatini	0.0435	Eswatini	0.0908
	(0.155)		(0.192)
Ghana	0.874***	Ghana	-0.277*
	(0.109)		(0.129)
Kenya	0.107	Kenya	-0.0422
	(0.106)		(0.128)
Lesotho	0.745***	Lesotho	-0.317*
	(0.103)		(0.125)
Liberia	-0.108	Liberia	0.356
	(0.194)		(0.239)
Madagascar	-0.176	Madagascar	0.300
	(0.216)		(0.252)
Malawi	-0.477	Malawi	0.351
	(0.283)		(0.345)
Namibia	-0.0355	Namibia	0.351
	(0.182)		(0.219)
Nigeria	0.295***	Nigeria	-0.0250
	(0.0672)		(0.0827)
Rwanda	0.495***	Rwanda	-0.224*
	(0.0741)		(0.0908)
Sao Tome and Principe	0.205***	Sao Tome and Principe	-0.352***
	(0.0596)		(0.0818)
Sierra Leone	0.310***	Sierra Leone	-0.133
	(0.0801)		(0.0962)
Standard errors in parentheses			
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$			

Uganda	0.184
	(0.146)
Zambia	-0.213
	(0.282)
Constant	1.350^{***}
	(0.128)

Uganda	0.164
	(0.174)
Zambia	0.540
	(0.344)
Constant	1.146^{***}
	(0.154)

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Response: Standardized Household Wealth	
Educational level	0.235^{***}
	(0.00582)
Urbanization	0.725^{***}
	(0.0174)
Employment Status	Base
Male Wage-Employed	
Male Self-Employed	-0.0705^{***}
	(0.00741)
Age	0.00626^{***}
	(0.000318)
Marital Status	
Never in union	Base
Married	-0.0525^{***}
	(0.00845)
Living with partner	-0.0899^{***}
	(0.0132)
Types of Occupation	
Others	Base
Professional/technical/managerial	0.175^{***}
	(0.0307)
Clerical	0.206^{***}
	(0.0377)
Sales	0.115^{***}
Standard errors in parentheses	
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$	

	(0.0292)
Agricultural - self-employed/employee	-0.298^{***}
	(0.0285)
Agricultural - employee	-0.230^{***}
	(0.0311)
Household and domestic	0.375^{***}
	(0.102)
Services/Sales	0.0989^{**}
	(0.0316)
Skilled manual	0.0252
	(0.0286)
Unskilled manual	-0.0958^{**}
	(0.0326)
Number of household members (total listed)	0.00328[*]
	(0.00149)
Frequency of Watching Television	Base
Not at all	
Less than once a week	0.188^{***}
	(0.0107)
At least once a week	0.413^{***}
	(0.0125)
Almost every day	0.875^{***}
	(0.0147)
GNI Per capita	-6.470^{***}
Standard errors in parentheses	
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$	

	(1.527)
Country	
Benin	Base
Congo.R	-1.654^{***}
	(0.260)
Eswatini	-1.553^{***}
	(0.270)
Ghana	0.331
	(0.179)
Kenya	-1.054^{***}
	(0.180)
Lesotho	0.865^{***}
	(0.173)
Liberia	-1.416^{***}
	(0.333)
Madagascar	-1.336^{***}
	(0.360)
Malawi	-1.828^{***}
	(0.489)
Namibia	-1.671^{***}
	(0.310)
Nigeria	-0.701^{***}
	(0.115)
Rwanda	0.928^{***}
Standard errors in parentheses	
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$	

	(0.129)
Sao Tome and Principe	-0.246*
	(0.0982)
Sierra Leone	0.602***
	(0.134)
Uganda	-0.729**
	(0.249)
Zambia	-2.202***
	(0.488)
Constant	-0.479*
	(0.223)
/	
Var (e. educational attainment)	0.461***
	(0.00381)
Var (e. urbanization)	0.140***
	(0.00199)
Var (e. stad household wealth)	0.388***
	(0.00704)
Observations	67382

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4. Conclusion

This study demonstrates the intricate mechanisms linking men’s labor market position to household wealth status in SSA countries. The fundamental inference is that the association between male self-employment and household wealth is not straightforwardly positive. Instead, it is negatively intermediated by educational attainment and urbanization. Compared to wage employed, self-employed men, in the specific context examined, incline to have lower education and are less urbanized; which in turn hamper the buildup of human capital and urbanization. Consequently, both lower education and rurality are significant pathways to lower household wealth, and a substantial negative effect of self-employment on household wealth persisted. This highlights an important

disconnect: while educational attainment and urbanization play an influential role for household wealth enhancement, the predominant form of self-employment is not helping as a way out of household poverty. The findings call for the guided treatment of self-employment with respect to education and urbanization, and segregated understanding of self-employment between subsistence-oriented and growth-oriented.

