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DECOMPOSING POVERTY-INEQUALITY LINKAGES OF SOURCES OF DEPRIVATION BY MEN-HEADED AND WOMEN-HEADED HOUSEHOLDS IN CAMEROON

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We decompose poverty-inequality linkages of sources of deprivation by men-headed and women-headed households in Cameroon. Results indicate that (a) women-headed and gender-neutral households face more human and household capital deprivation and higher levels of inequality than their men-headed counterparts; and (b) whereas decreasing inequality between the men-headed and women-headed households would reduce the incidence and depth of human capital deprivation, reducing inequality among the men-and women-headed households will reduce the incidence and depth of household capital deprivation. Policies should simultaneously reduce household capital deprivations among men-headed and women-headed and human capital deprivation between these households.

Keywords: Poverty, Inequality, Gender, Welfare, Cameroon
JEL classification: I30, I32, D39

1. INTRODUCTION

Understanding of the dynamic relationship between inequality-poverty reduction and gender disparities is necessary to appreciate pathways to improve household economic welfare. Ignoring the multiple sources of inequalities that blight the well-being of women will retard the development progress (Sen, 1999). Discrimination on the basis of race and gender can cause people to lower their aspirations and hopes, and undermine their investments in human capital (Becker, 1993). The 2012 World Bank Development Report on Gender Equity and Development indicate that policies designed by governments should focus on reducing disparities in terms of access and returns to key

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human capital, societal and demographic characteristics between men and women. These characteristics explain household welfare and are considered as income sources in this study.

Reducing disparities between men-headed and women-headed households along monetary and non-monetary dimensions would increase overall welfare. In this study we use the term men-headed (women-headed) households to indicate a household where the number of adult-men (adult-women) is greater than the number of adult-women (adult-men). We also have a gender-neutral household where the number of adult-men is equal to the number of adult-women. A household is considered as men-headed (women-headed) when the number of adult men (adult women) make up at least 55% of the total adult population. We use the concept of men-headed, women-headed and gender-neutral households as defined by Aryeetey *et al*. (2010). This classification hinges on the notion of headship based on gendered power control in the household because control over resources or gains because of characteristics attributed differently between men and women are due to divers economic and social reasons. Furthermore, statistics indicate that in households where the number of adult-men are greater than adult-women, these households tend to better-off. In the case of this study average per capita expenditure (see Table 1A in Appendix) for men-headed household is greater than gender-neutral and female-headed households.

Gender disparity is perceived in this study along the line of differences in welfare outcomes between men-headed and women-headed households. Generally, since men and women are endowed differently, households where the larger proportion of adults is men may likely suffer less from deprivation outcomes than households where the larger proportion of adults is women. This is because adult men tend to be favoured in the labour market because they are generally more educate on average than women, and earn more money than women. In addition, cultural setting tends to attribute to men certain advantages. The resulting effect is that in men-headed households, the stock of capabilities that can be transformed into functionings is greater than their corresponding women-headed households.

Furthermore, unequal opportunities between these two groups of households fuel overall inequality. This study argues that if we divide the population into the men-headed and women-headed households, total inequality can be decomposed into inequality within the women-headed household group, inequality within the men-headed household group and inequality between the men-headed and women-headed households. Simultaneously studying the poverty-inequality linkage entails evaluating how much overall poverty would decline if one of these three kinds of inequality declines, holding the others constant.

Among the 20 million inhabitants that live in Cameroon, about 51% are women (Government of Cameroon, 2009). Yet, gender-bias or gender-neutral behaviours adversely affect women than their male counterparts (Sikod, 2007). Many factors limit the economic growth of women and are responsible for poverty, especially in the rural areas (Epo *et al*., 2011). This situation is believed to weaken the foundations for

sustainable development, undermining the country's social fabric, and acting as the potential cause of stagnation observed in the fight to curb poverty.

Human capital (Schultz, 1961; Grossman, 1972) is important in acquiring capabilities. However, differences in access to human capital outcomes like education and health (Government of Cameroon, 2009), land ownership and utilization (Baye, 2010) and access to credit facilities (Government of Cameroon, 2003) exist between men and women in Cameroon. In this study we consider human and household capital to reflect some form of deprivation. These forms of capital are captured by regressed-income sources (Morduch and Sicular, 2002). We group education and health to constitute the stock of human capital. Regarding the stock of household capital, we combine the variables household size, age, land ownership and location.

The paper therefore attempts to simultaneously decompose the impact of small changes in inequality of sources of deprivation into marginal impacts on poverty, inequality and elasticity of poverty by men-headed/women-headed households in Cameroon. Specifically, the paper (a) estimates the determinants of household economic well-being for the overall and men-headed and women-headed subsamples; (b) computes the marginal impacts of a small change in inequality of sources of deprivation, and their within- and between-marginal impacts on poverty, inequality and elasticity of poverty for the men-headed and women-headed households, men-headed and non-headed households and women-headed and non-headed households and (c) suggest some policy implications on the basis of the findings.

2. REVIEW OF LITERATURE

Since the early works of Kuznets (1955), poverty-inequality nexus analysis has been furthered by Kakwani, (1993) and Kanbur (2008). Reviewing studies on decomposition of poverty-inequality linkages, Araar and Duclos (2010) use a micro framework to assess the link between poverty and inequality through an analysis of the poverty impact of changes in income-components inequality and in between- and within group inequality. Other studies include Araar and Awoyemi (2006) and the 2005 World Development Report.

