

Stronger Together

Intra-Household Cooperation and Household Welfare in Malawi

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Abstract

It has long been recognized that household decision-making may not result in outcomes consistent with the unitary household model. Within the collective bargaining framework, consumption decisions would be driven by the spouse with greater bargaining power, while the outcomes would still be Pareto efficient. Within the non-cooperative framework, households would not achieve Pareto efficient outcomes, and under the simplest representation, bargaining power would not affect consumption decisions. This paper develops a model that allows consumption patterns and labor supply to be affected by both bargaining power and non-cooperation. The model highlights the potential gains from improving bargaining power versus increasing cooperation between spouses, and presents conditions under which relatively large gains would be expected from moving to more equitable bargaining power versus

achieving intra-household cooperation. The model's predictions are in turn tested using a unique panel data set on married couples in rural Malawi. The analysis shows that, relative to increasing wives' bargaining power, improving cooperation between spouses would exert larger and statistically significant positive impacts on total household income and consumption expenditures per capita, as well as the share of household consumption devoted to public goods. Supported also by cross-country qualitative research, the results suggest that household public goods are relatively important to both women and men in rural Malawi, husbands' capacity to control wives' incomes is relatively limited, and development programs that promote intra-household cooperation could lead to greater gains in income and household public goods provision compared with interventions focusing exclusively on women's empowerment.

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Stronger Together: Intra-Household Cooperation and Household Welfare in Malawi

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1. Introduction

In the context of the economic growth debate, Boserup (1970) presented a compelling argument that women could lose control over resources under certain development pathways. This could in turn lead to reductions in their own welfare, and potentially to inefficiencies in production and slower economic development. Boserup's key message of empowering women to ensure their full participation in development, combined with other feminist research and advocacy at the time, proved to be an exceptionally powerful message, leading to the broad-reaching and influential "women in development" paradigm, followed by the "gender and development" paradigm.

Boserup's argument is not consistent with the standard unitary model of utility maximization, where households act as a single unit to achieve Pareto efficient outcomes. Instead, it is more consistent with outcomes arising from intra-household bargaining models. The first theoretical treatment of intra-household bargaining was undertaken by McElroy and Horney (1982). The authors developed a game-theoretic cooperative bargaining model to highlight how inter-spousal bargaining power influences consumption patterns, including allocations to household public goods such as expenditures on boys and girls schooling or health. Under the cooperative bargaining framework, while it is assumed households reach a Pareto-efficient allocation of resources, the distribution of resulting income changes as spouses' relative bargaining power changes. As the wife's bargaining power improves, the consumption basket shifts towards her preferences. If there are positive spillovers to society from household public goods – such as healthier, better educated children – then public policies to empower women can increase these public goods to the extent that women value such goods relatively more than men. However, given the assumption of Pareto efficiency, cooperative bargaining models do not capture potential inefficiencies in production and income generation.

Much of the subsequent theoretical and empirical work on intra-household bargaining has retained the collective bargaining model approach that assumes Pareto efficiency (Chiappori, 1992; Browning and Chiappori, 1998; Pollack, 2005). Although empirical research in developed countries tends to support the Pareto efficiency hypothesis, the evidence in developing countries often lends support to the hypothesis of Pareto inefficient outcomes (Katz, 1995; Udry, 1996; McPeak and Doss, 2006; Heath and Tan, 2016). Simple non-cooperative models with one pure public good and one private good for the wife and for the husband yield the well-known result that the household will provide less of the public good vis-à-vis a unitary household, and that resource allocation will not be Pareto efficient (Warr, 1983; Cornes and Sandler, 1984). However, inter-spousal differences in bargaining power will have no effect on consumption patterns (Warr, 1983; Bergstrom et al. 1986; Browning et al., 2010). The latter is primarily driven by the assumption that women's and men's contribution to the provision of household public goods are perfect substitutes.

However, if one assumes that spouses' contributions are imperfect substitutes, then bargaining power will matter for consumption. This is the basic assumption of the "separate spheres" collective bargaining models, where the non-cooperative outcome serves as the threat point (Lundberg and Pollack, 1993; Chen and Woolley, 2001; Anderson and Eswaran, 2009). External changes that increase the wife's utility under non-cooperation shift her threat point, leading to greater bargaining power under the collective outcome. However, the outcomes of the collective bargaining game are still Pareto efficient (Lundberg and Pollack, 1993). Thus, only the non-cooperative separate spheres model captures both of Boserup's hypotheses: 1) that bargaining power matters in the distribution of resources and, and 2) that household production can be inefficient, particularly in the provision of household public goods.

In this paper, we are interested in explicitly comparing gains from achieving women's empowerment versus gains from moving from non-cooperation to cooperation. These gains operate through different channels, and the comparison highlights the conditions under which we would expect relatively large gains from empowerment versus cooperation. Our comparisons result from modeling four different scenarios based on a separate spheres model: 1) unequal bargaining power, non-cooperation; 2) equal bargaining power, non-cooperation; 3) unequal bargaining power, cooperation; and 4) equal bargaining power, cooperation. Whereas the first scenario leads to the worst set of outcomes in terms of women's empowerment, the fourth scenario leads to the best outcomes. More interesting to consider are movements from the first scenario to the second and third scenarios, to determine the conditions under which the gains achieved by promoting empowerment are greater than gains from promoting cooperation within the household. For instance, our theoretical model demonstrates that improving women's empowerment can have limited impacts on total household income and household public good provision if non-cooperation within the household still prevails. Under other conditions, moving to cooperation will have limited impacts on household good provision, though total income will always increase.

Given the emphasis on women's empowerment in the development discourse, it is useful to clearly capture the different impacts one would expect from increasing women's bargaining power versus increasing intra-household cooperation. Thus, our first contribution to the literature is the development of a stylized model that captures these differences, and that characterizes the conditions under which we would expect greater gains from increasing bargaining power versus increasing intra-household cooperation. In reality, even though increasing women's empowerment may increase intra-household cooperation, there may still be losses from not additionally focusing on gains from fostering cooperative decision-making within the household.

Our second contribution is to empirically test the model hypotheses using the sub-sample of rural households comprised of married couples that were interviewed in 2010 and 2013 by the Malawi Integrated Household Panel Survey (IHPS). The IHPS solicited information on whom in the household controls income from each source of income, allowing for both individual and joint

control. The data allow us to compute (1) the share of jointly controlled income in total income to proxy for intra-household cooperation, and (2) the share of female income in total disjoint (male + female) income to proxy for wife's bargaining power. Allowing for non-linear impacts, and using panel regression models that control for time-invariant household-level unobserved heterogeneity, we explore the impacts of the shares of interest on household welfare outcomes. As far as we are aware, this is only the second paper presenting empirical evidence on the welfare impacts of intra-household cooperation separate from that of women's empowerment.

There are three main findings. First, we find that total household gross income per capita is positively correlated with the share of jointly controlled income in total income, except when the total income is entirely jointly controlled. The same outcome is positively correlated with the share of female income in total disjoint income only while moving from zero to a low-level of the share of interest. Second, total, food and non-food household consumption expenditures per capita increase over a wide range of increasing joint shares, but demonstrate no association with the share of female income. Third, through seemingly unrelated regressions of consumption shares, we find that only higher joint shares lead to a greater share of consumption allocated to household public goods. Taken together, the results suggest that, in rural Malawi, development programs that promote intra-household cooperation could lead to greater gains in income and household public goods provision compared to interventions focusing exclusively on women's empowerment.

The paper is organized as follows. In section 2, we review the historical development of the concept of women's empowerment and its influence on development policy, followed by a review of the relevant empirical literature. In section 3, we present the theoretical model capturing the potential impacts of increasing intra-household cooperation and/or wife's bargaining power. Section 4 describes the data and our empirical model, followed by the discussion of the results in Section 5. Section 6 discusses the policy implications of our findings for the design of development projects and government policies whose main objectives are to enhance household public good provision as well as women's empowerment.

2. Literature Review

Initially, Boserup (1970) proposed that development, promulgated by external forces and combined with local social norms, could lead to an erosion in women's control of assets and income. This in turn could lead to overall reductions in their welfare, and potentially to inefficient production. In response to Boserup's arguments, as well as to the broader feminist agenda gaining political momentum at the time, the women in development (WID) movement in the United States was born. By 1973, the Percy Amendment to the Foreign Assistance Act was adopted, which called for foreign assistance programs and projects to integrate women into their efforts in order to improve their status, and thus improve development efforts more broadly. In 1975, the first United Nations (UN) World Conference on Women was held, emphasizing the need to integrate women

in the development process and to ensure their full participation (United Nations, 1986). This in turn led to the UN's declaring 1976-1985 as the UN Decade for Women.

The focus of most WID projects was on helping women to gain access to resources such as education, credit, and land, as well as on increasing women's capacity to actively participate in the development process (USAID, 1983). The fact that most women are members of households that also include men was recognized, but there was little emphasis on promoting cooperation between men and women within the same household. By 1985, limited gains from earlier WID projects led to a call to switch to the "gender and development" (GAD) paradigm, which focused on mainstreaming gender across all projects, and working with governments to mainstream gender concerns across line ministries (Okali, 2011). It was felt that mainstreaming would help restructure the inequality in relationships between men and women. Nonetheless, the GAD focus on mainstreaming actually placed even less emphasis on intra-household dynamics compared to the earlier WID paradigm.