This research has policy implications that call a fundamental reorientation in how we contemplate about male self-employment in SSA countries. Instead of viewing male self-employment as a monolithic classification of labor, we should consider it from diverse settings and varied paths through which it facilitates household wealth improvement. In order to be operational and successful, interventions must adopt a comprehensive approach that simultaneously addresses educational discrepancies, spatial inequalities, and self-employment challenges with respect to household wealth, because the disadvantages of self-employment are significant among rural and less educated men. By tailoring policies to enhance both human capital development (e.g vocational training and adult literacy program) and spatial conditions (e.g urbanization and rural-urban linkage or urban integration) influencing self-employment in SSA countries, policymakers can renovate self-employment from just a fallback option in disadvantaged contexts to a maintainable venue for household wealth creation.

Some significant limitations constrain this research, principally stemming from its dependence on cross-sectional datasets collected from DHS. This approach limits the ability to establish causal associations or to distinguish longitudinal dynamics among male self-employment, the intermediating variables (educational attainment and urbanization), and household wealth. The given research variables are often measured through self-reports, which may create social desirability biases. Findings are also exclusive to DHS contexts, and may not generalize to all SSA countries. Therefore, future researches ought to employ experimental or longitudinal designs to rigorously establish causation and explore the temporal sequencing of how self-employment affects educational attainment, urbanization, and household welfare/wealth over time. Incorporating quasi-experimental designs or instrumental variable approaches would strengthen causal identification. By assessing a broad variety of potential intermediaries, and undertaking disaggregated analyses at countries, sectors, and demographic subgroups levels, research could further improve the breadth of the given analysis.

Declarations

5.2 Competing Interests

The authors declare that they have no competing interests

5.3 Funding

This study received no specific fund from any funding agency in the public, commercial, or not-for-profit sectors. The research was conducted using publicly accessible datasets from the Demographic and Health Surveys (DHS), and the World Bank.

5.4 Authors' contributions

Both authors are participated broadly across all stages of the research, including overall conceptualization, methods, data extraction, formal analysis, and manuscript preparation.

5.4 Acknowledgements

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5.1 Availability of Data and Materials

The DHS and World Bank datasets used in this research are publicly accessible from their respective sources. The DHS and the World Bank datasets are freely available at link, and link respectively. The administered datasets and analytical code applied to generate the findings are presented from the corresponding author upon reasonable request.

References

1. Abay KA, Tiberti L, Woldemichael A, Mezgebo TG, Endale M (2022) Can Urbanisation Improve Household Welfare? Evidence From Ethiopia. *J Afr Econ* 32(1):81–109. <https://doi.org/10.1093/jae/ejac003>
2. Adjei-Mantey K, Kunawotor ME (2024a) Is self-employment an antidote to poverty in developing countries? Insights from a cross-sectional study in Ghana. *Cogent Econ Finance* 12(1). <https://doi.org/10.1080/23322039.2024.2364045>
3. Adjei-Mantey K, Kunawotor ME (2024b) Is self-employment an antidote to poverty in developing countries? Insights from a cross-sectional study in Ghana. *Cogent Econ Finance* 12(1). <https://doi.org/10.1080/23322039.2024.2364045>
4. Adjognon GS, Liverpool-Tasie SL, de la Fuente A, Benfica R (2017) Rural Non-Farm Employment and Household Welfare: Evidence from Malawi. World Bank. <https://doi.org/10.1596/1813-9450-8096>. Washington, DC
5. Ajide FM, Dada JT (2023) Poverty, entrepreneurship, and economic growth in Africa. *Poverty Public Policy* 15(2):199–226. <https://doi.org/10.1002/pop4.368>
6. Amin AA, Ntembe A (2020) Sub-Sahara Africa's Higher Education: Financing, Growth, and Em-ployment. *Int J High Educ* 10(1):14. <https://doi.org/10.5430/ijhe.v10n1p14>
7. Anowor OF, Ichoku HE, Onodugo VA, Ochinanwata C, Uzomba PC (2023) Does investment in education and health impact youth employment outcomes? Evidence from Sub-Saharan Africa. *Cogent Econ Finance* 11(1). <https://doi.org/10.1080/23322039.2022.2160128>
8. Atangana E (2022) With the Continuing Increase in Sub-Saharan African Countries, Will Sustainable Development of Goal 1 Ever Be Achieved by 2030? *Sustainability* 14(16):10304. <https://doi.org/10.3390/su141610304>
9. Auguste D, Roll S, Despard M (2023) The Precarity of Self-Employment among Low- and Moderate-Income Households. *Soc Forces* 101(3):1081–1115. <https://doi.org/10.1093/sf/soab171>