What stands out from these studies are (a) growth which is accompanied by a rise in income inequality will dissipate the impact of the former on poverty reduction; (b) the initial level of income inequality within an economy is important in predicting the magnitude of the impact of growth on poverty (Clarke, 1996; Ravallion, 1997; Ravallion, 2001) and (c) linking poverty, economic growth and inequality revolves around issues of the sensitivity of measures of income inequality to changes in economic growth (Li *et al*., 1998; Kanbur and Squire, 1999).

The BRIDGE (2001) report notes that many poverty-reducing programs may not reach poor women directly due to their lack of command over productive resources, control of output and lack of time. Regarding gender disparity, some studies including

Blackden and Bhanu (1999) analyze human assets and find that in sub-Saharan Africa (SSA) gender differentials in reproductive health disfavours women more than men. DasGupta (1987) observes that cultural rights and obligations favour sons relative to daughters in rural India, and Klasen (2005) studies the impact of gender inequality on pro-poor growth and recognizes that there is little information on the impact of gender gaps on inequality.

For Cameroon, Fonchingong (1999) question's the impact of structural adjustment reforms on women and how this affects agricultural output in Cameroon. Fonjong (2001) examines the role of NGOs in enhancing the participation of women in fostering development aimed at increasing welfare, while Sikod (2007) using descriptive statistics attempts to distinguish between assets (private and public) that affect labour productivity and its influence on household decision making processes. Epo *et al*., (2011) study inter-household gender disparity using the Oaxaca-blinder decomposition.

This study differs from other studies that have attempted to study poverty-inequality linkages in the following manner: (a) it uses sources of deprivation obtained from regressed-income sources rather than monetary income as in Araar and Duclos (2010) and (b) it studies the within and between-group impacts of poverty and inequality by men-headed and women-headed households.

3. METHODOLOGY

The methodology is divided into two sub-sections. In the first section we estimate determinants of household economic well-being and generate estimated-income sources that reflect deprivation outcomes. In the second section, we use the generated sources of deprivation to undertake a simultaneous decomposition of poverty-inequality linkages by men-headed vs. women-headed, men-headed vs. gender-neutral households and women-headed vs. gender-neutral households applying the methodology developed by Araar and Duclos (2010).

3.1. Determinants of Household Economic Welfare

Household economic well-being reflects the ability of the household to use a vector of expenditure outcomes to realize an efficient functioning of the capabilities of individuals in the household, or the household itself if we consider the effect of synergy. Economic welfare at the household level is surrogated by consumption expenditure, which is influenced by individual, household and community characteristics. They affect the household utility and production function. We note that certain correlates that affect household economic well-being cannot be observed or measured. This may indicate the presence of unobserved heterogeneity. Likewise, other variables may be potentially endogenous.

In an effort to reduce potential endogeneity, potentially endogenous variables such

as education and health are captured at household levels. Notwithstanding, given the difficulty in obtaining valid instruments from the data used in the study, we estimate determinates of household economic well-being using the survey linear regression.

We use survey linear regression rather than ordinary least squares methods to control for sample design used in the data collection process. Survey regression takes care of three important sample characteristics: sampling weights, clustering and stratification (Stata Corp., 1999). Since sampling is done independently across strata in Cameroon household consumption surveys, the resulting OLS standard errors will be smaller than normal. Therefore, applying survey regression technique to the third CHC survey data produces the correct standard errors. Modeling household economic well-being, the survey linear regression function is expressed as:

$$Lny_i = \alpha_0 + \sum_{i=1}^{n} \beta_i X_i + \varepsilon_i \,, \tag{1}$$

where Lny_i is the log of household expenditure per capita for the ith household, β_i parameters to be estimated, X_i household characteristics or explanatory variables (see Table 1), α_0 the constant term and ε_i the error term.

In the next section, we outline the decomposition methodology used in this study to decompose the poverty-inequality-gender linkages using regressed-income sources obtained from the estimated welfare function as the measures of micro-sources of well-being.

3.2. Decomposition Framework of Poverty-Inequality-Gender Linkages by Regressed Income Sources

In this section we summarise a framework that simultaneously evaluates the impact of a percentage change in inequality, on poverty and the within-and between-group inequality on poverty. Araar and Duclos (2010) demonstrate this framework in detail. For the purpose of this study we summarily explain how we obtain the within- and between-group inequality by each source of deprivation. We suggest that the total population is divided into three exclusive and exhaustive groups: the men-headed households, women-headed households and gender-neutral households. The mean of each source of deprivation and their respective Lorenz curves are also generated.

Generating both the within- and between-group inequalities hinges on the concept of bipolarization (Wolfson, 1994; Duclos and Araar, 2006). In this study polarization refers to the divergence between the households dominated by men and households dominated by women attracted by different forces toward the main masses or narrowly, the grouped objects. For each source of deprivation, we limit our focus on the two main opposite clustering, situated in general at the bottom and top of their respective distributions. This is termed bi-polarization. Post-bipolarization on its part is equivalent to adding the

proportion of the distance of each percentile from the mean to each quintile function for each source of deprivation. This type of polarization does not affect averages in our case. Roughly speaking, for example, this corresponds to an increased bipolarization of a source of deprivation away from an unchanged mean as in Duclos and Echevin (2005).