By the early 2000s, although a number of researchers stressed the need to consider that family members had at least some joint, or shared, interests (Jackson, 2003; Sharma, 2004; Whitehead and Kabeer, 2001), the emphasis on women's empowerment dominates in key policy papers of the donor community. For instance, the USAID Policy Statement on "Gender Equality and Female Empowerment" discusses the need to reduce gender disparities in access to resources and opportunities, reduce gender-based violence, and increase the capacity of women and girls to realize their full potential (USAID, 2012). Of the seven guiding principles, none explicitly discusses cooperation or shared interest within the household. Interestingly, the World Bank's World Development Report 2012 specifically mentions intra-household cooperation. The first instance discusses increasing women's voice within the household through increasing intra-household cooperation, the second discusses decreasing violence against women through awareness campaigns for couples, and the third discusses increasing child welfare outcomes through the promotion of positive parenting by couples (World Bank, 2011). Further, the United Kingdom Department for International Development (DFID) Strategic Vision for Girls and Women focuses on the capacity of girls and women to realize their potential and live free from violence. To achieve the strategic vision, DFID recognizes the importance of securing the support of boys and men in reaching these goals (DFID, 2011). Thus, there are limited signs that development actors are starting to take intra-household relationships into consideration as well as women's empowerment.

Similar to the international donor literature, most empirical research has focused on determining whether and to what extent wife's bargaining power affects consumption patterns, wife's labor supply, and resource allocation. With respect to impacts on consumption patterns, most studies in developing countries show positive, though often limited, impacts of increased bargaining power

on (i) consumption shares of women's private goods; (ii) consumption shares of household public goods; and/or (iii) women's labor supply.

Quisumbing and Maluccio (2003) examine the impact of the wife's bargaining power on food, education, health, child clothing, and alcohol/tobacco shares using data from Bangladesh, Indonesia, Ethiopia and South Africa. Their most robust result is a positive impact of the wife's bargaining power on education across the three countries. However, most coefficients on women's absolute and relative bargaining power are only significant and positive for one or two share categories across the four countries. Other studies on consumption shares give similar results, with the most robust positive impacts on education, some positive impacts on food consumption and women's goods, some negative impacts on men's goods, and often a large number of non-significant impacts, including on health and children's clothing (Quisumbing and de la Briere, 2000; Doss, 2006; Backiny-Yetna and Wodon, 2010; Bussolo et al., 2009).

Duflo and Udry (2004) use male, female, and joint household income to predict consumption expenditures, and proxy for male, female and joint incomes with different crop incomes that have been identified in the anthropological literature as falling under the control of husbands, wives or the household as a whole. This paper is one of the few to include a measure of jointly controlled income in an analysis of consumption expenditure patterns. The authors find that male and female incomes both have a significant positive impact on adult goods, and that female incomes have a statistically significant impact on most food categories. On the other hand, jointly controlled income exerts a significant positive impact on all household public goods, including education as well as food, and significant negative impacts on adult goods.

Another strand of literature looks at the impact of the wife's bargaining power on subjective measures of the wife's decision-making powers. For instance, Anderson and Eswaran (2009) find that the wife's landholdings and her independent income earnings both have statistically significant impacts on various measures of autonomy. Doss et al. (2014) also look at the impact of both women's sole ownership of and joint ownership of land on women's self-reported level of input into several farm and non-farm decision-making processes. In the three African countries included in their study, both sole and joint land ownership increase women's input into decision-making across most of the domains considered, though neither has a statistically significant impact using the Indian data. Interestingly, results from a study of Brazil's Bolsa Familia program, which provided cash transfers to women in poor households, indicate that such transfers have positive impacts on women's autonomy over many decisions only in urban, and not rural, areas (de Brauw et al., 2014).

A number of empirical papers have also tested whether household outcomes are Pareto efficient in rural, developing country settings, an assumption underlying the hypotheses of the collective bargaining models. While much of the evidence from developed countries supports Pareto

efficiency, the evidence from developing countries often does not. Instead, the results are consistent with the hypotheses from non-cooperative bargaining models. Udry (1996) finds that factor allocations across men's and women's plots are not efficient in Burkina Faso, while Akresh (2005) documents that agricultural production is Pareto inefficient also in Burkina Faso. McPeak and Doss (2006) find inefficient household outcomes tied to husband's ability to force livestock migration decisions that limit wife's ability to market milk. Heath and Tan (2016) show that an increase in women's unearned income in India due to the changes in the inheritance laws have led to an increase in women's labor supply, consistent with the non-cooperative model predictions, but not consistent with the cooperative bargaining model.²

There is relatively little empirical evidence of the impact of increased cooperation within the household on household welfare, especially for rural households in developing countries, outside of the Duflo and Udry (2004) article. Lecoutere and Jassogne (2016) ran experimental games with couples who had and had not participated in couples' trainings for coffee farming households in Uganda that stressed cooperation between spouses. Results suggest that couples who did participate in the trainings were more likely to reach cooperative outcomes in the experiments.

In summary, most of the theoretical literature has emphasized cooperative bargaining models, and much of the empirical literature has focused on testing hypotheses from those models. However, in the developing country context, the empirical literature suggests that outcomes are more consistent with non-cooperative model hypotheses. Yet, there remains a dearth of empirical evidence on the separate impacts of empowerment and intra-household cooperation.

3. Theoretical Model

The purpose of this modeling exercise is to explicitly evaluate gains from equalizing bargaining power within the household as distinct from gains to increasing cooperation within the household. We first consider a non-cooperative intra-household utility maximization problem, where the wife and husband choose the optimal amount of a private good to consume, x_f , x_m , respectively, and the optimal amount of the household goods to provide, g_f , g_m respectively. The husband is assumed to be able to control a share of his wife's income, represented in the model as $1 - \delta$. We assume that only the wife benefits from her private good, and only the husband benefits from his private good. Both spouses benefit from the household goods provided, though not necessarily to the same extent. As discussed above, if the spousal contributions are perfect substitutes, then the extent of the wife's bargaining power will not affect the total amount of the good provided (Browning et al., 2010, Lundberg and Pollack, 1993; Doepke and Tirtilt, 2014). To characterize a game where bargaining power does affect contributions to the household good, we make the additional

² Increased labor supply is not consistent with the simple cooperative models where bargaining power is not a function of hours worked outside the home; however, as Heath and Tan (2016) note, if working outside does increase bargaining power, then similar results on labor allocation can materialize under the cooperative framework.

assumption that the spouses' contributions to the household good are additively separable, as in Heath and Tan (2016) and Anderson and Eswaran (2009).

In addition to choosing the consumption basket, the wife also chooses the amount of labor to supply to generate income, L_f for a given wage, w_f . The opportunity cost of labor is captured by r_f , and an additional term capturing disutility of working as the proportion of her income under her own control, δ , decreases. The total cost of working is thus written as $\frac{r_f}{2\delta} L_f^2$. Adding disutility from having income coopted by the husband ensures that the wife's labor supply increases as her bargaining power increases; without this assumption, the marginal utility of income from an increase in her bargaining power would be exactly offset by the marginal disutility of supplying more labor.

Following other papers that capture female labor supply within an intra-household bargaining framework, we assume that the husband's labor supply is fixed at \bar{L}_m , and that he receives a wage rate of w_m . Given the separate spheres assumption on household good provision, allowing the husband to choose optimal labor does not alter the wife's maximization problem or the resulting labor supply or consumption decisions. One could let the husband choose the optimal proportion of the wife's income to control as well; however, in this simplified model, that proportion is always equal to one-third, and does not depend on other parameters.

After solving for the "worst case" scenario, where spouses do not cooperate and the husband controls a fraction of his wife's income, we next consider outcomes when spouses still do not cooperate, but the husband cannot control any of his wife's income. These are outcomes that would arise if wives were fully empowered over control of their own incomes, but non-cooperation still prevailed within the household. In the third scenario, we assume perfect cooperation, but allow the husband to control the wife's income. Finally, we consider outcomes under the "best case" scenario, where there is perfect cooperation within the household, and the husband cannot control his wife's income. Comparing the subsequent outcomes across the four scenarios enables us to highlight the circumstances under which programs to empower women's control over their incomes lead to relatively higher gains vis-à-vis programs that foster intra-household cooperation.

3.1. Non-Cooperative Outcome - Husband Can Control Wife's Income ($\delta < 1$)

The constrained maximization problems for the wife and the husband are as follows:

$$\max_{x_f, g_f, L_f} U_f = a \ln x_f + b \ln g_f + d \ln g_m - \frac{r_f}{2\delta} L_f^2 + \lambda_f (\delta w_f L_f - c_{x_f} x_f - c_g g_f) \quad [1]$$

$$\max_{x_m, g_m} U_m = m \ln x_m + n \ln g_f + p \ln g_m + \lambda_m ((1-\delta) w_f L_f + w_m \bar{L}_m - c_{x_m} x_m - c_g g_m) \quad [2]$$

Maximization results in the first-order conditions that are provided in Appendix I; these can be solved for wife's private and public good, her labor supply, and the husband's private and public good as follows:

$$\begin{array}{c} \text{Wife} \\ x_f = \frac{a\delta^{1.5}w_f}{c_{xf}r_f^5(a+b)^5} \end{array} \quad [3]$$

$$\begin{array}{c} g_f = \frac{b\delta^{1.5}w_f}{c_{gf}r_f^5(a+b)^5} \end{array} \quad [4]$$

$$\begin{array}{c} L_f = \frac{\delta^5(a+b)^5}{r_f^5} \end{array} \quad [5]$$

$$\begin{array}{c} \text{Husband} \\ x_m = \frac{m[(1-\delta)w_fL_f + w_m\bar{L}_m]}{c_{xm}(m+p)} \end{array} \quad [6]$$

$$\begin{array}{c} g_m = \frac{p[(1-\delta)w_fL_f + w_m\bar{L}_m]}{c_{gm}(m+p)} \end{array} \quad [7]$$