10. Bamu Pamhidzai A, Laura M, Kamwimbi Theodore (2022) Rutendo, &. *Social Protection for Self-Employed Informal Workers in Sub-Saharan Africa: A rights-based assessment of the impact of the COVID-19 crisis*. WIEGO Resource Document No. 24. Manchester, UK: WIEGO.
11. Beber B, Lakemann T, Schnars R, Lay J (2025) Employment Effects of Skills Trainings in Sub-Saharan Africa: A Systematic Review of Recent Randomized Controlled Trials. *De Economist* 173(1):87–120.
<https://doi.org/10.1007/s10645-024-09442-6>
12. Brixiova Z, Kangoye T (2017) Gender Disparities in Employment and Earnings in Sub-Saharan Africa: Evidence from Swaziland. *SSRN Electron J*. <https://doi.org/10.2139/ssrn.2895303>
13. Cunningham W, Newhouse DL, Ricaldi F, Tchuisseu Seuyong F, Viollaz M, Edochie IN (2024) Urban Informality in Sub-Saharan Africa: Profiling Workers and Firms in an Urban Context. World Bank, Washington, DC.
<https://doi.org/10.1596/1813-9450-10703>
14. David S, Elisenda E, Wobst P, Grandelis I (2019) Policies for Youth Employment in Sub-Saharan Africa. In *Youth and Jobs in Rural Africa* (pp. 47–74). Oxford University PressOxford.
<https://doi.org/10.1093/oso/9780198848059.003.0003>
15. Davis BK, Di Giuseppe S, Zezza A (2014) *Income diversification patterns in rural Sub-Saharan Africa: reassessing the evidence*
16. De la Campos O, Admasu AP, Covarrubias Y, Davis KA, B. K., Díaz Gonzalez AM (2025) Reassessing transformation pathways: Global trends in rural household farm and non-farm livelihood strategies with a spotlight on Sub-Saharan Africa. *World Dev* 190:106952. <https://doi.org/10.1016/j.worlddev.2025.106952>
17. El-bouayady R, Radoine H (2023) Urbanization and Sustainable Urban Infrastructure Development in Africa. *Environ Ecol Res* 11(2):385–391. <https://doi.org/10.13189/eer.2023.110212>
18. El-Bouayady R, Radoine H, Faouzi E, Tayi N-E, S., Ozkan HC (2024) Assessing and modeling the impact of urbanization on infrastructure development in Africa: A data-driven approach. *Cities* 155:105486.
<https://doi.org/10.1016/j.cities.2024.105486>
19. Endris E, Kassegn A (2022) The role of micro, small and medium enterprises (MSMEs) to the sustainable development of sub-Saharan Africa and its challenges: a systematic review of evidence from Ethiopia. *J Innov Entrepreneurship* 11(1):20. <https://doi.org/10.1186/s13731-022-00221-8>
20. Epo BN, Baye FM, Mwabu G, Manda DK, Ajakaiye O, Kipruto S (2025a) Human Capital, Household Prosperity, and Social Inequalities in Sub-Saharan Africa. *Economies* 13(8):221.
<https://doi.org/10.3390/economies13080221>
21. Epo BN, Baye FM, Mwabu G, Manda DK, Ajakaiye O, Kipruto S (2025b) Human Capital, Household Prosperity, and Social Inequalities in Sub-Saharan Africa. *Economies* 13(8):221.
<https://doi.org/10.3390/economies13080221>
22. Fidèle S, Dedehouanou A, Alia DY (2023) The dynamics of off-farm self-employment in the West African Sahel. In *The Job Ladder* (pp. 229–258). Oxford University PressOxford.
<https://doi.org/10.1093/oso/9780192867339.003.0010>
23. Fields GS (2019) Self-employment and poverty in developing countries. *IZA World Labor*.
<https://doi.org/10.15185/izawol.60.v2>
24. Gutu Sakketa T (2023) Urbanisation and rural development in sub-Saharan Africa: A review of pathways and impacts. *Res Globalization* 6:100133. <https://doi.org/10.1016/j.resglo.2023.100133>