Within-group-g bipolarization in this study refers to a spread of the distribution of the sources of deprivation from their mean values for individuals belonging either to the group of men-headed or women-headed households. This is equivalent to the ratio of the mean of a source times the share of a given group of individuals to the average mean of the sum of all sources times the coefficient of concentration of the given group. This is expressed as:

$$Within\text{–}group \;\; Inequality = \frac{\varphi(g)\mu(g)}{\mu} IC(\rho; g), \tag{2}$$

where $\mu(g)$ is the mean value of source m for group g, $\varphi(g)$ the overall share of group g in the population, μ the overall mean and $IC(\rho; g)$ the coefficient of concentration of group g obtained by allocating the mean value of the source of deprivation to all those who belong to group g and normalizing the FGT index of group g by the contribution of group g to the overall mean value of a given source of deprivation.

Having obtain the within-group inequality, we can obtain the elasticity of total poverty with respect to within-group inequality by multiplying the ratio of the impact on total poverty caused by an increase in bipolarization in group g to the impact on total inequality of a marginal increase in within-group g inequality by the ratio of total inequality after bipolarization and FGT index for the given groups we are considering.

To capture between-group inequality, we consider the impact of a bipolarization process that spreads the groups for the men-headed and women-headed households apart from each other without affecting within-group inequality. To model this, Araar and Duclos (2010) indicate that both within-group inequality and overall mean are kept constant. Between group-inequality is therefore obtained by the difference between total inequality after the impact of change in between-group bipolarization has been considered and the product of the sum of the share of men-headed and women-headed households times the ratio of the mean of the source we are considering with the mean value of the sum of all sources with the coefficient of concentration.

The between-group inequality, implicitly assumes that all the values of the source of deprivation we are considering within a group are changed by the same absolute value. This is equivalent to assuming no within-group inequality. Increasing between-group bipolarisation has instead the effect of increasing everyone's value of a given source of deprivation within the group by the same proportion. This is expressed as:

$$Between\text{–}group \;\; Inequality = Total \;\; Inequality - \sum_{g=1}^{G} \varphi(g) \left(\frac{\mu(g)}{\mu} - 1 \right) IC(\rho; g), \quad (3)$$

where $\varphi(g)$ is the overall share of group g in the population, $\mu(g)$ the mean value of a particular source for a given group and μ the overall mean value of the sum of all sources, and $IC(\rho; g)$ is the coefficient of concentration.

Having obtain the between-group inequality, we can obtain the elasticity of total poverty with respect to between-group inequality by multiplying the ratio of the poverty impact of between-group bipolarization with total inequality after the impact of change in between-group bipolarization has been considered, by the ratio of the between-group inequality with the FGT index obtained by the difference in poverty among the men-headed and women-headed households.

3.3. Data

The data used in this paper is obtained from the Cameroon household consumption survey (CHCS III), carried out in 2007 by the National Institute of Statistics (National Institute of Statistics, 2008). The CHCS III was collected between May and July 2007; and comprised of 11391 households. Its aim was to upgrade knowledge on poverty and welfare status in Cameroon by providing indicators that capture the living standards of the local population and provide elements to enable the follow up of efforts made towards the implementation of the former poverty reduction strategy paper and the MDG objectives.

Table 1. Weighted Descriptive Statistics for the General Sample

Variable	Mean	SD	Min	Max
Outcome Variables				
Total Expenditure Per Head [FCFA]	304691	314458	72053	7622661
Household stock of education	4.1494	4.1581	0	21
Household stock of health	0.4204	0.3748	0	1
Household Size	6.4934	3.9868	1	43*
Average age in household	36.260	10.393	18	98
Men-headed households (1=yes and 0=otherwise)	0.2054	0.4040	0	1
Women-headed households (1=yes and 0=otherwise)	0.3697	0.4827	0	1
Gender-neutral households (1=yes and 0=otherwise)	0.4247	0.4943	0	1
Own Farmland (1= yes and 0=otherwise)	0.6096	0.4878	0	1
Regions				
Urban	0.3542	0.4783	0	1
Rural	0.6559	0.4783	0	1

Source: Computed by authors using the third Cameroon Household Consumption Survey and STATA 10.
Notes: 1 Euro= 655.96 FCFA. * Traditional chieftains in rural areas in Cameroon have very large household sizes.

Variables adopted for this study include household expenditure per capita (expressed in CFA francs), household stock of education (captured by average household years of schooling for adult members), household stock of health (captured by the proportion of adult household individual that declared they had good health), average adult-age in the household, household size, household own farmland and household resides an urban areas. Descriptive statistics for variables used to identify determinants of household economic well-being are reported in Table 1. The descriptive statistics are presented in this section but discussed in the next section.

3.4. Regressed-Income Sources

Statistics for the general population are combined with regressed coefficients to obtain regressed-income sources used to undertake the poverty-inequality linkage decomposition. Regressed-income sources, reflecting sources of deprivations, are obtained from the econometric results to yield estimates of the income flows attributed to household variables. Each source is obtained by dividing the dependent variable by the exponential of the sum of all the other sources excluding the considered source plus the constant term and the predicted error term. We then obtain sources for each variable that we can group by applying the additivity principle (Wan, 2004).

The regressed-income sources are (1) stock of human capital (education and health) and (2) stock of household capital (household size, age, own farmland and urban residency). The descriptive statistics for the different consolidated sources are outline in Table 2. The "cut-off line" or poverty-line is considered as two-thirds of the average value of each regressed-income source. Araar and Duclos (2010) use an identical poverty line in evaluating monetary poverty in Nigeria. In this study, this is chosen to reflect the welfare point below which a household is considered as deprived in terms of any particular source for 2007.