3.2. Non-Cooperation Outcome - Husband Cannot Control Wife's Income ($\delta = 1$)

Here, the maximization problems are as follows:

$$\max_{x_f, g_f, L_f} U_f = a \ln x_f + b \ln g_f + d \ln g_m - \frac{r_f}{2} L_f^2 + \lambda_f (w_f L_f - c_{xf} x_f - c_g g_f) \quad [8]$$

$$\max_{x_m, g_m} U_m = m \ln x_m + n \ln g_f + p \ln g_m + \lambda_m (w_m \bar{L}_m - c_{xm} x_m - c_g g_m) \quad [9]$$

Equilibrium private and household goods, and labor supply are as follows:

$$\begin{array}{c} \text{Wife} \\ x_f = \frac{aw_f}{c_{xf}r_f^5(a+b)^5} \end{array} \quad [10]$$

$$\begin{array}{c} g_f = \frac{bw_f}{c_{gf}r_f^5(a+b)^5} \end{array} \quad [11]$$

$$\begin{array}{c} L_f = \frac{(a+b)^5}{r_f^5} \end{array} \quad [12]$$

$$\begin{array}{c} \text{Husband} \\ x_m = \frac{mw_m\bar{L}_m}{c_{xm}(m+p)} \end{array} \quad [13]$$

$$\begin{array}{c} g_m = \frac{pw_m\bar{L}_m}{c_{gm}(m+p)} \end{array} \quad [14]$$

Comparing the equations for wife's household good provision, [4] and [11], we note that eliminating the ability of the husband to control wife's income unambiguously increases the wife's provision of her household good. On the other hand, the husband simultaneously reduces

provision of his household good. Comparing the wife's increase to the husband's decrease, total household public good provision increases when the following holds:

$$\frac{b(1-\delta^{1.5})}{c_{gf}r_f^5(a+b)^5} > \frac{p(1-\delta)L_f w_f}{c_{gm}(m+p)^5}$$

The expression is more likely to hold when the wife values the household public good relatively more than the husband, when the wife's disutility from working is lower, and when the wife provides her household public good at a relatively lower cost. Much of the discussion in the literature has focused almost exclusively on household public good provision when the wife's preferences for these goods are greater than that of the husband. Our results highlight that, even if the wife does value the utility from these goods relatively more than the husband ($b > p$), when the husband can provide these goods more cheaply, then household public good provision can still decline as the wife's ability to control her own income increases. For instance, home or equipment repairs that require heavy labor could drop when the husband no longer controls a fraction of his wife's income; at least in cases when, due to social norms, the wife has never acquired the required skills and/or when the husband is more capable of undertaking the task at a lower cost.

3.3. Cooperative Outcome - Husband Can Control Wife's Income ($\delta < 1$)

Next, we consider the solutions when each spouse internalizes the other spouse's gain from the household public good. In this scenario, however, the husband can still control a fraction of the wife's income. The optimization problem for the wife and husband, respectively, can be written as:

$$\max_{x_f, g_f, L_f} U_f = a \ln x_f + b \ln g_f + d \ln g_m + n \ln g_f - \frac{r_f}{2\delta} L_f^2 + \lambda_f (\delta w_f L_f - c_{xf} x_f - c_g g_f) \quad [15]$$

$$\max_{x_m, g_m} U_m = m \ln x_m + n \ln g_f + p \ln g_m + d \ln g_m + \lambda_m ((1-\delta)w_f L_f + w_m \bar{L}_m - c_{xm} x_m - c_g g_m) \quad [16]$$

Wife

$$x_f = \frac{a\delta^{1.5}w_f}{c_{xf}r_f^5(a+b+n)^5} \quad [17]$$

$$g_f = \frac{(b+n)\delta^{1.5}w_f}{c_{gf}r_f^5(a+b+n)^5} \quad [18]$$

$$L_f = \frac{\delta^5(a+b+n)^5}{r_f^5} \quad [19]$$

Husband

$$x_m = \frac{m[(1-\delta)w_f L_f + w_m \bar{L}_m]}{c_{xm}(m+p+d)} \quad [20]$$

$$g_m = \frac{(p+d)[(1-\delta)w_f L_f + w_m \bar{L}_m]}{c_{gm}(m+p+d)} \quad [21]$$

For the wife, comparing equations [19] and [5], we can see that her labor supply increases when she internalizes the positive externality her household good provides to her husband compared to the non-cooperative scenario. She also provides more of the household good (compare equation [18] with equation [4]), and purchases less of the private good (compare equation [17] with equation [3]). The husband also unambiguously reduces his expenditure on the private good and increases provision of the household good.

Moving to the cooperative outcome leads to greater household public goods provision, even when the husband can control a fraction of his wife's income. This is in contrast to the situation immediately above; a greater amount of the household public good does not necessarily materialize when the wife has full control over her income but non-cooperation prevails within the household. This scenario increases the wife's labor supply in comparison to Scenario 2, as presented in Section 3.2, when the following condition holds:

$$L_f^{C,U} = \frac{\delta^5 (a+b+n)^5}{r_f^5} > L_f^{NC,E} = \frac{(a+b)^5}{r_f^5}$$

where the superscripts NC, C denote non-cooperation and cooperation, respectively; and U and E denote lack of empowerment (subject to income control) and empowerment, respectively. Labor under the C,U scenario will be greater than the NC,E scenario when the husband controls a relatively small fraction of her income to begin with, and the wife's internalization of her husband's benefits from the household public good increases.

3.4. Cooperative Outcome - Husband Cannot Control Wife's Income

Finally, we consider the case when spouses cooperate by internalizing each other's externalities, and when the husband cannot control his wife's income. This leads to the following maximization problems for the wife and husband, respectively:

$$\max_{x_f, g_f, L_f} U_f = a \ln x_f + b \ln g_f + d \ln g_m + n \ln g_f - \frac{r_f}{2} L_f^2 + \lambda_f (w_f L_f - c_{xf} x_f - c_g g_f) \quad [22]$$

$$\max_{x_m, g_m} U_m = m \ln x_m + n \ln g_f + p \ln g_m + d \ln g_m + \lambda_m (w_m \bar{L}_m - c_{xm} x_m - c_g g_m) \quad [23]$$

The resulting optimal private and household public goods, and labor supply for the wife are given by:

$$x_f = \frac{aw_f}{c_{xf}r_f^5(a+b+n)^5} \quad [24]$$

$$g_f = \frac{(b+n)w_f}{c_{gf}r_f^5(a+b+n)^5} \quad [25]$$

$$L_f = \frac{(a+b+n)^5}{r_f^5} \quad [26]$$

$$x_m = \frac{m[w_fL_f + w_m\bar{L}_m]}{c_{xm}(m+p+d)} \quad [27]$$

$$g_m = \frac{(p+d)w_m\bar{L}_m}{c_{gm}(m+p+d)} \quad [28]$$

In this case, equilibrium levels of the wife's provision of the household public good and her labor supply are the greatest in comparison to any of the above scenarios. While the husband's provision of the household public good may be lower in comparison to Scenario 2, it will still be greater than the worst-case scenario.

3.5. Summarizing Model Results on Wife's Labor Supply

In the empirical section of the paper, we will look at the impact of different patterns of control over income on overall household income and consumption outcomes. These outcomes are mainly driven by the wife's labor supply decision. In Table 1, we reproduce equilibrium labor supply for the wife under the four scenarios³ considered above to facilitate comparison and to draw testable hypotheses.

Scenario	Wife's Labor Supply
1. NC, U	$(a+b)^5\delta^5$
2. NC, E	$(a+b)^5$
3. C, U	$(a+b+n)^5\delta^5$
4. C, E	$(a+b+n)^5\delta^5$

Impacts of increasing the wife's empowerment or increasing intra-household cooperation both unambiguously lead to greater labor supply vis-à-vis the non-cooperative, un-empowered scenario. Which of the two scenarios, *NC,E* or *C,U*, leads to greater labor supply depends on how much income the husband can control versus how highly he values the household public good. Thus,

³ Since the optimal labor supply is divided by r_f^5 under all four scenarios.

when social norms allow the husband to coopt a large fraction of the wife's income, empowerment programs should perform relatively better in terms of wife's labor supply. Where norms limit that fraction, and where returns to household goods are high, interventions to foster cooperation among spouses should perform relatively better. Nonetheless, the best possible outcome clearly results when spouses cooperate and where the husband does not control his wife's income, *C,E*.

4. Analysis

4.1. Data

In testing the model's hypotheses, we use panel household survey data from the first two rounds of the Malawi Integrated Household Panel Survey (IHPS) which was implemented by the National Statistical Office (NSO) under the Living Standards Measurement Study – Integrated Household Surveys on Agriculture (LSMS-ISA)⁴ program. In 2013, the IHPS attempted to track and resurvey 3,246 households across 204 enumeration areas (EAs) that had been previously surveyed as part of the Third Integrated Household Survey (IHS3) 2010/11. The IHPS sample had been designed in 2010 to be representative at the national-, urban/rural, regional levels, and for the six strata defined by the combinations of region and urban/rural domains. In 2013, IHPS targeted all individuals that were part of the IHS3, including those that moved away from the IHS3 dwelling locations between 2010 and 2013. Once a split-off individual was located, the new household that he/she formed or joined since the IHS3 interview was brought into the IHPS sample. As a result, the overall IHPS database includes 4,000 households, which could be traced back to 3,104 IHS3 households. Attrition was limited to only 3.8 and 7.4 percent, of households and individuals, respectively. Given our focus on intra-household decision-making in rural areas, the analysis sample includes 1,929 households that had the same principal couple in 2010 and 2013, who were residing in rural areas in both years.