25. Howe LD, Hargreaves JR, Ploubidis GB, De Stavola BL, Huttly SRA (2011) Subjective measures of socio-economic position and the wealth index: a comparative analysis. *Health Policy Plann* 26(3):223–232. <https://doi.org/10.1093/heapol/czq043>
26. Kingdon G, Sandefur J, Teal F (2006) Labour Market Flexibility, Wages and Incomes in Sub-Saharan Africa in the 1990s. *Afr Dev Rev* 18(3):392–427. <https://doi.org/10.1111/j.1467-8268.2006.00144.x>
27. Kouladoum J-C (2023) Inclusive Education and Health Performance in Sub Saharan Africa. *Soc Indic Res* 165(3):879–900. <https://doi.org/10.1007/s11205-022-03046-w>
28. Kunawotor M, Ahiabor G (2025) Self-employment, financial access and economic welfare: empirical evidence from Africa. *J Financial Economic Policy* 17(2):199–213. <https://doi.org/10.1108/JFEP-03-2024-0087>
29. Margolis DN (2014) By Choice and by Necessity: Entrepreneurship and Self-Employment in the Developing World. *Eur J Dev Res* 26(4):419–436. <https://doi.org/10.1057/ejdr.2014.25>
30. McCullough EB (2017) Labor productivity and employment gaps in Sub-Saharan Africa. *Food Policy* 67:133–152. <https://doi.org/10.1016/j.foodpol.2016.09.013>
31. Nagler P, Naudé W (2017a) Non-farm entrepreneurship in rural sub-Saharan Africa: New empirical evidence. *Food Policy* 67:175–191. <https://doi.org/10.1016/j.foodpol.2016.09.019>
32. Nagler P, Naudé W (2017b) Non-farm entrepreneurship in rural sub-Saharan Africa: New empirical evidence. *Food Policy* 67:175–191. <https://doi.org/10.1016/j.foodpol.2016.09.019>
33. Nwaka ID, Ike GN (2024a) Disentangling the gender-differentiated determinants of home-based self-employment choices in Nigeria. *Economic Labour Relations Rev* 35(4):905–938. <https://doi.org/10.1017/elr.2024.45>
34. Nwaka ID, Ike GN (2024b) Disentangling the gender-differentiated determinants of home-based self-employment choices in Nigeria. *Economic Labour Relations Rev* 35(4):905–938. <https://doi.org/10.1017/elr.2024.45>
35. Oudanou D, Ouedraogo I, Ondoa HA (2024) Education and gender (in)equality in wage employment in sub-Saharan Africa. *Afr Dev Rev* 36(3):393–407. <https://doi.org/10.1111/1467-8268.12766>
36. Poschke M (2025) Wage employment, unemployment and self-employment across countries. *J Monet Econ* 149:103684. <https://doi.org/10.1016/j.jmoneco.2024.103684>
37. Sparreboom T (2017) Structural change, employment and education in four countries in Sub-Saharan Africa. *Afr J Economic Manage Stud* 8(2):172–185. <https://doi.org/10.1108/AJEMS-04-2016-0045>
38. Van den Broeck G, Kilic T (2018) Dynamics of Off-Farm Employment in Sub-Saharan Africa: A Gender Perspective. World Bank. <https://doi.org/10.1596/1813-9450-8540>. Washington, DC
39. Van den Broeck G, Kilic T (2019a) Dynamics of off-farm employment in Sub-Saharan Africa: A gender perspective. *World Dev* 119:81–99. <https://doi.org/10.1016/j.worlddev.2019.03.008>
40. Van den Broeck G, Kilic T (2019b) Dynamics of off-farm employment in Sub-Saharan Africa: A gender perspective. *World Dev* 119:81–99. <https://doi.org/10.1016/j.worlddev.2019.03.008>
41. Appendix

