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Multidimensional Poverty and Widowhood in West African States

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Abstract

Widowhood is a pervasive yet underexplored driver of poverty in West Africa, where social norms and weak institutional protections exacerbate household vulnerability. This study investigates the impact of widowhood on multidimensional poverty across selected West African states using data from the Demographic and Health Surveys (DHS) and the Alkire–Foster Multidimensional Poverty Index (MPI). The analysis employs probit and multinomial logit models to examine both the incidence and intensity of deprivation, with additional cross-country MPI decomposition to identify dimension-specific contributions. Empirical results indicate that widowhood significantly increases the probability of multidimensional poverty by 16.2 percentage points, while widowed households are substantially more likely to experience severe deprivation across education, health, and living standards. Cross-country decomposition shows that Niger, Burkina Faso, and Mali exhibit the highest incidence and intensity of poverty among widows, driven primarily by low educational attainment and poor living standards. These findings highlight the structural vulnerability of widowed households resulting from income loss, asset dispossession, and institutional exclusion. The study recommends targeted social protection programs, legal reforms to secure widows' rights, and investments in education and basic services to reduce both the incidence and depth of multidimensional poverty. Addressing the deprivation of widows is essential for promoting inclusive development and reducing chronic poverty in West African states.

Keywords: *Widowhood, Multidimensional Poverty, West Africa, Alkire–Foster MPI, Capability Deprivation, DHS*

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Background to the Study

Poverty continues to pose a formidable development challenge in West African states, despite decades of policy reforms, economic liberalization, and regional integration efforts. While several countries in the region have recorded episodes of positive economic growth, such growth has not translated into commensurate improvements in overall human well-being. A large proportion of the population remains deprived in fundamental aspects of life, including education, health, housing quality, access to clean water, sanitation, and modern energy services. This persistence of deprivation has prompted renewed scholarly and policy interest in moving beyond income-based poverty metrics toward multidimensional measures that better capture the complexity and depth of lived deprivation (Alkire & Foster, 2011; Alkire & Santos, 2014; Ugbaka & Chijioke, 2024).

West Africa exhibits some of the highest multidimensional poverty levels globally, driven by structural factors such as demographic pressure, informality-dominated labor markets, limited social protection coverage, and entrenched gender inequalities. These challenges are further compounded by weak institutions and customary norms that systematically disadvantage certain demographic groups. Among such groups, widowed individuals particularly women constitute one of the most economically and socially vulnerable populations in the region.

Widowhood in West Africa is not merely a demographic outcome associated with aging or mortality; rather, it represents a profound socio-economic shock with long-lasting consequences. High male mortality rates, conflict, health crises, and significant spousal age gaps increase the prevalence of widowhood, especially among women. In many West African societies, widowhood is accompanied by discriminatory practices such as property dispossession, inheritance exclusion, social stigmatization, and diminished bargaining power within households and communities (Peterman, 2012; Djuikom & van de Walle, 2018). These practices directly undermine widows' access to productive assets, education, healthcare, and adequate living conditions, thereby increasing their exposure to multidimensional poverty.

Despite the growing recognition of poverty as a multidimensional phenomenon, empirical poverty assessments in West Africa have largely overlooked marital status and widowhood in particular as a structural determinant of deprivation. Existing studies often subsume widows within the broader category of female-headed households, thereby masking the distinct channels through which widowhood exacerbates vulnerability (Buvinić & Gupta, 1997; Quisumbing et al., 2015; Ugbaka et al., 2019). Moreover, most empirical analyses focus on income or consumption poverty, which fails to capture the non-monetary dimensions of deprivation that are especially salient for widowed households. This omission has important policy implications. Without explicitly accounting for widowhood, poverty reduction strategies risk underestimating the depth and persistence of deprivation faced by widowed households, particularly in rural areas where customary norms remain dominant and state capacity is weak. Understanding the multidimensional consequences of widowhood is therefore essential for designing inclusive social protection systems and gender-responsive development policies in West Africa.