The main IHPS fieldwork was carried out during the period of April-October 2013, with residual tracking operations conducted during the period of November-December 2013. The survey attempted to visit each household twice, identical to the IHS3 practice, within two weeks of the baseline interview timeframe, and with approximately three months in between visits. In both rounds, the sampled households were administered the multi-topic Household Questionnaire that collected individual-disaggregated information on demographics, education, health, wage employment, nonfarm enterprises, anthropometrics, as well as data on housing, food consumption, food and non-food expenditures, food security, and durable and agricultural asset ownership, among other topics. The sample households that were involved in agricultural activities (through ownership and/or cultivation of land, and/or ownership of livestock) were administered the

⁴ The Living Standards Measurement Study – Integrated Surveys on Agriculture (LSMS-ISA) provides financial and technical support to governments in Sub-Saharan Africa in the design and implementation of multi-topic, national, panel household surveys with a strong focus on agriculture. The IHPS data and documentation are publicly available on www.worldbank.org/lsmis.

Agriculture Questionnaire, which solicited information on land areas, labor and non-labor input use, crop cultivation and production at the plot⁵-level, separately for the reference rainy and dry seasons.

While the data do not include direct measures of either intra-household cooperation or wives' empowerment, the IHPS included over 40 questions asked at varying levels of observation across all income domains that could be used to identify up to 2 household members that decide on the use of each unique source of income. Using this information, we calculate total gross income⁶ that is controlled solely by females; solely by males; and jointly by females and males; and use the share of joint controlled income in total gross income as a proxy for intra-household cooperation, and the share of female controlled income in total disjoint gross income as a proxy for wives' empowerment. Using the share of female controlled income in total disjoint gross income avoids difficulties in interpreting the coefficient that would arise if we used female share in total income. Conceptually, it also allows for a cleaner distinction between cooperation leading to joint control of income versus wives' bargaining power leading to greater control over disjoint income. Appendix II provides the details on the computation of intra-household income shares.

Additionally, we would like to allow for non-linear impacts of income shares on our outcomes of interest. However, including a squared term may magnify attenuation bias if there are measurement errors in our income shares variables (Griliches, 1986). Income shares are, of course, based on measures of income, which suffer from measurement error. As noted by Bound et al. (1994), fixed effects can compound measurement error, particularly when the variable of interest is highly correlated over time, as it is here. Therefore, instead of using intra-household income shares as calculated above, we divided both income shares of interest into five categories. Three categories map to income share terciles calculated in each round among households where income shares are positive but less than 1. The fourth category contains households where the income share is equal to zero, and the fifth contains households where the income share is equal to one.⁷

Table 2 presents the relevant variable means in each round, and the results from the tests of mean and distributional differences. On our outcome variables, the inter-annual differences in means are

⁵ A plot was defined as a continuous piece of land on which a unique crop or a mixture of crops is grown, under a uniform, consistent crop management system, not split by a path of more than one meter in width. Plot boundaries were defined in accordance with the crops grown and the operator.

⁶ Total disjoint gross income is defined as the sum of (i) gross income controlled solely by females and (ii) gross income controlled solely by males.

⁷ While misclassification errors may remain, Goldstein et al. (2008) argue that small misclassification probabilities result in small changes in parameter estimates. To test for possible misclassification bias, we estimated our regressions using only three categories for each share of interest, namely zero, some, and all; as well as using four categories where "some" is broken down to above and below the median share. It is reasonable to posit that, if misclassification is a problem, it would become more pronounced as categories are defined finer. The results using three and four categories are substantially similar to the results shown here, with goodness of fit measures being slightly higher for the preferred specification discussed in the subsequent section. The results from these sensitivity analyses are available upon request.

either insignificant or significant but not sizeable as a percentage of the 2010 mean. However, when mean differences are significant, the inter-annual distributional differences are significant as well. Concerning the key explanatory variables, the average share of joint income in total income and the average share of female controlled income in disjoint income are higher by 12.2 percentage points and 9.0 percentage points, respectively, in 2013 vis-a-vis 2010. Focusing on the distribution of the sample across the categories based on the share of female income in disjoint income, we observe that while only 5.7 percent of the sample had a share of female controlled income in total disjoint income equal to 1 in 2010, the comparable statistic in 2013 was 12.5 percent. In terms of the distribution of the sample across the categories based on the share of joint income in total income, the share of households in all categories with positive share values is higher in 2013 compared to 2010, and the mean differences are statistically significant across the board.

4.2. Empirical Model

To explore the relative impacts of intra-household cooperation vis-à-vis wives' empowerment on household welfare, we estimate the following regressions:

$$(1) Y_{ht} = \alpha_{ht} + \beta F_{ht} + \gamma J_{ht} + \delta C_{ht} + \partial T_{ht} + \rho(T * D)_{ht} + \sigma M_{ht} + \theta_{ht} + \varepsilon_{ht}$$

$$(2) \sum_{i=1}^5 Y_{iht} = \alpha_{iht} + \beta_i F_{ht} + \gamma_i J_{ht} + \delta_i C_{ht} + \partial_i T_{ht} + \rho_i(T * D)_{ht} + \sigma_i M_{ht} + \omega_i \bar{X} + \varepsilon_{iht}$$

In both equations, h and t denote household and survey round, respectively, and Y represents the outcome variable. Equation 1 is estimated as a linear panel regression with household fixed effects, separately for each of the logarithmic, real, annual and per capita versions of household gross income and household total, food and non-food consumption expenditures.⁸ Equation 2 is estimated as a system of seemingly-unrelated regressions (SURs) in which the five dependent variables are the shares for consumption expenditures on (i) food; (ii) public goods, defined as education, health, clothing, and furnishings; (iii) housing and utilities; (iv) adult goods, defined as alcohol, tobacco, transport, and communication; and (v) other goods, inclusive of recreation, hotels and restaurants, and miscellaneous items. We rectify the absence of household fixed effects in Equation 2 by estimating SURs with correlated random effects instead, as explained below.

⁸ We use the real (and disaggregated) consumption aggregates that are disseminated with the IHPS public use data, which include a re-released unit-record data tied specifically to the panel sub-sample of the IHS3 2010/11 (with adjusted sampling weights) and the corresponding 2010 consumption aggregate, which was re-visited in 2013 following the improvements in the ancillary CPI and food conversion factor data and due to the need to adjust the approach to spatial and temporal deflation of nominal consumption in each round in view of the shorter-than-12-month-fieldwork underlying the panel data collection. The 2010 consumption aggregate is expressed in 2013 prices to facilitate comparisons in real terms and accounts for 132 percent inflation in between the survey rounds. The household gross income in 2010 is expressed in 2013 terms also using the same inflationary adjustment. For more information on the methodology underlying the computation of the IHS3 and the IHPS consumption aggregates for the panel sub-sample, please visit <https://goo.gl/WzuRZF>.

Equation 1 and Equation 2 include F , which is a vector of four binary variables, inclusive of a binary variable identifying whether a household has the share of **female controlled income in total disjoint income** equal to 1, and three binary variables identifying whether a household is in each of the three terciles for the share of female income in total disjoint income, computed in each survey round and among households that have the share of female income in total disjoint income greater than zero but less than 1 (the comparison category encompasses households whose share of female income in total disjoint income is equal to 0); and J , which is a vector of four binary variables, inclusive of a binary variable identifying whether a household has the share of **joint income in total income** equal to 1, and three binary variables identifying whether a household is in each of the three terciles for the share of joint income in total income, computed in each survey round and among households that have the share of joint income in total income greater than zero but less than 1 (the comparison category encompasses households whose share of joint income in total income is equal to 0).

Further, C is a vector of time-variant household-level human capital, physical capital, and demographic attributes that may affect labor productivity and consumption preferences, including household size, dependency ratio, the number of months spent outside the household by the household head during the past year, two binary variables identifying whether each of the household head and his/her spouse was chronically ill at the time of the interview, household highest year of education, total landholdings,⁹ and wealth index.¹⁰

T is the time fixed effect (i.e. a binary variable identifying whether the survey round is 2013); $T*D$ is the vector of interactions between the time fixed effect and the binary variables identifying the household district residence, controlling for all district-level unobserved and observed time-variant heterogeneity that might affect income and consumption; M is a vector of binary variables identifying the household month of interview in each survey round, in view of the seasonality in our outcome variables and possible shifts in the interview timeline between 2010 and 2013 that might in turn bring about incomparability in outcome measurement; and α and ε are constant and error terms, respectively;

⁹ To compute household total landholdings in acres, the agricultural plot areas are aggregated at the household-level, across all plots that are owned and/or cultivated by the household in the reference rainy season, which was 2009/10 in the 2010 survey round, and 2012/13 in the 2013 survey round. We use self-reported plot areas converted to acres only when GPS-based plot areas are missing.

¹⁰ The household wealth index is constructed using principal component analysis in each round, and takes into account the number of rooms in the dwelling, a set of dummy variables accounting for the ownership of (1) dwelling, (2) mortar, (3) bed, (4) table, (5) chair, (6) fan, (7) radio, (8) tape/CD player, (9) TV/VCR, (10) sewing machine, (11) paraffin/kerosene/electric/gas stove, (12) refrigerator, (13) bicycle, (14) car/motorcycle/minibus/lorry, (15) beer brewing drum, (16) sofa, (17) coffee table, (18) cupboard, (19) lantern, (20) clock, (21) iron, (22) computer, (23) fixed phone line, (24) cell phone, (25) satellite dish, (26) air-conditioner, (27) washing machine, (28) generator, (29) solar panel, (30) desk, and a vector of dummy variables capturing access to improved outer walls, roof, floor, toilet, and water source.