Figures

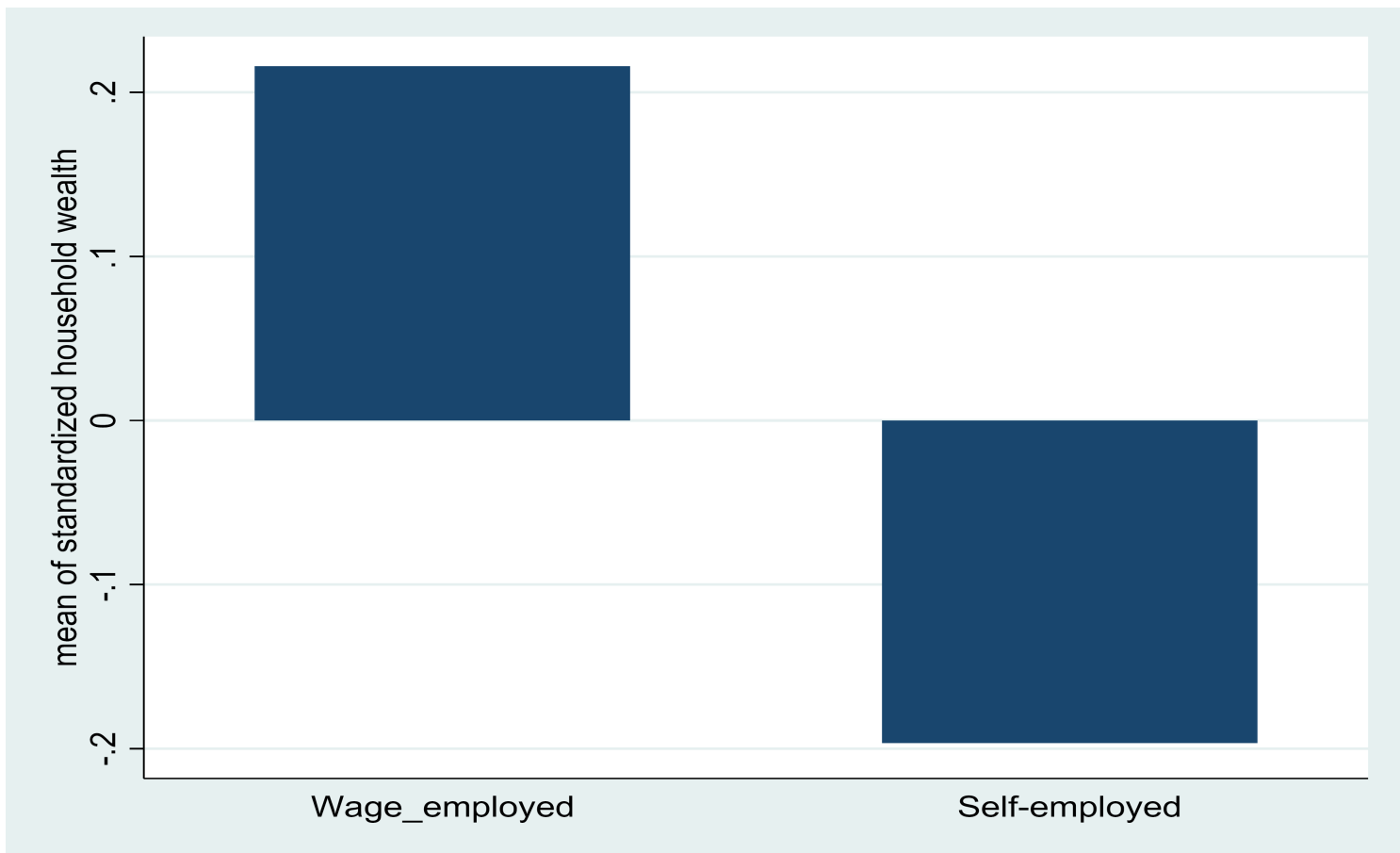


Figure 1

Bar Chart: Mean Household Wealth by Male Self-Employment