Against this background, the present study examines the relationship between widowhood and multidimensional poverty across West African states using the Alkire–Foster Multidimensional Poverty Index (MPI) framework. By adopting a cross-country perspective and explicitly modeling widowhood as a key explanatory variable, the study contributes to the literature in three important ways. First, it extends the multidimensional poverty literature by incorporating marital status as a core determinant of deprivation. Second, it provides region-wide empirical evidence on the poverty consequences of widowhood in West Africa. Third, it distinguishes between the incidence and intensity of multidimensional poverty, offering deeper insights into the severity of deprivation among widowed households.

The central research questions guiding the study are as follows:

i. Does widowhood significantly increase the likelihood of multidimensional poverty in West African states?
ii. How does widowhood influence the intensity and severity of multidimensional deprivation?
iii. Are the poverty effects of widowhood heterogeneous across gender and rural–urban locations?

Addressing these questions is critical for advancing both academic understanding and evidence-based policymaking in the region.

Theoretical Framework (Capability Deprivation Framework)

This study adopts the Capability Deprivation Framework, rooted in Sen's (1999) capability approach and operationalized through the Alkire–Foster multidimensional poverty methodology. The framework conceptualizes poverty as a state of multiple and simultaneous deprivations that limit individuals' capabilities to achieve valued functionings, rather than merely a shortfall in income or consumption.

Within this framework, widowhood is viewed as a structural and idiosyncratic shock that constrains household capabilities through economic, social, and institutional channels. In the West African context, where formal social insurance systems are weak and customary norms strongly influence resource allocation, widowhood often leads to sustained deprivation across key dimensions of well-being.

The death of a spouse typically results in a loss of household income, labor, and economic security. This income shock reduces the household's ability to invest in education, nutrition, healthcare, and adequate housing, directly affecting the education, health, and living standards dimensions of the Multidimensional Poverty Index (MPI). In the absence of effective coping mechanisms, widowed households may reduce school attendance, delay medical treatment, or rely on unsafe living conditions, thereby reinforcing multidimensional deprivation (Alkire & Foster, 2011).

Beyond economic loss, widowhood weakens capability-enhancing entitlements, particularly for women. In many West African societies, customary inheritance practices restrict widows'

access to land, housing, and productive assets, despite statutory legal protections. This dispossession undermines widows' control over resources and decision-making, limiting their capability to convert available resources into well-being outcomes. As a result, widows experience persistent deprivation in living standards and long-term capability loss (Peterman, 2012; Djuikom & van de Walle, 2018, Ugbaka, et al.; 2023a).

The framework further recognizes that capability deprivation is cumulative and reinforcing. Initial deprivations triggered by widowhood such as income loss and asset insecurity can interact with pre-existing disadvantages like low education, rural residence, and gender inequality. These interactions increase both the likelihood and intensity of multidimensional poverty, potentially trapping widowed households in persistent deprivation. This cumulative process is consistent with the Alkire Foster identification strategy, which captures overlapping deprivations rather than isolated shortfalls.

Importantly, the Capability Deprivation Framework allows for heterogeneity in outcomes. The impact of widowhood on multidimensional poverty is expected to be more pronounced among female-headed households and rural populations, where institutional support is weaker and dependence on customary norms is stronger. Education, access to social protection, and community support networks are expected to moderate the severity of capability deprivation.

In summary, the framework posits that widowhood affects multidimensional poverty in West African states by reducing households' capability sets through income loss, asset dispossession, and institutional exclusion. These mechanisms jointly increase both the incidence and intensity of deprivation across education, health, and living standards. This theoretical perspective directly informs the empirical strategy of the study, which models multidimensional poverty as a function of widowhood and relevant socio-economic characteristics.

Empirical Review

Empirical research on poverty in Sub-Saharan Africa has increasingly moved away from purely income-based measures toward multidimensional approaches that capture deprivations in education, health, and living standards. This shift is largely driven by the recognition that income measures underestimate the depth and persistence of poverty in developing regions, particularly in Africa (Alkire & Foster, 2011). Using the Alkire–Foster methodology, Alkire and Santos (2014) demonstrate that Sub-Saharan Africa accounts for the largest share of the world's multidimensionally poor population, with deprivations most pronounced in education and basic living conditions. Their findings show that multidimensional poverty is especially severe in West Africa, where deficits in sanitation, electricity, housing quality, and schooling remain widespread.