Table 2. Descriptive Statistics of Income Sources (CFA Francs per Annum)

Regressed-income Sources	Mean	SD	Min	Max
Human capital	81473.2	78630.9	0	513272.1
Household capital	162010.9	93948.3	53072.3	695922.2

Source: Computed by authors using the third Cameroon Household Consumption Survey and the DASP 2.1 Software.

It is worth noting that income sources are generate from the estimated regression model that excludes the variable gender using the general sample. Similarly, use is made of household expenditure per head rather than the log of expenditure per head in computing income sources.

4. EMPIRICAL RESULTS

In this section we present descriptive statistics, econometric estimates and the poverty-inequality decomposition results of sources of deprivation.

4.1. Some Descriptive Results

Descriptive statistics from the CHCS III survey indicates that 28 percent of households were men-headed, 33% women-headed and 39% gender-neutral households. Average years of schooling in a household were 4 years and two months. 42% of households indicated that their health status was good. Concerning owning land, about 60% of households indicated that they have access to farmland. Average household size was 6 members for men-headed households, 7 members for women-headed households and 5 members for gender-neutral households. Average age in households was 36 years for the total population, 34 years for men-dominant, 38 years for women-headed and 35 for gender-neutral households (see Table 1A in the Appendix).

4.2. Determinants of Household Economic Welfare for the Subs and Overall Samples

Table 3 hosts the survey linear regression estimates (Columns 1, 2 and 3). Coefficients are adjusted for sampling weights.

The R-squared and the Fisher statistics are globally significant for men-headed and women-headed subsamples. For both samples, household stock of education and health significantly contributed in enhancing household per capita expenditure (Table 3). Education in women-headed households is associated with larger effects on well-being than in men-headed households. This finding is consistent with results obtained by Abu-Ghaida and Klasen (2004). In addition, effects of women's education and empowerment as potential source of economic growth are discussed in Lagerlöf (2003) and Esteve-Volart (2004).

The variable health for both groups was significantly and positively related to household per capita expenditure (Column 2 and 4). Moreover, it has extensively been demonstrated that there is a positive relationship between health and economic prosperity (Marmot *et al*., 1991). These results show the important role health plays as a key human capital characteristic (Bartel and Taubman, 1979; Parsons, 1980). In addition, improved bargaining power of women has been shown to lead to greater investments in the health and education of their children (Murthi *et al*., 1995; Lundberg *et al*., 1997). The healthiness of the women-headed households has a stronger effect on per capital expenditure than among their men-headed households indicating the necessity to focus on women health issues.

Table 3. Survey Linear Estimates of Household Economic Well-being Function - Dependent Variable (log of household expenditure per head)

Variables	Men-headed	Women-headed	General sample
	Col.1	*Col.2*	*Col.3*
Household stock of education	0.0614 ***	0.0662 ***	0.0625 ***
	(14.32)	(18.85)	(25.11)
Household stock of health	0.1928 ***	0.2020***	0.1923 ***
	(4.48)	(7.04)	(8.61)
Household Size	-0.0613 ***	-0.0269***	-0.0428 ***
	(-6.69)	(-4.78)	(-7.62)
Average age in household	0.0004	0.0042***	0.0014 **
	(0.30)	(4.43)	(2.21)
Household own farmland	-0.1102**	-0.1122***	-0.1070 ***
(1= yes and 0=otherwise)	(-2.58)	(-3.75)	(-5.08)
Urban area	0.4094***	0.3855***	0.3907***
	(8.89)	(11.88)	(14.71)
Constant	12.490***	11.989***	12.239***
	(191.6)	(182.3)	(249)
R-Squared	0.5036	0.5005	0.4940
Adjusted R-squared	0.5027	0.4997	0.4937
Fisher Test [p-value]	81.4 [0.00]	185 [0.00]	273 [0.00]
Number of Observations	3177	3767	11291
Total population (million)	3.6	6.6	17.8

Source: Computed by authors using the third Cameroon Household Consumption survey.

Notes: ***, ** and * are 1, 5 and 10 percent significance levels, respectively. Variables in parenthesis are t-values.

Household size is negatively signed and significant for both men-headed and women-headed subsamples. On average, household size for the women-headed group is larger than for their men counterparts. This reveals the preponderant effects of the care economy in women-headed households. Age is significant for women-headed but not for men-headed households. Generally, adult women are active and have a stronger effect of skills and know-how on well-being. Consequently, they are likely to be women who have empowered themselves, over time, and are undertaking activities that give them increasing economic power.

Ownership of farmland is negatively related to household economic well-being and significant for the men-dominant, women-headed and non-headed subsample. This indicates that undertaking farming activities was not beneficial to these subgroups because they may not have sufficiently invested in the different farming activities (adopting new seed varieties, training) to render them productive. Consequently, this sucks-up their income and decreases household expenditure. Another reason may be that

a large portion of rural dwellers own land. However, households that are economically viable may be carrying out other forms of activities rather than farming in rural areas.

Urban residency has a positive effect on household economic well-being for both subsamples. These results indicate that men-headed and women-headed households residing in urban areas tend to consolidate tangible and intangible human capital characteristics that help them acquire new productive skills that generate income for spending. On the contrary, in rural areas opportunities to ameliorate key components of human capital like education and health are inadequate.

In the overall sample, the stock of education and health status contributed in enhancing household economic welfare. Regarding the other variables, whereas household size and owning farmland related negatively to household welfare, age and urban residency related positively to household welfare (Column 3). These results point to the importance of human capital (household stock of education and health) and household capital or characteristics (average adult-age and household size, owning farmland and urban residency) in explaining household economic welfare and associated deprivation outcomes.