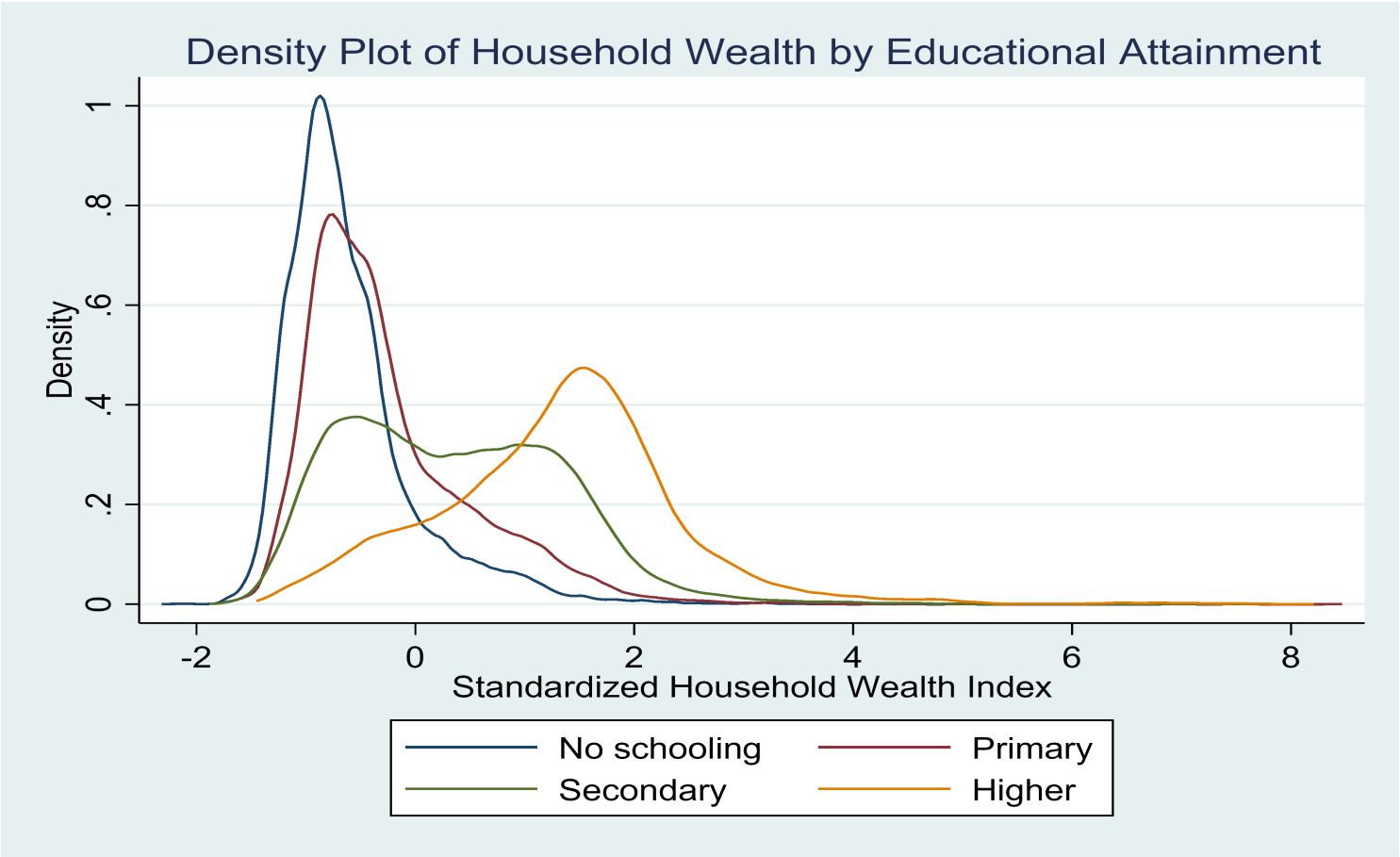


Figure 2

Density Plot of Household Wealth by Educational Attainment