Subsequent empirical studies applying the multidimensional poverty framework to African countries provide consistent evidence that non-monetary deprivations dominate poverty profiles. Batana (2013) finds that in many African countries, including those in West Africa,

education and living standards contribute more to overall poverty than health indicators. Similarly, Batana and Cockburn (2015) show that multidimensional poverty levels in Ghana and Nigeria are substantially higher than income poverty estimates, highlighting the importance of housing conditions, access to clean water, and educational attainment. These studies consistently identify rural residence, low educational attainment, and large household size as key correlates of multidimensional poverty, but they largely overlook the role of marital status and household life cycle dynamics.

A related body of empirical work examines gender and household structure as determinants of poverty. Studies on female-headed households in Africa generally find higher poverty incidence among such households, attributing this to gender inequalities in access to education, employment, and productive assets (Buvinić & Gupta, 1997; Milazzo & van de Walle, 2018; Ugbaka, et al, 2019b). However, more recent evidence suggests that female-headed households are highly heterogeneous, and that poverty outcomes vary substantially depending on marital status. Milazzo and van de Walle (2018) show that widowed female-headed households experience significantly worse welfare outcomes than those headed by divorced or never-married women, implying that widowhood introduces vulnerabilities beyond those associated with female headship alone.

Empirical studies focusing explicitly on widowhood provide strong evidence that it is associated with heightened economic and social vulnerability in Africa. Peterman (2012), using multi-country household survey data, finds that widows are significantly more likely to experience asset loss following spousal death, particularly in contexts where customary inheritance systems dominate. Asset dispossession, especially of land and housing, has been shown to have long-term consequences for household welfare, limiting access to credit, reducing productive capacity, and increasing exposure to poverty. Djuikom and van de Walle (2018) further document that widows in Sub-Saharan Africa are more likely to be consumption-poor and report lower subjective well-being than married women, even several years after spousal death, suggesting that widowhood can lead to chronic rather than transitory poverty.

While the widowhood literature provides important insights, it is largely confined to income or consumption-based measures of welfare. As a result, it fails to capture the broader spectrum of deprivations faced by widowed households. Emerging evidence indicates that widows are disproportionately affected by non-monetary deprivations, including poor housing conditions, lack of access to clean energy, and reduced educational opportunities for children (Alkire et al., 2015). These overlapping deprivations are central to the concept of multidimensional poverty but remain insufficiently explored in empirical analyses of widowhood. Institutional and contextual factors further shape the poverty outcomes of widows in West Africa. Empirical studies show that weak enforcement of statutory inheritance laws allows discriminatory customary practices to persist, resulting in widespread property dispossession among widows (Quisumbing et al., 2015). In Nigeria and other West African countries, widows are significantly less likely to retain ownership of land or housing after spousal death, directly affecting their living standards and long-term welfare (Peterman,

2012). Djuikom and van de Walle (2018) also find that the negative welfare effects of widowhood are more pronounced in countries with limited social protection coverage and weak institutional capacity conditions that characterize many West African states.

Despite the growing body of literature on multidimensional poverty and gender vulnerability, empirical studies rarely treat widowhood as a central determinant of multidimensional deprivation. Most multidimensional poverty analyses include marital status only as a control variable or aggregate widows with divorced and separated individuals, thereby obscuring the distinct mechanisms through which widowhood exacerbates deprivation (Alkire & Santos, 2014; Batana, 2013). Moreover, cross-country comparative evidence focusing specifically on West Africa remains scarce, limiting the ability to generalize findings across the region. Overall, the empirical literature suggests that widowhood is likely to be a significant driver of multidimensional poverty in West Africa through income loss, asset dispossession, and institutional exclusion. However, the lack of integrated analyses linking widowhood explicitly to multidimensional poverty outcomes represents a critical gap. This study addresses this gap by systematically examining the relationship between widowhood and both the incidence and intensity of multidimensional poverty across West African states using the Alkire–Foster framework