Finally, specific to Equation 1, θ is the household fixed effect, which controls for household-level unobserved time-invariant heterogeneity. Concerning Equation 2, given the reliance on the SURs, θ is replaced by \bar{X} ; a vector of inter-annual household-specific means of all time-variant explanatory variables included in F , J , C , T^*D , and M . The model is in turn estimated with household random effects, similar to the Mundlak-Chamberlain (MC) device that allows unobserved heterogeneity to be correlated with observed covariates (Mundlak, 1978; Chamberlain 1982).

The identification of the key vectors of coefficients of interest, namely β and γ , hinges on the degree to which controlling for household-level time-invariant unobserved heterogeneity; time-variant household-level observables; and time-variant district-level observed and unobserved heterogeneity addresses the concerns regarding omitted unobserved heterogeneity that may jointly determine the dependent variables and intra-household control of income.

To further assess the robustness of our estimates to potential omitted variable bias (OVB), we rely on an approach developed by Oster (2016). Based on the assumption that observables and unobservables have the same explanatory power in explaining a given dependent variable, Oster demonstrates that the *controlled estimate*, i.e. the coefficient of interest from the model with the full set of observables, and the *bias-adjusted estimate*, i.e. the comparable coefficient after controlling for all observables as well as unobservables, can define the range that can be used to examine the robustness of the controlled estimate to OVB. The controlled estimate is deemed to be robust to OVB if the range is within the confidence interval of the controlled estimate. In computing the bias-adjusted estimate, the movements in the coefficients as well as the R-squared values are considered. Specifically, the bias-adjusted estimate, β^* , is calculated as:

$$(3) \beta^* = \beta^c - (\beta^{uc} - \beta^c) * \frac{R_{max} - R^c}{R^c - R^{uc}}$$

where β^c and R^c are the controlled estimate and the associated R-squared value, respectively; β^{uc} and R^{uc} are the coefficient estimate and the associated R-squared value, respectively, from the uncontrolled regression in which the variable subject to potential OVB is the only independent variable; and R_{max} is the unknown R-squared from a hypothetical regression that controls for all observables and unobservables. Oster suggests that $R_{max} = \min\{2.2R^c, 1\}$. On the one hand, the R^c values from our models lead $2.2R^c$ to be consistently greater than 1, suggesting the choice of R_{max} to be 1. On the other hand, Gonzalez and Miguel (2015) argue R_{max} of 1 or close to 1 to be on the higher side in poverty analyses tied to developing country settings, due to concerns around measurement error in money-metric welfare aggregates. Based on relatively high quality data from the United States, Gonzalez and Miguel (2015) recommend R_{max} values not to exceed 0.9. Following their recommendation, we choose an R_{max} of 0.89 in computing the bias-adjusted coefficient estimates in the vectors β and γ .

5. Results

The results from the estimations of Equation 1 are presented in Table 3. On the whole, the bias-adjusted coefficients associated with the variables on the intra-household income shares, per Oster (2016), point to qualitatively similar findings across the board.

We find that total gross income per capita is positively associated with being in the first tercile of female controlled income share in disjoint income. The coefficients associated with being in the second and third terciles of female controlled income shares are, however, not statistically significant, and total gross income per capita is in fact estimated, on average, to be lower in households where there is no income solely controlled by the husband.

Conversely, we show that total gross income per capita is positively correlated with the share of joint income in total income, except when total income is entirely jointly controlled. The coefficients for the first and third terciles of the share of joint income in total income are statistically significant at the 1 percent level.

Turning to the analyses of total, food and non-food household consumption expenditures per capita, we see that none of the coefficients for the variables capturing different levels of female controlled income shares are statistically significant.

Mirroring the findings emerging from the analysis of total gross income per capita, being in the first and second terciles of joint income share is associated with higher total and food expenditures per capita, and being in the second tercile of joint income share is also associated with higher non-food expenditures per capita.

The results from the estimation of Equation 2 are presented in Table 4. The variables associated with female controlled income shares do not have any statistically significant impact on any of the consumption shares. On the other hand, being in the first, second and third terciles of joint income share is associated with a higher share of household consumption devoted to public goods, defined as education, health, clothing, and furnishings. The coefficients associated with the first and second terciles of joint income share are statistically significant at the 5 percent level, while the coefficient for the third tercile is statistically significant at the 10 percent level.¹¹

¹¹ Although being in the first tercile of joint income share is negatively correlated with the share of consumption devoted to housing and utility expenditures, this result is likely related to the fact that housing consumption is measured for virtually all households as the opportunity cost of not renting out the dwelling owned by the household. In turn, this is highly correlated with the number of rooms in the house. These results then suggest that greater cooperation initially leads to fewer rooms per person, which has at least some intuitive appeal. Nonetheless, the limited ability to predict expenditure shares by bargaining power is consistent with the wider literature.

Taken together, our results suggest that promoting cooperation between spouses may have larger, statistically significant and positive impacts on household welfare outcomes compared to boosting wives' empowerment, as proxied by the share of female controlled income in disjoint income. Recalling the predictions of the theoretical model, we expect relatively larger gains from intra-household cooperation versus wives' empowerment where both spouses receive relatively high utility from household public goods, and where current norms limit the ability of husbands to exercise control over their wives' incomes.

Interestingly, Njuki et al. (2013) investigate women's empowerment in rural areas of 6 countries, and report findings that help put our findings into a broader context. The authors estimate that rural Malawian women are more empowered than their counterparts in the other five countries included in the study, both in terms of an overall empowerment index as well as most of the index sub-components. Even though only 23 percent of the sampled rural Malawian women are considered fully empowered, 72 percent reported being self-confident; 53 percent reported having held a leadership position; and strikingly, 64 percent reported having either sole or joint control over household income and expenditures. Additionally, only 6.8 percent of the sample reported that they supported the statement: "there are times when a woman deserves to be hit." This evidence suggests that the prevailing social norms and customs in Malawi could support women's income generation and limit husbands' ability to control that income.

Returning to the theoretical model, our results are also consistent with outcomes that arise when relaxing model assumptions. For instance, we assume that the wife suffers greater labor costs as her ability to control labor income is reduced. If this is not the case, then her labor supply would only be weakly increasing, as captured in the model of Heath and Tan (2016). Additionally, allowing for the husband to choose his labor supply could lead to insignificant impacts on total labor income, to the extent that husbands reduce their labor in response to increase in their wives' labor. While the IHPS labor data are quite rich, they are not sufficiently exhaustive to directly test for the impacts of control over income on days of labor supplied across the number of labor categories observed in the data set.

6. Concluding Comments

This paper began by reviewing the theoretical and empirical developments in the women's empowerment literature, and its influence on donor policy. Though Boserup was concerned with potential development pathways that could lead to both reduced women's welfare as well as inefficient production and slower development, the emphasis in donor policy as well as empirical research has been overwhelmingly on promoting and evaluating women's empowerment in the allocation of resources, with little attention to production inefficiencies and slower development. This emphasis makes sense for two reasons. First, the equitable access to resources inherent in the women's empowerment strategies is an important basic human right to support in and of itself.

Second, to the extent that women value household public goods such as children's health and education relatively more than men do, then we would expect women's empowerment to lead to faster economic growth in the future, as children are more educated, well-fed, and in better health.

Yet, the fact is that most households are comprised of members of more than one gender, particularly in rural areas. Cooperation within the household can lead to better household welfare outcomes for all members. Our theoretical model provides the conditions under which we expect to see greater gains from intra-household cooperation versus women's empowerment, while highlighting that the greatest gains are achieved when both cooperation and empowerment are achieved. Improving women's empowerment would yield the largest gains where social norms favor husbands' influence in the allocation of resources, and where husbands place limited value on household public goods. On the other hand, promoting cooperation would be relatively more effective when social norms support wives' control over income, and both place a relatively high value on household public goods. To test the model's predictions, we use a unique panel data set on married couples in rural Malawi, and find that cooperation between spouses, proxied by the share of jointly controlled income in total income, is a better predictor of total income and consumption expenditures per capita than wives' empowerment, proxied by the share of female income in total disjoint (male + female) income.

Supported also by cross-country qualitative research, our results suggest that household public goods are relatively important to both women and men in rural Malawi; that husbands' capacity to control wives' incomes is relatively limited; and that development programs that promote intra-household cooperation could lead to greater gains in income and household public goods provision compared to interventions focusing exclusively on women's empowerment. The evidence, therefore, offers support for the integration of intra-household cooperation in government and donor agendas, policies and projects. Theoretically, we expect that focusing on both empowerment and cooperation together would lead to the greatest gains; further empirical evidence would shed better light on such gains, particularly on the impacts of intra-household cooperation. Additionally, more evidence of the impact of empowerment on both wives' and husbands' labor supply would be key in determining likely impacts of various interventions on household public good supply and total income earned.