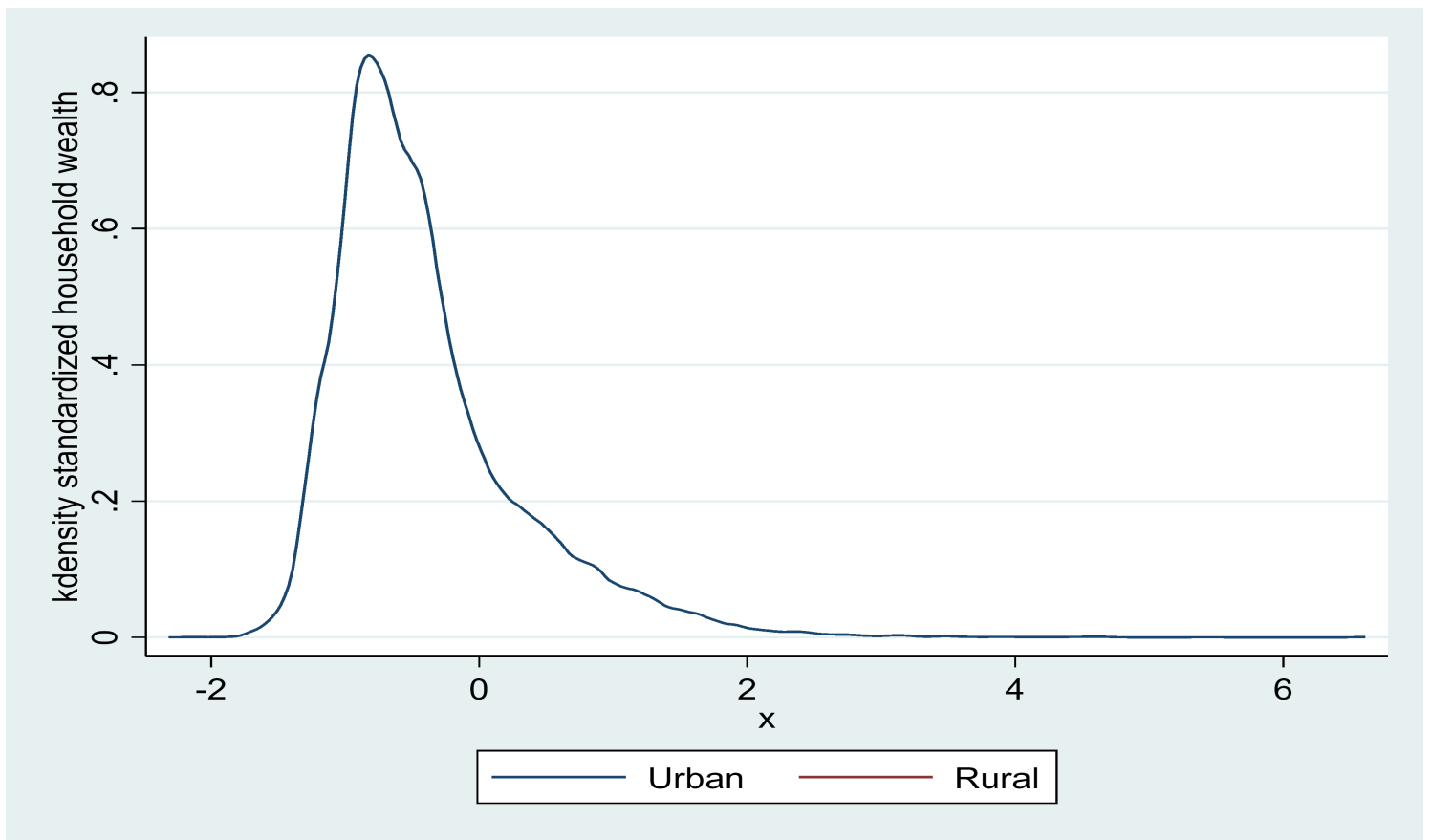


Figure 3

Density Plot of Household Wealth by Urbanization