Methodology

Data

This study uses nationally representative Demographic and Health Survey (DHS) data for Nigeria (2018), Ghana (2019), Senegal (2019), Burkina Faso (2018), Mali (2018), Côte d'Ivoire (2021), and Niger (2017). These countries are selected based on data availability and comparability of indicators required for multidimensional poverty measurement. The DHS employs a standardized two-stage stratified sampling design, ensuring national representativeness and cross-country consistency. After data cleaning and harmonization, the pooled sample comprises approximately 100,000 households, with country level samples ranging from about 10,000 to 28,000 households. Sampling weights are applied throughout to ensure representativeness and comparability. Widowhood is defined using DHS marital status data as a binary indicator equal to one if an individual report being widowed. To better capture vulnerability, the analysis extends this definition in two ways. First, it identifies widowhood at the household head level, reflecting its direct implications for income, decision-making, and resource allocation. Second, where data permit, widowed individuals within non-widowed-headed households are also considered, acknowledging that deprivation may persist beyond headship status. Multidimensional poverty is measured using the Alkire–Foster methodology, covering three equally weighted dimensions: education, health, and living standards. Education includes years of schooling and school attendance; health comprises child mortality and nutrition; and living standards capture access to electricity, drinking water, sanitation, housing quality, cooking fuel, and asset ownership. Household deprivation scores are computed as the weighted sum of deprivations across these indicators. A cutoff of 0.33 is used to identify multidimensionally poor households. To capture severity, households are further classified as moderately poor (0.33–0.50) or severely poor ($\geq$0.50). The aggregate MPI is calculated as the product of the headcount ratio and the intensity of deprivation, thereby reflecting both the incidence and depth of poverty.

Model Specification

The empirical model for this study is derived from the Capability Deprivation Framework, which conceptualizes multidimensional poverty as the outcome of constrained capabilities arising from economic shocks, asset insecurity, and institutional exclusion. Within this framework, widowhood is treated as a structural shock that reduces a household's capability set and increases the likelihood and intensity of multidimensional deprivation.

Let each household i possess a latent capability index C_i^* which reflects its ability to achieve basic functionings in education, health, and living standards. Following Sen (1999) and Alkire and Foster (2011), multidimensional poverty occurs when this latent capability index falls below a critical threshold. The latent capability function is specified as:

$$C_i^* = \alpha + \beta_1 Widow_i + \beta_2 X_i + \mu_c + \varepsilon_i$$

Where;

$Widow_i$ is a binary variable indicating whether the household head is widowed, X_i is a vector of household socio-economic characteristics, μ_c captures country-specific unobserved effects, and ε_i is an idiosyncratic error term.

Because C_i^* is not directly observable, it is operationalized using the Alkire–Foster Multidimensional Poverty Index (MPI), which aggregates deprivations across education, health, and living standards. A household is identified as multidimensionally poor when its weighted deprivation score exceeds the poverty cutoff k. This yields the observed binary outcome:

$$MPI_i = \begin{matrix} 1 \\ 0 \end{matrix} \; if\ C_i^* < k, \qquad otherwise\ 0$$

Given the binary nature of the dependent variable, the probability that a household is multidimensionally poor is estimated using a probit model:

$$P(MPI_i = 1) = \Phi(\alpha + \beta_1 Widow_i + \beta_2 X_i + \mu_c))$$

Where;

$\Phi(\cdot)$ denotes the cumulative distribution function of the standard normal distribution.

The coefficient β_1 captures the marginal effect of widowhood on the probability of multidimensional poverty. Consistent with the theoretical framework, it is expected that $\beta_1 > 0$, reflecting the reduction in household capabilities due to income loss, asset dispossession, and institutional exclusion following widowhood.

To examine the intensity of capability deprivation, the study further distinguishes between non-poor, moderately poor, and severely poor households based on their cumulative deprivation scores. This categorization yields an ordered measure of poverty severity, which is estimated using a multinomial logit model specified as:

$$P(MPI_i = j) = \frac{exp\ (\alpha_j + \beta_{1j} Widow_i + \beta_{2j} X_i + \mu_{cj})}{exp\ (\alpha_k + \beta_{1k} Widow_i + \beta_{2k} X_i + \mu_{ck})}, j = 0,1,2$$

Where;
$j = 0$ denotes non-poor households, $j = 1$ denotes moderately poor households, and $j = 2$ denotes severely poor households.

The control vector X_i includes variables that influence household capability formation, such as age and education of the household head, household size, gender of the household head, and rural–urban residence. These variables are theoretically justified as factors that affect the conversion of resources into capabilities within the Capability Deprivation Framework.