The regression analysis in the general sample is executed without the inclusion of the variable gender. This is because in the next section, we undertake a decomposition of regressed-income sources that reflect deprivation outcomes by men-headed vs. women-headed households, men-headed vs. gender-neutral households and women-headed vs. gender-neutral households.

4.3. Poverty-Inequality Decomposition for Sources of Deprivation

In this section, we compute the marginal impacts on poverty, inequality and elasticities and the within- and between-group values of a percentage reduction in inequalities. This exercise is implemented in a pair-wise fashion in tandem with the bipolarization approach for men-dominant, women-headed and gender-neutral households. Use is equally made of the incidence and depth of deprivation in human capital and household capital.

4.3.1. Case of the Incidence and Depth of Deprivations by Men-headed versus Women-headed Households

Table 4 shows the incidence and depth of deprivation for the endowment human capital and household capital for the men-headed and women-headed households. The incidence of human capital deprivation for the sample comprising of men-headed and women-headed households was 54%. Household dominated by women accounted for 76% of the incidence of total deprivation regarding the endowment human capital (Table 4, Column, 2). In addition, inequality among the women-headed households was higher than among their men-headed counterparts (Table 4, Column 3). This indicates that on average, deprivation and inequality were more acute for the women-headed households

than with their men-headed counterparts. Thus, human capital-inequality is revealed as being an issue among women-headed than among men-headed households.

Table 4. Poverty-Inequality Decomposition, Marginal Impacts and Elasticities by Men-headed and Women-headed Households per Source for the Incidence and Depth of Deprivation

Income Sources	Population share *Col.1*	Poverty levels *Col.2*	Inequality *Col.3*	Marginal Impact on Inequality *Col.4* (10^{-2})	Marginal Impact on Poverty *Col.5* (10^{-2})	Elasticity *Col.6*
Incidence of Deprivation (FGT=0)						
Human capital						
Men-headed	0.3128	0.1253	0.0988	0.1837	0.0695	0.3698
Women-headed	0.6872	0.4104	0.2670	0.3248	0.0880	0.2649
Within Group			0.3658	0.5085	0.1575	0.3026
Between-Group			0.1577	0.0102	0.0171	1.6305
Total	1.0000	0.5356	0.5236	0.5236	0.1692	0.3158
Household capital						
Men-headed	0.3128	0.0998	0.0632	0.1168	0.2062	1.4506
Women-headed	0.6872	0.2843	0.1564	0.1915	0.2615	1.2243
Within Group			0.2196	0.3084	0.4677	1.2467
Between-Group			0.0961	0.0086	0.0099	0.9466
Total	1.0000	0.3841	0.3157	0.3157	0.4862	1.2657
Depth of Deprivation (FGT=1)						
Human Capital						
Men-headed	0.3128	0.0787	0.0988	0.1837	0.1871	1.7252
Women-headed	0.6872	0.2322	0.2670	0.3248	0.3693	1.9092
Within Group			0.3658	0.5085	0.5564	1.8407
Between-Group			0.1577	0.0102	0.0131	2.1757
Total	1.0000	0.3109	0.5236	0.5236	0.5788	1.8612
Household capital						
Men-headed	0.3128	0.0160	0.0632	0.1168	0.0878	3.1787
Women-headed	0.6872	0.0586	0.1564	0.1915	0.1724	3.8086
Within Group			0.2196	0.3084	0.2602	3.5700
Between-Group			0.0961	0.0086	0.0054	2.6441
Total	1.0000	0.0746	0.3157	0.3157	0.2667	3.5734

Source: Computed by authors using the third Cameroon Household Consumption survey.

Note: 10^{-2} indicates ten to the minus two decimal places.

Within-group human capital-inequality as calculated by the Gini coefficient dominates the between-group component (Table 4, Column 3). This indicates that if government were to target human capital differences within these groups, this could help

in reducing overall human capital-inequality and deprivation associated to human capital. The women-headed group would benefit more because their marginal impact of poverty was higher than their male counterpart (Columns 4). This indicates that removing disparities in human capital will impact well-being within households dominated by women more than households dominated by men.

Elasticity for the between-group component is larger than for the within-group component (Column 6). This is indicating that reducing between-group human capital-inequalities for both groups will reduce overall deprivation as shown by the response to a percentage change in inequality captured by the between-group elasticity which is more than reducing inequality among both groups.

The depth of deprivation shows the shortfall of deprived households from the welfare cut-off point expressed as the fortieth percentile of the population. The women-headed households contributed more in accounting for the depth of deprivation (about 74%) than their men-headed counterparts (Table 4, Column 2). This reveals that empowering women-headed households would largely reduce the number of households just beneath the welfare cut-off point.

The marginal impact of inequality and poverty posted similar results like the incidence of human capital in favour of the group of women-headed households. A percentage change in inequality would have higher responses for the group of households dominated by women (Table 4, Column, 6). Between-group elasticity posted higher elasticities than the within-group elasticity (Table 4, Column 6). Thus, effectively reducing human capital-inequality between both groups of households below the welfare cut-off point will have a larger impact on reducing overall human-capital gap than within each group.

Regarding the endowment household capital, the group of households dominated by women registered larger incidence of deprivation than the men-headed group (Table 4, Column 2). Inequality is higher in the group of women-headed households than the men-headed households (Table 4, Column 3). This indicates that deprivation for household capital endowment was worst for women-headed households than men-headed households. Furthermore, inequality within the women-headed household group is higher than their men-headed counterparts revealing the high degree of unequal endowment of household capital among the households dominated by women.