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Tables 2-4

Table 2: Sample Means & Tests of Mean & Distributional Difference by Survey Round

	2013	2010	Mean Difference	Distributional Difference (P-Value)
Outcomes				
Real Annual Household Total Consumption Expenditures Per Capita	139,932	142,220	-2,143	0.348
Real Annual Household Food Consumption Expenditures Per Capita	80,359	79,585	888	0.413
Real Annual Household Non-Food Consumption Expenditures Per Capita	60,619	62,995	-2,347	0.079
Real Annual Household Total Gross Income Per Capita	80,186	74,270	5,916	0.023
Consumption Shares				
Food	0.604	0.589	0.015***	0.001
Education/Health/Clothing/Furnishings	0.088	0.086	0.002	0.272
Housing/Utilities	0.175	0.210	-0.035***	0.000
Alcohol/Tobacco/Transport/Communication	0.088	0.072	0.016***	0.000
Recreation/Hotels & Restaurants/Miscellaneous	0.042	0.039	0.003***	0.239
Income Shares				
Share of Male Income in Disjoint Income	0.607	0.729	-0.122***	0.000
Share of Female Income in Disjoint Income	0.320	0.230	0.090***	0.000
Share of Joint Income in Total Income	0.357	0.237	0.120***	0.000
Male Disjoint Income				
Male Disjoint Income Share in Disjoint Income = 0 †	0.198	0.098	0.100***	0.000
Male Disjoint Income Share Conditional Tercile = 1 †	0.195	0.191	0.005	1.000
Male Disjoint Income Share Conditional Tercile = 2 †	0.183	0.174	0.009	1.000
Male Disjoint Income Share Conditional Tercile = 3 †	0.185	0.167	0.019	1.000
Male Disjoint Income Share in Disjoint Income = 1 †	0.239	0.371	-0.132***	0.000
Female Disjoint Income				
Female Disjoint Income Share in Disjoint Income = 0 †	0.312	0.412	-0.101***	0.000
Female Disjoint Income Share Conditional Tercile = 1 †	0.186	0.167	0.019	1.000
Female Disjoint Income Share Conditional Tercile = 2 †	0.184	0.174	0.010	1.000
Female Disjoint Income Share Conditional Tercile = 3 †	0.194	0.191	0.003	1.000
Female Disjoint Income Share in Disjoint Income = 1 †	0.125	0.057	0.068***	0.000
Joint Income				
Joint Income Share in Total Income = 0 †	0.219	0.369	-0.150***	0.000
Joint Income Share Conditional Tercile = 1 †	0.239	0.191	0.049***	0.348
Joint Income Share Conditional Tercile = 2 †	0.240	0.210	0.030**	0.328
Joint Income Share Conditional Tercile = 3 †	0.230	0.191	0.040**	0.348
Joint Income Share in Total Income = 1 †	0.071	0.040	0.032***	0.006
Time-Variant Control Variables				
Household Size	5.699	5.246	0.453***	0.000
Dependency Ratio	1.199	1.134	0.065***	0.009
Head of Household: # of Months Away Past 12 Months	0.401	0.175	0.225***	0.047
Head of Household is Chronically Ill †	0.089	0.058	0.032***	0.460
Spouse is Chronically Ill †	0.082	0.069	0.013	0.981
Household Highest Years of Education	8.921	8.556	0.370***	0.108
Land Holdings (Acres)	0.650	0.641	0.008	0.413
Wealth Index	0.243	0.223	0.021***	0.001
Observations			1,929	

Note: */**/** indicate statistical significance at the 10, 5 and 1 percent level, respectively. Sample is comprised of 1,929 couple households that were interviewed in 2010 and 2013 and that were residing in rural areas in both years. † indicates a dummy variable. P-values associated with distributional differences are derived from two-sample Kolmogorov-Smirnov equality of distributions tests.

Table 3: Results from Linear Panel Regression Results with Household Fixed Effects

	Total Consumption Expenditures Per Capita		Food Consumption Expenditures Per Capita		Non-Food Consumption Expenditures Per Capita		Total Gross Income Per Capita	
	Coefficient (Standard Error)	Bias-Adjusted Coefficient	Coefficient (Standard Error)	Bias-Adjusted Coefficient	Coefficient (Standard Error)	Bias-Adjusted Coefficient	Coefficient (Standard Error)	Bias-Adjusted Coefficient
<i>Disjoint Income</i>								
Female Disjoint Income Share in Disjoint Income = 0 †	--		--		--		--	
Female Disjoint Income Share Conditional Tercile = 1 †	0.033 (0.034)	0.034	0.056 (0.042)	0.064	0.000 (0.033)	-0.001	0.417*** (0.083)	0.408
Female Disjoint Income Share Conditional Tercile = 2 †	0.003 (0.026)	0.004	0.017 (0.033)	0.025	-0.007 (0.035)	-0.007	0.058 (0.073)	0.049
Female Disjoint Income Share Conditional Tercile = 3 †	-0.007 (0.030)	-0.008	-0.008 (0.041)	-0.005	-0.030 (0.037)	-0.033	0.008 (0.074)	0.018
Female Disjoint Income Share in Disjoint Income = 1 †	0.048 (0.041)	0.060	0.062 (0.054)	0.092	0.015 (0.046)	0.025	-0.511*** (0.114)	-0.446
<i>Joint Income</i>								
Joint Income Share in Total Income = 0 †	--		--		--		--	
Joint Income Share Conditional Tercile = 1 †	0.072*** (0.027)	0.071	0.091** (0.036)	0.093	0.032 (0.030)	0.029	0.450*** (0.081)	0.421
Joint Income Share Conditional Tercile = 2 †	0.095*** (0.034)	0.105	0.110*** (0.041)	0.133	0.070** (0.035)	0.078	0.103 (0.076)	0.174
Joint Income Share Conditional Tercile = 3 †	0.024 (0.029)	0.027	0.030 (0.036)	0.037	0.021 (0.035)	0.024	0.236*** (0.067)	0.292
Joint Income Share in Total Income = 1 †	0.031 (0.057)	0.039	0.070 (0.068)	0.092	-0.037 (0.063)	-0.030	-0.140 (0.151)	-0.086
<i>Time-Variant Household Attributes</i>								
Log Household Size	-0.736*** (0.058)		-0.732*** (0.071)		-0.729*** (0.069)		-0.868*** (0.156)	
Dependency Ratio	-0.008 (0.014)		0.005 (0.019)		-0.035* (0.019)		-0.030 (0.041)	
Head of Household: # of Months Away Past 12 Months	0.004 (0.007)		0.006 (0.008)		-0.002 (0.011)		-0.010 (0.024)	
Head of Household is Chronically Ill †	0.035 (0.035)		0.055 (0.045)		0.009 (0.046)		0.026 (0.161)	
Spouse is Chronically Ill †	0.086* (0.045)		0.083* (0.046)		0.067 (0.054)		-0.021 (0.122)	
Household Highest Years of Education	0.012** (0.006)		0.013* (0.007)		0.011 (0.008)		0.036** (0.017)	
Land Holdings (Acres)	0.070*** (0.023)		0.069** (0.029)		0.069*** (0.025)		0.101** (0.046)	
Wealth Index	1.319*** (0.139)		1.113*** (0.150)		1.750*** (0.185)		1.421*** (0.459)	
Year (2013) †	0.012 (0.065)		0.078 (0.068)		-0.120* (0.069)		-0.040 (0.109)	

Table 3 (Cont'd)

	Total Consumption Expenditures Per Capita	Food Consumption Expenditures Per Capita	Non-Food Consumption Expenditures Per Capita	Total Gross Income Per Capita
District-Year Fixed Effect Interactions Included?	YES	YES	YES	YES
Month of Interview Fixed Effects Included?	YES	YES	YES	YES
Observations	3,858	3,858	3,858	3,858
R2 (Within)	0.279	0.210	0.253	0.173
R2 (Between)	0.567	0.427	0.625	0.349
R2 (Overall)	0.510	0.367	0.558	0.282
Corr(u _i ,X _b)	0.155	-0.015	0.267	0.088
Fraction of Variance due to u _i	0.565	0.472	0.581	0.490

Note: Dependent variables are annualized, defined at the household-level, in 2015 Prices. ***/**** indicate statistical significance at the 10, 5 and 1 percent level, respectively. Constant, Household Fixed Effects, District-Year Fixed Effect Interactions, Month of Interview Fixed Effects included but not reported. Sample is comprised of 1,929 couple households that were interviewed in 2010 and 2013 and that were residing in rural areas in both years. † indicates a dummy variable.

Table 4: Results from Seemingly Unrelated Panel Regressions of Consumption Shares with Correlated Random Effects

	Food	Education/ Health/ Clothing/ Furnishings	Housing/ Utilities	Alcohol/ Tobacco/ Transport/ Communication	Recreation/ Hotels & Restaurants/ Miscellaneous
<i>Disjoint Income</i>					
Female Disjoint Income Share in Disjoint Income = 0 †	--	--	--	--	--
Female Disjoint Income Share Conditional Tercile = 1 †	0.009 (0.008)	-0.004 (0.004)	-0.007 (0.006)	0.001 (0.005)	0.004** (0.002)
Female Disjoint Income Share Conditional Tercile = 2 †	0.010 (0.008)	-0.003 (0.004)	-0.006 (0.006)	-0.001 (0.005)	0.002 (0.002)
Female Disjoint Income Share Conditional Tercile = 3 †	0.004 (0.009)	0.001 (0.004)	0.004 (0.006)	-0.006 (0.006)	0.001 (0.002)
Female Disjoint Income Share in Disjoint Income = 1 †	0.007 (0.011)	-0.006 (0.005)	0.003 (0.008)	-0.003 (0.007)	-0.002 (0.002)
<i>Joint Income</i>					
Joint Income Share in Total Income = 0 †	--	--	--	--	--
Joint Income Share Conditional Tercile = 1 †	0.006 (0.008)	0.007** (0.004)	-0.015*** (0.005)	0.004 (0.005)	0.000 (0.002)
Joint Income Share Conditional Tercile = 2 †	0.003 (0.008)	0.008** (0.004)	-0.005 (0.006)	-0.006 (0.005)	0.001 (0.002)
Joint Income Share Conditional Tercile = 3 †	-0.002 (0.008)	0.007* (0.004)	-0.010* (0.006)	0.003 (0.005)	0.001 (0.002)
Joint Income Share in Total Income = 1 †	0.009 (0.012)	-0.001 (0.006)	-0.004 (0.009)	-0.004 (0.008)	-0.003 (0.003)
<i>Time-Variant Household Attributes</i>					
Real Annual Household Total Consumption Expenditures	-0.000 (0.000)	-0.000 (0.000)	-0.000*** (0.000)	0.000*** (0.000)	-0.000*** (0.000)
Log Household Size	0.003 (0.016)	0.012 (0.008)	0.003 (0.011)	-0.011 (0.010)	-0.001 (0.003)
Dependency Ratio	0.007 (0.005)	-0.002 (0.002)	0.001 (0.003)	-0.005 (0.003)	-0.002 (0.001)
Head of Household: # of Months Away Past 12 Months	0.001 (0.002)	0.000 (0.001)	-0.001 (0.001)	0.000 (0.001)	-0.001 (0.000)
Head of Household is Chronically Ill †	0.003 (0.011)	0.004 (0.005)	0.005 (0.008)	-0.009 (0.007)	0.000 (0.002)