Country fixed effects μ_c are included to account for unobserved institutional, cultural, and policy differences across West African states that may influence poverty outcomes. Sampling weights are applied in all estimations to ensure national representativeness. In summary, the model specification directly operationalizes the theoretical framework by treating multidimensional poverty as an observable manifestation of constrained capabilities and by explicitly modeling widowhood as a key determinant of both the incidence and intensity of deprivation in West African states.

Empirical Results

Table 1: Probit Estimates of Widowhood and Multidimensional Poverty

Variable	Coefficient	Std. Error	Marginal Effect
Widowhood (1=widowed)	0.512***	0.058	0.162
Female-headed household	0.224***	0.047	0.071
Years of education (head)	−0.091***	0.010	−0.028
Household size	0.067***	0.013	0.021
Rural residence	0.405***	0.055	0.128
Age of household head	0.012*	0.006	0.004
Constant	−0.912***	0.172	—

***p < 0.01, **p < 0.05, *p < 0.1

The probit results indicate that widowhood significantly increases the likelihood of multidimensional poverty in West African states. Specifically, widowed households are 16.2 percentage points more likely to be multidimensionally poor compared with non-widowed households, controlling for household size, education, gender of household head, rural location, and age of the head. This finding aligns with the Capability Deprivation Framework, which posits that widowhood reduces household capabilities by constraining access to resources, education, and productive assets (Sen, 1999; Alkire & Foster, 2011; Peterman, 2012).

Female-headed households also experience a higher probability of poverty (7.1 percentage points), reflecting entrenched gender inequalities in asset ownership, labor market participation, and social support mechanisms (Quisumbing et al., 2015; Milazzo & van de

Walle, 2018). Conversely, each additional year of education for the household head reduces the probability of multidimensional poverty by 2.8 percentage points, highlighting the protective role of human capital in converting resources into capabilities (Alkire & Santos, 2014). Household size and rural residence significantly increase poverty likelihood, consistent with evidence that larger and rural households face higher deprivation intensity due to limited access to services and infrastructure (Batana, 2013; Adepoju, 2018). Overall, the results confirm that widowhood is a statistically and substantively meaningful determinant of multidimensional poverty in the region, supporting previous findings that widows face both economic and social disadvantages that exacerbate deprivation (Djuikom & van de Walle, 2018).

Table 2: Multinomial Logit Estimates – Poverty Severity

Variable	Moderate Poverty (j=1)	Severe Poverty (j=2)
Widowhood (1=widowed)	0.378***	0.652***
Female-headed household	0.192***	0.305***
Years of education (head)	−0.065***	−0.112***
Household size	0.055***	0.089***
Rural residence	0.293***	0.514***
Age of household head	0.009*	0.017**
Constant	−0.845***	−1.125***

***p < 0.01, **p < 0.05, *p < 0.1

The multinomial logit results reveal that widowhood significantly increases the probability of both moderate and severe multidimensional poverty, with a larger effect on severe poverty. Widowed households are 37.8 percentage points more likely to be moderately poor and 65.2 percentage points more likely to be severely poor relative to non-poor households. These findings reinforce the theoretical expectation that widowhood not only increases the likelihood of poverty but also deepens the intensity of deprivation (Sen, 1999; Alkire & Foster, 2011). Female-headed widowed households are particularly vulnerable, with a stronger effect observed in the severe poverty category. This reflects the intersection of widowhood and gender inequality, whereby widows face institutionalized constraints on inheritance, limited access to credit, and reduced labor market opportunities, consistent with previous empirical evidence from Sub-Saharan Africa (Peterman, 2012; Quisumbing et al., 2015).

Education again emerges as a significant mitigating factor: each additional year of schooling reduces the probability of severe poverty by 11.2 percentage points, highlighting the role of human capital in enhancing capability conversion and resilience against deprivation (Alkire & Santos, 2014). Household size and rural location increase both moderate and severe poverty, consistent with structural constraints in resource allocation, infrastructure, and service access in rural areas (Batana, 2013; Adepoju, 2018). Age of the household head has a small but statistically significant positive effect, reflecting the cumulative vulnerability of older widowed heads who may have reduced labor capacity and social support. Taken together, these results provide strong empirical support for the Capability Deprivation Framework, demonstrating

that widowhood is a structural determinant of multidimensional poverty in West Africa. It affects both the incidence and severity of deprivation through income loss, asset insecurity, and institutional exclusion, highlighting the need for targeted social protection and legal reforms to mitigate the risks faced by widows (Djuikom & van de Walle, 2018; Peterman, 2012).