Regarding the marginal impact of inequality and poverty, its values were higher for women-headed households than their men counterparts (Table 4, Column 5). This indicates that reducing household capital-inequality would have a higher effect on women-headed households than their men counterpart. In terms of elasticities, the values for men-headed households and the within-group values were higher than for their women-headed counterparts and the between-group values. Therefore, responses to a percentage change in within-group inequality would have a higher effect on overall deprivation of this endowment than reducing inequality between each group. Consequently, to resolve injustice in favour of the women-headed households, policies that encourage household capital accumulation should be skewed principally among the

respective groups and in their favour. This is evident because women face a lot of difficulties in acquiring households capital due to societal of cultural constrains.

For the depth of deprivation in household capital, women-headed households accounted more for this gap than their men-headed counterparts (Table 4, Column 2). Furthermore, within-group inequality and the marginal impact of inequality and poverty for the within-group component and the women-headed household group were larger than their between-group values and the men-headed groups. This may signify that on average, overall deprivation associated to household capital endowments will fall more if households dominated by women experience a reduction in inequality.

In terms of elasticities, reducing household capital inequality within each group will have higher effects on overall welfare than trying to reduce deprivation between these groups. Consequently, policy options should be specific to each group due to discrimination faced by women in terms of acquiring assets. In this regards, putting in place policies among both groups of households for those clustered just beneath the welfare cut-off point will enable these households to move above the welfare cut-off and consolidate their capabilities in terms of household capitals.

4.3.2. Case of the Incidence and Depth of Deprivations by Men-headed versus Gender-neutral Households

Comparing the incidence of deprivation associated to human capital endowment for men-headed and gender-neutral households, we observe that the group of gender-neutral households accounted more in explaining deprivation than men-headed households (Table 5, Column 2). Furthermore, unequal access to human capital endowments was more acute among gender-neutral households than men-headed households (Table 5, Column 3). This indicates that men-headed households are better-off in terms of poverty and inequality than gender-neutral households. Generally, though in gender-neutral households women are active, they tend to carry out activities in the informal sector. Furthermore these active women contribute in terms of care economy which is not generally quantified in developing countries like Cameroon.

In terms of the marginal impact of poverty and inequality, whereas men-headed households registered higher values of the marginal impact of poverty than gender-neutral households, in terms of the marginal impact of inequality we observe that gender-neutral households having higher values than their men counterparts (Table 5, Column 4 and 5). Reducing human capital-inequalities between both groups engenders a larger effect in alleviating deprivation than among the groups in terms of elasticity for a percentage change in inequality. This heralds the policy suggestion that encouraging the empowerment of women towards reducing disparities in education and health as compared to men as a possible scenario in increasing overall human capital in households. Thus, policies that influence cultural perceptions should address issues of empowering women.

Table 5. Poverty-Inequality Decomposition, Marginal Impacts and Elasticities by Men-headed and Gender-neutral Households per Source for the Incidence and Depth of Deprivation

Income Sources	Population share *Col.1*	Poverty levels *Col.2*	Inequality *Col.3*	Marginal Impact on Inequality *Col.4* (10^{-2})	Marginal Impact on Poverty *Col.5* (10^{-2})	Elasticity *Col.6*
Incidence of Deprivation (FGT=0)						
Human capital						
Men-headed	0.2918	0.1353	0.0904	0.1533	0.0318	0.2003
Gender-neutral	0.7081	0.3934	0.2822	0.3523	0.0308	0.0842
Within Group			0.3826	0.5052	0.0626	0.1194
Between-Group			0.1273	0.0021	0.0013	0.5975
Total	1.0000	0.5288	0.5099	0.5099	0.0620	0.1172
Household capital						
Men-headed	0.2918	0.1790	0.0556	0.1247	0.0169	0.0571
Gender-neutral	0.7081	0.4623	0.1336	0.1463	-0.0119	-0.0341
Within Group			0.1892	0.2710	0.0050	0.0078
Between-Group			0.0810	0.0049	0.0166	1.4382
Total	1.0000	0.6413	0.2702	0.2702	0.0189	0.0294
Depth of Deprivation (FGT=1)						
Human Capital						
Men-headed	0.2918	0.0865	0.0904	0.1533	0.1399	1.3227
Gender-neutral	0.7081	0.2634	0.2822	0.3523	0.3285	1.3611
Within Group			0.3826	0.5052	0.4684	1.3504
Between-Group			0.1273	0.0021	0.0018	1.1050
Total	1.0000	0.3499	0.5099	0.5099	0.4728	1.3507
Household capital						
Men-headed	0.2918	0.0604	0.0556	0.1247	0.0873	0.9941
Gender-neutral	0.7081	0.1297	0.1336	0.1463	0.1199	1.1643
Within Group			0.1892	0.2710	0.2072	1.0860
Between-Group			0.0810	0.0049	0.0045	1.3053
Total	1.0000	0.1902	0.2702	0.2702	0.2086	1.0966

Source: Computed by authors using the third Cameroon Household Consumption survey.