Table 4 (Cont'd)

	Food	Education/ Health/ Clothing/ Furnishings	Housing/ Utilities	Alcohol/ Tobacco/ Transport/ Communication	Recreation/ Hotels & Restaurants/ Miscellaneous
Spouse is Chronically Ill †	0.005 (0.011)	-0.004 (0.005)	-0.003 (0.008)	0.005 (0.007)	0.001 (0.002)
Household Highest Years of Education	-0.000 (0.002)	0.003*** (0.001)	-0.001 (0.001)	-0.001 (0.001)	0.001 (0.000)
Land Holdings (Acres)	-0.001 (0.006)	-0.001 (0.003)	-0.009** (0.004)	0.012*** (0.004)	0.002 (0.001)
Wealth Index	-0.113*** (0.035)	0.031* (0.017)	0.062** (0.025)	0.029 (0.022)	0.029*** (0.008)
Year (2013) †	0.056*** (0.017)	-0.002 (0.008)	-0.026** (0.012)	-0.007 (0.011)	-0.000 (0.004)
Over-Time Household-Specific Means of Covariates Included?	YES	YES	YES	YES	YES
District-Year Fixed Effect Interactions Included?	YES	YES	YES	YES	YES
Month of Interview Fixed Effects Included?	YES	YES	YES	YES	YES
Observations	3,858				

Note: ***/**/* indicate statistical significance at the 10, 5 and 1 percent level, respectively. Constant, Over-Time Household-Specific Means of All Covariates, District-Year Fixed Effect Interactions, Month of Interview Fixed Effects included but not reported. Sample is comprised of 1,929 couple households that were interviewed in 2010 and 2013 and that were residing in rural areas in both years. † indicates a dummy variable.

Appendix I - Solving for Wife's Labor, Private Consumption and Public Good Provision

The first-order conditions from maximizing over Equations 1 and 2 are as follows:

Wife:

$$\frac{\partial U_f}{\partial x_f} = \frac{a}{x_f} - \lambda_f c_{xf} = 0 \quad [\text{A1}]$$

$$\frac{\partial U_f}{\partial g_f} = \frac{b}{g_f} - \lambda_f c_g = 0 \quad [\text{A2}]$$

$$\frac{\partial U_f}{\partial L_f} = \delta \lambda_f w_f - \frac{r_f}{\delta} L_f = 0 \quad [\text{A3}]$$

$$\frac{\partial U_f}{\partial \lambda_f} = \delta w_f L_f - c_{xf} x_f - c_g g_f \quad [\text{A4}]$$

Setting [A1] equal to [A2] gives the following:

$$c_g g_f = \frac{b c_{xf} x_f}{a} \quad [\text{A5}]$$

From [A5], we solve for L_f ,

$$L_f = \frac{\delta^2 \lambda_f w_f}{r_f} \quad [\text{A6}]$$

Substituting [A5] and [A6] into [A4], and solving for g_f gives the following:

$$\frac{\delta^3 \lambda_f w_f^2}{r_f} - c_{xf} x_f - \left(\frac{b c_{xf} x_f}{a} \right) = 0, \text{ which after some manipulation, gives:}$$

$$x_f = \frac{a \delta^3 \lambda_f w_f^2}{r_f c_{xf} (a + b)} \quad [\text{A7}]$$

Substituting back into [A2], and re-arranging the terms gives:

$$g_f = \frac{b \delta^3 \lambda_f w_f^2}{r_f c_{xf} (a + b)} \quad [\text{A8}]$$

Next, by re-arranging [A1], we note that $x_f = \frac{a}{\lambda_f c_{xf}}$ and setting this equal to [A7] enables us to solve for λ_f , which after some manipulation can be written as:

$$\lambda_f = \frac{r_f^5 (a+b)^5}{\delta^{1.5} w_f} \quad [\text{A9}]$$

This results in the following consumption goods and labor supply for the wife:

$$x_f = \frac{a \delta^{1.5} w_f}{c_{xf} r_f^5 (a+b)^5} \quad [\text{A10}]$$

$$g_f = \frac{b \delta^{1.5} w_f}{c_{gf} r_f^5 (a+b)^5} \quad [\text{A11}]$$

$$L_f = \frac{\delta^5 (a+b)^5}{r_f^5} \quad [\text{A12}]$$

Appendix II – Computation of Intra-Household Income Shares

To derive sole-female, sole-male and joint income estimates, we start out by working separately in each income domain, namely crop, livestock, off-farm wage employment, on-farm wage employment, off-farm self-employment, transfer, and other income; follow the Rural Income Generating Activities (RIGA) methodology (Carletto et al., 2007) for generating cross-country comparable income aggregates from household survey data; and build on the existing do-files for the Malawi Third Integrated Household Survey (IHS3) 2010/11 income aggregate, which can be accessed through the RIGA website (<http://www.fao.org/economic/riga/riga-database/riga-request/en/>) free of charge.

Following the RIGA methodology permits us to create outlier-corrected sub-components of domain-specific income aggregates at the same level at which intra-household control-related information is solicited in the survey instrument. In other words, we know whether each unique source of income is controlled solely by females, solely by males, or jointly by females and males. With this information, and prior to aggregating constructed variables to compute household-level domain-specific income aggregates, we calculate the estimated share of income in each domain in each of the intra-household control-related categories of interest.

Following the creation of household-level domain-specific income aggregates that are further reviewed for outliers and possibly adjusted per RIGA methodology, we apply the estimated intra-household control shares to each domain-specific income aggregate to derive domain-specific sole-female, sole-male and joint income estimates. In the last step, we sum the sole-female, sole-male and joint income estimates across domains to compute their household-level sums, which are in turn used to create the share of joint income in total gross income that is used as a proxy for intra-household cooperation, and the share of female disjoint income in total disjoint gross income that is used as a proxy for wives' empowerment.

Table A1 provides an overview of constructed variables underlying domain-specific income aggregates and the survey questions used for the computation of intra-household income shares.

Table A1: Breakdown of Income Aggregate Components & Key Questionnaire Information for Intra-Household Income Share Calculations

Income Domain	Constructed Variable(s) Underlying Domain-Specific Income Aggregate	Reference Period(s)	Level of Observation for Constructed Variables, Prior to Household-Level Aggregation	Key Survey Question(s) for Female Disjoint, Male Disjoint and Joint Income Share Calculations	Notes
1 Crop	Season-Specific Value of Crop Sales	Reference Rainy Season (2009/10 Rainy Season in 2010 & 2012/13 Rainy Season in 2013)	Crop	<i>If the household sold any portion of a given crop:</i> 1. Who in your household kept/decided what to do with the earnings from [CROP]?	This question, as well as the specific question on earnings, are asked at the crop-level and for up to 3 sales outlets that a given crop could have been sold to. The question uniquely identifies up to 2 household members.]
		Reference Dry Season (2010 Dry Season in 2010 & 2013 Dry Season in 2013)			
	Season-Specific Imputed Value of Consumption of Own Production				
				<i>If the household did not sell a given crop during the reference season:</i> 2. Who in the household is listed on the title as owner of [PLOT]? 3. Who in this household owns [PLOT]?	This question is asked at the plot-level for plots that are reported to have a title, and uniquely identifies up to 2 household members. This information is used if a given household-crop record does not "control" related information per question 1. This question is asked at the plot-level for plots that do not have a title, and uniquely identifies up to 2 household members. This information is used if a given household-crop record does not "control" related information per question 1, and the associated household-plot record does not have information for question 2.
			4. Who in the household makes the decisions concerning crops to be planted, input use and the timing of cropping activities on [PLOT]?	This question is asked at the plot-level for all plots, and uniquely identifies up to 2 household members. This information is used if a given household-crop record does not "control" related information per question 1, and the associated household-plot record has information neither for question 2 nor for question 3.	
				To bring in plot-level information for questions 2 through 4, the household-plot-level data are merged first the household-plot-crop-level data on production, which are in turn merged with the household-crop-level data on sales and disposition that actually contain the information tied to question 1.	
2 Livestock	Annualized Value of Livestock Sales, Gifts and Births	Last 12 Months	Livestock Group (16 Categories)	Who in your household owns [LIVESTOCK]?	This question is asked at the livestock group-level, and uniquely identifies up to 2 household members.
3 Livestock	Annualized Value of Livestock Product Sales	Last 12 Months	Livestock Products (7 Categories)	<i>If the household sold any portion of a given product:</i> 1. Who in your household kept/decided what to do with earnings from [PRODUCT]?	This question is asked at the livestock product-level, and uniquely identifies up to 2 household members.
	Annualized Imputed Value of Consumption of Own Production				
4 Off-Farm Wage Employment	Annualized Payments for Wages/Salary - Main Wage Job	Last 12 Months	Individual	Who in the household controls/decides on the use of your salary payment?	This question is asked at the individual-level, separately for main wage and secondary wage job in the last 12 months, and uniquely identifies up to 2 household members.
	Annualized Payments for Wages/Salary - Secondary Wage Job				
5 Off-Farm Wage Employment	Annualized Payments In -Kind or Payment for Allowances/Gratuities - Main Wage Job	Last 12 Months	Individual	Who in the household controls/decides on the use of your allowances or gratuities?	This question is asked at the individual-level, separately for main wage and secondary wage job in the last 12 months, and uniquely identifies up to 2 household members.
	Annualized Payments In -Kind or Payment for Allowances/Gratuities - Secondary Wage Job				