Table 3: Cross-Country MPI Decomposition for Widowed Households in West Africa

Country	H (%)	A (%)	MPI	Education (%)	Health (%)	Living Standards (%)
Nigeria	68.5	43.2	0.296	35.1	21.3	43.6
Ghana	54.7	39.8	0.218	31.2	19.7	49.1
Senegal	61.3	41.5	0.254	33.7	18.5	47.8
Burkina Faso	74.1	46.0	0.341	36.5	22.0	41.5
Mali	71.8	44.3	0.318	37.0	21.5	41.5
Côte d'Ivoire	63.5	42.7	0.271	34.2	20.0	45.8
Niger	78.9	47.2	0.372	38.1	23.4	38.5
Senegal	61.3	41.5	0.254	33.7	18.5	47.8

Notes: *H (%) = Headcount ratio (proportion of widowed households who are multidimensionally poor). A (%) = Intensity of poverty (average deprivation among the poor)*
MPI = H × A, Education, Health, Living Standards = Contribution of each dimension to total MPI

The MPI decomposition indicates that widowed households face high multidimensional poverty across all West African states, with Niger (MPI = 0.372), Burkina Faso (0.341), and Mali (0.318) exhibiting the highest levels. This suggests that widows in these countries are both more numerous among the poor (high H) and experience deeper deprivations (high A). Education contributes substantially to MPI across all countries, ranging from 31.2% in Ghana to 38.1% in Niger, highlighting that low schooling and high illiteracy among widows are key drivers of multidimensional poverty (Alkire & Foster, 2011; Alkire & Santos, 2014). Living standards are also a major contributor, particularly in Ghana (49.1%) and Senegal (47.8%), reflecting widespread deprivation in housing quality, access to water, sanitation, and energy among widowed households (Batana, 2013; Adepoju, 2018). Health contributes relatively less than other dimensions, but still represents a significant share, particularly in Niger (23.4%) and Burkina Faso (22.0%), underscoring the vulnerability of widows to malnutrition and inadequate healthcare (Peterman, 2012).

The cross-country variation suggests that institutional, cultural, and economic contexts play a significant role in shaping the multidimensional poverty experience of widows. Countries with weaker social protection systems and stronger customary practices that limit widows' asset inheritance such as Niger and Burkina Faso—show both higher incidence and intensity of deprivation, consistent with the Capability Deprivation Framework (Sen, 1999; Djuikom & van de Walle, 2018). Conversely, Ghana, which has relatively better social safety nets and more robust statutory protections for widows, displays lower MPI values despite significant living standards deprivations. This decomposition highlights that policy interventions must target specific dimensions: improving education access for widows, strengthening social protection

coverage, and ensuring secure asset ownership can collectively reduce both the incidence and intensity of multidimensional poverty in West African widowed households.

Summary and Recommendations

This study examined the relationship between widowhood and multidimensional poverty in West African states using DHS data and the Alkire–Foster Multidimensional Poverty Index. Empirical results from probit and multinomial logit models indicate that widowhood significantly increases both the likelihood and severity of multidimensional poverty, with widowed households experiencing higher deprivation across education, health, and living standards. Cross-country MPI decomposition further reveals substantial variation, with Niger, Burkina Faso, and Mali exhibiting the highest incidence and intensity of poverty among widows, driven primarily by low educational attainment and poor living standards. These findings underscore the structural vulnerability of widowed households arising from income loss, asset dispossession, and weak institutional protections, consistent with the Capability Deprivation Framework (Sen, 1999; Alkire & Foster, 2011; Peterman, 2012).

Based on the evidence, the study recommends the implementation of targeted social protection programs for widowed households, including cash transfers and food support, to cushion income shocks; legal and institutional reforms to secure widows' rights to land and property; and education and skills development programs to enhance their human capital and economic resilience. Additionally, rural infrastructure investments and improved access to basic services such as clean water, sanitation, and electricity are essential to reduce living standards deprivations among widows.

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