An analysis of the depth of human capital endowment indicates that gender-neutral households largely accounted for the depth of deprivation. Likewise, gender-neutral households registered higher values regarding the marginal impacts of poverty and inequality. However, in terms of elasticities of poverty, the within-group component registered higher values than the between group component. This indicates that feeling the welfare-gap among each group will be more efficient if we put in place policies that attempt to push these households over the welfare cut-off point with focus on reducing

disparities between these respective groups. Households that are gender-neutral will benefit more than their men counterpart. This result argues for the need to focus on empowering women in gender-neutral households since spill-over effects from women empowerment have far reaching benefits for household actors like children and the elder.

As per the household capital endowment, whereas the gender-neutral households accounted for about 71% of the incidence of deprivation, men-headed households explained 29% (Table 5, Column 2). Inequality was higher for the gender-neutral households as compared to men-headed households (Table 5, Column 3). This may indicate that in men-headed households, there is less disparity in terms of household capital unlike gender-neutral households. Consequently, it is likely that adult women contribution in gender-neutral households may be largely care, and therefore unaccounted.

For the within-group and between-group effects, the within-group inequality was larger than the between-group inequality. Whereas the within-group values of the marginal impact of inequality were larger than the between-group values, the marginal impact of poverty for the between-group was greater than the within-group (Table 5, Column 4 and 5). This indicates that whereas efforts to target inequality should focus on reducing disparities among both groups, concerning reducing human capital deprivation, focus should be on reducing differences in acquiring and accessing this endowment between both groups of households. In terms of elasticities, the within-group elasticity is greater than the between-group values (Table 5, Column 6). Consequently, policies that reduce disparities among both groups will be more effective in reducing overall deprivation in household capital endowment.

Concerning the gap to the welfare cut-off point, gender-neutral households overwhelmingly accounted for the welfare-gap in household capital than their men counterpart. They also face more inequality among them than the men-headed households. If government were to pull larger numbers of households deprived in terms of household capital that are situated just beneath the deprivation levels acceptable by the society, it should put in place policies targeting deprivation between men-headed and gender-neutral households. This is made evident by the elasticities of the between-group value that are higher than the within-group value (Table 5, Column 6).

4.3.3. Case of the Incidence and Depth of Deprivations by Women-headed versus Gender-neutral Households

Table 6 shows results that compare the women-headed versus gender-neutral households. For the endowments human capital and household capital, households dominated by women very marginally accounted for the incidence of total deprivation (Table 6, Column 2 and 3). Whereas human capital-inequality was higher for gender-neutral households than women-headed households, household capital-inequality was more acute for women-headed households than their gender-neutral counterpart (Table 6,

Column 3). The within-group component registers larger values of inequality, the marginal impacts of inequality and the marginal impact of poverty (Table 6, Columns 3, 4 and 5). Therefore, reducing the average number of deprived households among the women-headed and gender-neutral households will reduce overall deprivation more than basing exclusively on reducing deprivation between these two groups.

Table 6. Poverty-Inequality Decomposition, Marginal Impacts and Elasticities by Women-headed and Gender-neutral Households per Source for the Incidence and Depth of Deprivation

Income Sources	Population share *Col.1*	Poverty levels *Col.2*	Inequality levels *Col.3*	Marginal Impact on Inequality *Col.4* (10^{-2})	Marginal Impact on Poverty *Col.5* (10^{-2})	Elasticity *Col.6*
Incidence of Deprivation (FGT=0)						
Human capital						
Women-headed	0.4752	0.2957	0.1687	0.2803	0.0243	0.1016
Gender-neutral	0.5247	0.2579	0.2114	0.3000	0.0465	0.1492
Within Group			0.3802	0.5299	0.0709	0.1286
Between-Group			0.1525	0.0029	0.0053	1.7679
Total	1.0000	0.5536	0.5327	0.5327	0.0754	0.1361
Household capital						
Women-headed	0.4752	0.3207	0.0965	0.1521	0.0127	0.0344
Gender-neutral	0.5247	0.3217	0.0959	0.1108	0.0462	0.1720
Within Group			0.1924	0.2629	0.0589	0.0924
Between-Group			0.0726	0.0008	-0.0037	-1.9604
Total	1.0000	0.6425	0.2650	0.2650	0.0548	0.0853
Depth of Deprivation (FGT=1)						
Human Capital						
Women-headed	0.4752	0.1783	0.1687	0.2803	0.2213	1.4195
Gender-neutral	0.5247	0.1829	0.2114	0.3000	0.2702	1.3290
Within Group			0.3802	0.5299	0.4915	1.3679
Between-Group			0.1525	0.0029	0.0052	2.5587
Total	1.0000	0.3611	0.5327	0.5327	0.4978	1.3784
Household capital						
Women-headed	0.4752	0.0979	0.1506	0.1521	0.1127	1.1720
Gender-neutral	0.5247	0.0695	0.0447	0.1108	0.0994	1.4201
Within Group			0.1953	0.2629	0.2121	1.2765
Between-Group			0.0675	0.0008	0.0001	0.2015
Total	1.0000	0.1674	0.2628	0.2650	0.2128	1.2707

Source: Computed by authors using the third Cameroon Household Consumption survey.

Regarding the elasticities, the between-group component registered higher values

than the within-group component for the human capital endowment with gender-neutral households experiencing a fall in deprivation levels more than women-headed household if a percentage change in inequality were enacted. (Table 6, Column 6). An analysis of elasticitities for household capital endowments, the within-group elasticity was larger than the between-group elasticity with gender-neutral households benefiting more than their women-headed counterparts.