Table A1 (Cont'd)

Income Domain	Constructed Variable(s) Underlying Domain-Specific Income Aggregate	Reference Period(s)	Level of Observation for Constructed Variables, Prior to Household-Level Aggregation	Key Survey Question(s) for Female Disjoint, Male Disjoint and Joint Income Share Calculations	Notes
6 On-Farm Wage Employment	Annualized Ganyu Earnings	Last 12 Months	Individual	Who in the household controls/decides on the use of your ganyu earnings?	This question is asked at the individual-level, and uniquely identifies up to 2 household members.
7 Off-Farm Self-Employment	Annualized Gross Enterprise Earnings	Last 12 Months	Enterprise	Who in the household owns [ENTERPRISE]?	This question is asked at the enterprise-level, and uniquely identifies up to 2 household members.
8 Transfer	Annualized Cash Remittances	Last 12 Months	Child Living Elsewhere	Who in the household kept/decided on the use of this income?	This question is asked at the child-level, and uniquely identifies up to 2 household members.
9 Transfer	Annualized Value of In-Kind Remittances	Last 12 Months	Child Living Elsewhere	Who in the household kept/decided on the use of this in-kind assistance?	This question is asked at the child-level, and uniquely identifies up to 2 household members.
10 Transfer	Annualized Cash Receipts	Last 12 Months	Cash Transfers/Gifts from Friends/Other Relatives (Single Category)	Who in the household kept/decided what to do with [SOURCE]?	This question is asked at the income source-level, and uniquely identifies up to 2 household members.
11 Transfer	Annualized Value of of Food Receipts	Last 12 Months	Food Transfers/Gifts from Friends/Other Relatives (Single Category)	Who in the household kept/decided what to do with [SOURCE]?	This question is asked at the income source-level, and uniquely identifies up to 2 household members.
12 Transfer	Annualized Value of of Non-Food In-Kind Receipts	Last 12 Months	Non-Food In-Kind Transfers/Gifts from Friends/Other Relatives (Single Category)	Who in the household kept/decided what to do with [SOURCE]?	This question is asked at the income source-level, and uniquely identifies up to 2 household members.
13 Transfer	Annualized Cash Receipts	Last 12 Months	Savings, Interest or Other Investment Income (Single Category)	Who in the household kept/decided what to do with [SOURCE]?	This question is asked at the income source-level, and uniquely identifies up to 2 household members.
14 Transfer	Annualized Cash Receipts	Last 12 Months	Pension Income (Single Category)	Who in the household kept/decided what to do with [SOURCE]?	This question is asked at the income source-level, and uniquely identifies up to 2 household members.
15 Other Income	Annualized Cash Receipts	Last 12 Months	Income from Non-Agricultural Land Rental (Single Category)	Who in the household kept/decided what to do with [SOURCE]?	This question is asked at the income source-level, and uniquely identifies up to 2 household members.
16 Other Income	Annualized Cash Receipts	Last 12 Months	Income from Apartment, House Rental (Single Category)	Who in the household kept/decided what to do with [SOURCE]?	This question is asked at the income source-level, and uniquely identifies up to 2 household members.
17 Other Income	Annualized Cash Receipts	Last 12 Months	Income from Shop, Store Rental (Single Category)	Who in the household kept/decided what to do with [SOURCE]?	This question is asked at the income source-level, and uniquely identifies up to 2 household members.
18 Other Income	Annualized Cash Receipts	Last 12 Months	Income from Car, Truck, Other Vehicle Rental (Exclusive of Enterprise Income) (Single Category)	Who in the household kept/decided what to do with [SOURCE]?	This question is asked at the income source-level, and uniquely identifies up to 2 household members.
19 Other Income	Annualized Cash Receipts	Last 12 Months	Income from Real Estate Sales	Who in the household kept/decided what to do with [SOURCE]?	This question is asked at the income source-level, and uniquely identifies up to 2 household members.
20 Other Income	Annualized Cash Receipts	Last 12 Months	Household Non-Agricultural Asset Sales (Single Category)	Who in the household kept/decided what to do with [SOURCE]?	This question is asked at the income source-level, and uniquely identifies up to 2 household members.
21 Other Income	Annualized Cash Receipts	Last 12 Months	Household Agricultural/Fishing Asset Sales (Single Category)	Who in the household kept/decided what to do with [SOURCE]?	This question is asked at the income source-level, and uniquely identifies up to 2 household members.
22 Other Income	Annualized Cash Receipts	Last 12 Months	Inheritance (Single Category)	Who in the household kept/decided what to do with [SOURCE]?	This question is asked at the income source-level, and uniquely identifies up to 2 household members.
23 Other Income	Annualized Cash Receipts	Last 12 Months	Lottery/Gambling Winnings (Single Category)	Who in the household kept/decided what to do with [SOURCE]?	This question is asked at the income source-level, and uniquely identifies up to 2 household members.
24 Other Income	Annualized Cash Receipts	Last 12 Months	Other Income (Single Category)	Who in the household kept/decided what to do with [SOURCE]?	This question is asked at the income source-level, and uniquely identifies up to 2 household members.
25 Transfer	Annualized Cash Value	Last 12 Months	Free Maize (Single Category)	Who in your household controls/decides on the use of assistance from [PROGRAM]?	This question is asked at the social safety net/program-level, and uniquely identifies up to 2 household members.
26 Transfer	Annualized Cash Value	Last 12 Months	Free Food (Other than Maize) (Single Category)	Who in your household controls/decides on the use of assistance from [PROGRAM]?	This question is asked at the social safety net/program-level, and uniquely identifies up to 2 household members.
27 Transfer	Annualized Cash Value/Receipts	Last 12 Months	Food/Cash-for-Work Programme (Single Category)	Who in your household controls/decides on the use of assistance from [PROGRAM]?	This question is asked at the social safety net/program-level, and uniquely identifies up to 2 household members.
28 Transfer	Annualized Cash Value	Last 12 Months	Inputs-For-Work Programme (Single Category)	Who in your household controls/decides on the use of assistance from [PROGRAM]?	This question is asked at the social safety net/program-level, and uniquely identifies up to 2 household members.
29 Transfer	Annualized Cash Value	Last 12 Months	School Feeding Programme (Single Category)	Which household members received this assistance in this last 12 months?	This question is asked at the social safety net/program-level, and uniquely identifies up to 2 household members.
30 Transfer	Annualized Cash Value	Last 12 Months	Free Distribution of Likuni Phala to Children and Mothers (Single Category)	Which household members received this assistance in this last 12 months?	This question is asked at the social safety net/program-level, and uniquely identifies up to 2 household members.
31 Transfer	Annualized Cash Value	Last 12 Months	Supplementary Feeding for Malnourished Children (Single Category)	Which household members received this assistance in this last 12 months?	This question is asked at the social safety net/program-level, and uniquely identifies up to 2 household members.

Table A1 (Cont'd)

Income Domain	Constructed Variable(s) Underlying Domain-Specific Income Aggregate	Reference Period(s)	Level of Observation for Constructed Variables, Prior to Household-Level Aggregation	Key Survey Question(s) for Female Disjoint, Male Disjoint and Joint Income Share Calculations	Notes
32 Transfer	Annualized Cash Receipts	Last 12 Months	Scholarships/Bursaries for Secondary Education (Single Category)	Which household members received this assistance in this last 12 months?	This question is asked at the social safety net/program-level, and uniquely identifies up to 2 household members.
33 Transfer	Annualized Cash Receipts	Last 12 Months	Scholarships for Tertiary Education (Single Category)	Which household members received this assistance in this last 12 months?	This question is asked at the social safety net/program-level, and uniquely identifies up to 2 household members.
34 Transfer	Annualized Cash Receipts	Last 12 Months	Tertiary Loan Scheme (Single Category)	Which household members received this assistance in this last 12 months?	This question is asked at the social safety net/program-level, and uniquely identifies up to 2 household members.
35 Transfer	Annualized Cash Receipts	Last 12 Months	Aggregate Category of Direct Cash Transfers from Government	Who in your household controls/decides on the use of assistance from [PROGRAM]?	This question is asked at the social safety net/program-level, and uniquely identifies up to 2 household members.
36 Transfer	Annualized Cash Receipts	Last 12 Months	Direct Cash Transfers from others (Development Partners, NGOs) (Single Category)	Who in your household controls/decides on the use of assistance from [PROGRAM]?	This question is asked at the social safety net/program-level, and uniquely identifies up to 2 household members.
37 Transfer	Annualized Cash Receipts	Last 12 Months	Other Social Assistance (Single Category)	Who in your household controls/decides on the use of assistance from [PROGRAM]?	This question is asked at the social safety net/program-level, and uniquely identifies up to 2 household members.