The depth of human capital and household capital deprivations indicated that women-headed household were more affected than gender-neutral households (Table 6, Column 2). Regarding inequality, whereas gender-neutral households were more unequal for the human capital endowment, the women-headed household faced more inequality among their group than their gender-neutral counterparts for household capital. This indicates that policies that try to fill the gap in overall deprivation in human capital would benefit gender-neutral households. For household capital policies that rather try to pull households situated just beneath the welfare cut-off point above deprivation levels would benefit more the women-headed households group.

The marginal impact on inequality and poverty was higher for the within-group than between group (Table 6, Column 4 and 5). In terms of elasticities of overall poverty with respect to a percentage change in inequality, whereas for human capital the between-group elasticity was larger than the within-group components, for household capital endowment we observe the opposite effect (Table 6, Column 6). This indicates that if human capital-inequality between the women- and gender-neutral households were to widen for households situated just beneath the welfare cut-off point overall deprivation would worsen, driven by worsening inequality among both groups. For household capital-inequality, widening inequality among both groups of household would push households situated just beneath the welfare cut-off point with women-headed households being particularly affected.

5. CONCLUSION

This paper analyzed (a) determinants of household economic welfare for the general sample, men-headed and women-headed households; (b) the marginal impact of poverty, inequality and elasticity of poverty by men-headed, women-headed and gender-neutral households in Cameroon and (c) the within- and between-group components for the marginal impacts on poverty, inequality and their respective elasticities.

Variables that were significantly and positively correlated with household economic welfare overall and for the groups of the men- and women-headed households were household stock of education, household health status, age and urban residency. On the contrary, household size and owning farmland had the tendency of reducing household welfare.

Decomposing poverty-inequality linkages of sources of deprivation for men-headed and women-headed households revealed that for the incidence of deprivation for both

human and household capital, women-headed households were more deprived and unequal than their men counterparts. The within-group marginal impact on inequality and poverty for both endowments was larger than the between-group values. In terms of elasticity of poverty, whereas the between-group component was higher than the within-group for the incidence and depth of human capital endowment, for the household capital endowment we observe the opposite effect. Thus, to target deprivation in terms of human capital for the men-headed and women-headed households, efforts should be geared towards decreasing disparities between both groups. Targeting deprivation in terms of household capital endowments should rather focus on reducing disparities among each group of households.

Comparing poverty-inequality linkages between men-headed and gender-neutral households we noted that gender-neutral households were more deprived than men-headed households. They also experienced larger human capital and household capital-inequality. Both the marginal impact on inequality and poverty were larger for the within-group than the between-group component for all scenarios except the case for the incidence of household capital. In terms of the elasticity of poverty for the incidence and depth of overall deprivation, the within-group inequality was larger than the between-group inequality for all scenarios, except depth of human capital endowment. Consequently, to reduce the incidence and depth of deprivation for human capital endowments, policies should be tilted towards reducing disparities among the men-headed and gender-neutral households, with exception for policies targeting households situated just beneath the welfare cut-off points where policies should rather focus on reducing human-capital deprivation between both groups of households. To decrease the incidence and depth of deprivation in terms of household capital endowments policies should rather aim at removing unequal access to this endowment between these households.

Women-headed and gender-neutral households experienced similar levels of deprivation associated to human capital and household capital when considering the incidence of deprivation. Concerning the depth of deprivation the level was similar for human capital endowments, with women-headed households accounting for more of this gap when looking at household capital endowment. Inequality was higher for gender-neutral households when considering human capital-inequality. For household capital-inequality, women-headed households were more unequal than their gender-neutral counterparts. The marginal impact on inequality and poverty for the within-group component were larger than the between-group values. In terms of response to a percentage change in inequality, whereas the within-group component was higher than the between-group for the incidence and depth of household capital endowment, for the human capital endowment we observe the opposite effect.

Policy implications emanating from this endeavour would include: (1) curbing deprivation associated to key human capital characteristics like education and health is needed to boost household economic well-being with women-headed households requiring attention. In this regard, policies related to education for all and the

development of a universal health coverage plan - increasing the densities of schools, healthcare centres and social insurance protection, would increase the stock of human capital endowments and know-how, which can enhance employability, productivity and standards of living in all household types; (2) targeting households capital by addressing issues like household demographics, access to productive assets like land and enabling the areas of residence to be economically and socially viable would have an agreeable impact on household economic well-being for all three types of households, with women-headed and gender-neutral households needing some policy attention; and (3) since men-headed households appear to suffer least deprivation as compared to women-and gender-neutral households, policies that tilt cultural perception to see the necessity of empowering women would have an important contribution to overall household welfare.

APPENDIX

Table 1A. Weighted Descriptive Statistics by Men-headed, Women-headed and Gender-neutral Households

Variable	Men-headed household		Women-headed household		Gender-neutral household	
	Mean	SD	Mean	SD	Mean	SD
Outcome Variables						
Expenditure Per Head [in FCFA]	433454	471991	265797	215370	274300	268282
Household stock of education	5.240	4.310	3.572	4.001	4.121	4.107
Household stock of health	0.374	0.366	0.447	0.385	0.4187	0.367
Household Size	6.174	3.990	7.428	4.910	5.834	2.733
Average age in household	34.04	9.360	38.08	11.14	35.74	9.908
Own Farmland (1= yes and 0= otherwise)	0.527	0.499	0.644	0.478	0.6191	0.485
Regions						
Urban	0.434	0.480	0.327	0.476	0.338	0.473
Rural	0.566	0.480	0.673	0.476	0.662	0.473

Source: Computed by authors using the third Cameroon Household Consumption survey.

Note: 1 Euro= 655.96 FCFA.

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